



Eleventh Five Year Plan 2007-12

VOLUME I

# Eleventh Five Year Plan 2007-12

VOLUME I

INCLUSIVE GROWTH



Planning Commission  
Government of India

# Eleventh Five Year Plan (2007–2012)

Inclusive Growth

Volume I



सत्यमेव जयते

Planning Commission  
Government of India

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## Foreword

India's commitment to planned economic development is a reflection of our society's determination to improve the economic conditions of our people and an affirmation of the role of the government in bringing about this outcome through a variety of social, economic, and institutional means. The Eleventh Five Year Plan, which was approved by the National Development Council on 19 December 2007 reaffirms this commitment. It provides a comprehensive strategy for inclusive development, building on the growing strength of the economy, while also addressing weaknesses that have surfaced.

The strength of the economy is evident from the remarkable transition to a high growth path, which has been achieved in recent years. The Tenth Plan period (2002–03 to 2006–07) began modestly, but then saw the economy accelerating steadily to achieve an average growth rate of 7.7%, for the Plan period as a whole, which is the highest ever achieved in any Plan period. In the last four years the growth rate has averaged 8.9% making India one of the fastest growing economies in the world.

The transition to high growth is an impressive achievement, but we must not forget that growth is not the only measure of development. Our ultimate objective is to achieve broad based improvement in the living standards of all our people. Rapid growth is essential for this outcome because it provides the basis for expanding incomes and employment and also provides the resources needed to finance programmes for social uplift. However, it is not by itself sufficient. We also need to ensure that growth is widely spread so that its benefits, in terms of

income and employment, are adequately shared by the poor and weaker sections of our society, especially the Scheduled Castes (SCs) and the Scheduled Tribes (STs), Other Backward Classes (OBCs) and minorities. For this to happen, the growth must be inclusive in the broadest sense. It must occur not just in our major cities but also in our villages and small towns. It must be spread across all states and not just limited to some. It must generate sufficient volumes of high quality employment to provide the means for uplift of large numbers of our population from the low income low quality occupations in which too many of them have been traditionally locked.

The Eleventh Plan addresses itself to the challenge of making growth both faster and more inclusive. The rapid growth achieved in the past several years demonstrates that we have learnt how to bring about growth, but we have yet to achieve comparable success in inclusiveness. Poverty, whether we look at it narrowly in terms of the population below consumption based poverty line or more broadly in terms of population without access to essential services, is definitely declining but the pace of decline is slower than it should be. Our people have a right to expect that the evidently increased economic capabilities of our economy are translated into accelerating progress in these dimensions also. The Eleventh Plan aims at achieving a radical transformation in this aspect of our development. It sets a target for 9% growth in the five year period 2007–08 to 2011–12 with acceleration during the period to reach 10% by the end of the Plan. It also identifies 26 other measurable indices of performance relating to poverty, education, health, women and children,

infrastructure, and environment and sets monitorable targets in each of these.

Planning in a market economy which is becoming increasingly integrated with the world is bound to be different from what it used to be in earlier years. Much of what used to be done by governments, including especially the establishment of production units producing manufactured goods and commercial services, is now being done by the private sector. India is blessed in having a long tradition of private entrepreneurship and the private sector has responded magnificently to the new opportunities opened up by economic reforms. However, this does not mean that the role of the government must shrink. On the contrary, the government must play a much larger role in some areas even while shifting out of others.

The Eleventh Plan outlines the new priorities for the public sector. These relate to reviving dynamism in agriculture and building the necessary supportive infrastructure in rural areas, expanding access to health and education, especially in rural areas, undertaking programmes for improving living conditions for the weaker sections and for improving their access to economic opportunity. It also includes a major thrust for infrastructure development in general, which is a critical constraint on our development.

Improved performance in agriculture is necessary if our growth is to be inclusive. The Eleventh Plan adopts a multi-pronged approach towards this end. It provides for a major expansion in the programmes for irrigation and water management. The Rashtriya Krishi Vikas Yojana (RKVY) has been launched to assist the States in development and implementation of district level agricultural plans, based on local agro-climatic conditions. As a step towards food security, which has assumed special relevance in view of recent international developments, the National Food Security Mission aims at increasing cereal and pulses production by 20 million tons over a five year period.

There is a massive thrust in the Eleventh Plan on access to education and health, which are critical to social and economic empowerment of the people. In education, the Plan will spend more than double of what was spent in the Tenth Plan, as a proportion of the total budgetary support to Central Ministries. We have made good progress in providing access to primary education but there are quality issues that need to be addressed. We must also expand access to secondary education in the Eleventh Plan. In higher education, the Plan will work towards increasing enrolment rates from 11 to 21 percent over a

ten year period. This will require a massive expansion in our university system. There will also be emphasis on creating competitive, world class institutions of higher learning. The National Skill Development Mission will help in meeting the demands for skills in our growing economy as well as in generating high quality employment. Both in higher education and skill development, the private sector will be encouraged to augment the government's efforts appropriately. Given the special focus on education in the Eleventh Plan, I have no hesitation in calling this Plan a 'National Education Plan'.

In health, the Plan aims at providing improved broad based health care in rural areas through the National Rural Health Mission. The Rashtriya Swasthya Bima Yojana will provide the much needed insurance cover against illness to the population below the poverty line. Our initiatives in implementing a nationwide mid-day meals scheme in schools and improving the implementation of the ICDS will also improve the health and nutrition status of our children.

Availability of affordable energy is critical for our growth. With international oil prices rising sharply over the last couple of years, and coal prices more recently, our efforts towards energy security have acquired urgency. The Eleventh Plan will work towards policies for various energy sectors that are consistent with the optimal use of the different sources of energy. The Plan emphasizes the need for energy conservation, increasing energy efficiency, and development of renewable sources of energy. Rational pricing of energy is necessary for a number of reasons and this requires transmission of permanent changes in prices to consumers while at the same time protecting the vulnerable sections of the society through appropriate interventions. These are challenges that we will have to overcome for achieving the targets and objectives of the Plan.

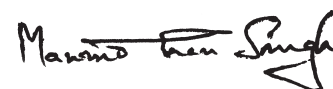
The very first year of the Eleventh Plan has seen a resurgence of inflation in the last quarter mainly due to the steep rise in international prices of oil and food-grains. Though these supply side factors are largely beyond our control, we have launched a determined effort to moderate the inflationary trend while simultaneously insulating the poor to the extent possible through targeted food and energy subsidies. These efforts will continue and I am confident that we can bring inflation under control in a manner which does not hurt the longer term growth prospects of the economy. This poses a major challenge for short term macroeconomic policies in the coming months.

An important aspect of the Eleventh Plan is that most of the public sector programmes are in areas that are normally in the domain of State Governments and where implementation depends upon the active involvement of local level bodies including the Panchayati Raj Institutions. More than any other Plan, the Eleventh Plan places a much greater reliance upon the involvement of the Panchayati Raj Institutions.

The higher rate of growth that we have set out for ourselves, coupled with our thrust on the growth process being inclusive, should ensure that the struggle for the

removal of chronic poverty, ignorance, and disease will register major gains in the Eleventh Plan. I am confident that the Eleventh Plan will achieve its targets and objectives despite the challenges we face. This would be a major step in realizing our vision of a prosperous, inclusive, happy, and caring India where all citizens reap the benefits of economic development and feel empowered.

I congratulate the Deputy Chairman, Planning Commission and his team for putting together an excellent Plan. I also thank all those from whose advice we have benefitted in the formulation of the Plan.



(Manmohan Singh)

New Delhi  
25 June 2008



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## Preface

The Eleventh Plan began in very favourable circumstances with the economy having grown at the rate of 7.7% per year in the Tenth Plan period. However, far too many of our people still lack the basic requirements for a decent living in terms of nutrition standards, access to education and basic health, and also to other public services such as water supply and sewerage. Disadvantaged groups, especially the Scheduled Castes and Scheduled Tribes and the minorities have benefited less than they should have. Regional imbalances have emerged across and even within states.

The Eleventh Plan seeks to remedy these deficiencies by seeking to accelerate the pace of growth while also making it more inclusive. The growth objective is to achieve an average growth rate of 9% per annum for the Plan period. The objective of inclusiveness is reflected in the adoption of 26 other monitorable targets at the national level relating to (i) income and poverty, (ii) education, (iii) health, (iv) women and children, (v) infrastructure, and (vi) environment. Some of these national targets have also been disaggregated into 13 state level targets and it is expected that the state governments design policies and programmes to achieve them.

### THE MACROECONOMIC PERSPECTIVE

The macroeconomic requirements for 9% growth are challenging but not impossible. The average investment rate must rise from 32% in the Tenth Plan to around 37% in the Eleventh Plan period, reaching 39% at the end of the period. This increase is entirely feasible. Private investment, which has been buoyant in the Tenth Plan, is expected to provide the bulk of the increased investment accounting for 78% of the total, about the same as in the

Tenth Plan. The share of public investment in total investment has been declining over successive Plan periods from 34.7% in the Eighth Plan to 29% in the Ninth Plan and 22% in the Tenth Plan. In the Eleventh Plan its share is expected to stabilize at the level in the Tenth Plan implying that the volume of public investment must increase in line with private investment. This is necessary if we are to achieve the expansion in social sector investment and in infrastructure which is necessary for ensuring faster and more inclusive growth.

These rates of investment will be supported by a buoyant domestic savings rate of 34.8% and a relatively manageable current account deficit of around 2% of GDP. The household sector is the main contributor to the domestic savings, but the public sector is also expected to contribute positively to savings reflecting a significant turnaround compared with past experience. The projected current account deficit could easily be higher because of the likely continuance of high oil prices but even so, it should remain sustainable given the likely availability of foreign inflows.

The strategy for achieving faster growth with greater inclusiveness involves several interrelated components. These are: (i) a continuation of the policies of economic reform which have created a buoyant and competitive private sector capable of benefiting from the opportunities provided by greater integration with the world, (ii) a revival in agricultural growth which is the most important single factor affecting rural prosperity, (iii) improved access to essential services in health and education (including skill development) especially for the poor, which is essential to ensure inclusiveness and also to support rapid growth, (iv) a special thrust on infrastructure development which



is a critical area for accelerating growth, (v) environmental sustainability which is becoming increasingly important, (vi) special attention to the needs of disadvantaged groups, and (vii) good governance at all levels, Central, state, and local.

As in most market economies, the dominant impulse for growth will come from the private sector. India is fortunate in having a strong private sector capability ranging from agriculture, which is entirely dependent on private farmers, most of whom have modest land holdings, through small and medium entrepreneurs in industry and services to larger domestic corporate entities, many of which benefit from FDI to varying degrees. The Eleventh Plan must ensure a policy environment that is supportive of this vibrant and globalized private sector which has an important contribution to make in India's future development.

Emphasizing the importance of the private sector is not to downplay the role of the government. On the contrary, apart from the usual role of government in providing a stable macroeconomic policy, the Eleventh Plan envisages a very large role for public policy in a number of sectors.

#### AGRICULTURE AND RURAL DEVELOPMENT

One of the most disappointing features of the Ninth Plan was the deceleration in agricultural growth which set in after the mid 1990s with GDP in agriculture growing at only around 2% per annum after growing at 3.6% per annum between 1980 and 1996. Reversing this deceleration to achieve a growth target of 4% per annum in agricultural GDP is a key element of the Eleventh Plan strategy for inclusive growth.

In the medium term, the focus has to be on improving yields with existing technology and there is considerable scope for doing so because yields obtained in the field in large parts of the country are much lower than what is achievable with existing technology, provided cultivation practices are improved and critical inputs made available. Timely availability of water is the most critical element in raising yields and the Plan therefore emphasizes expansion of irrigation where possible and also improvement of existing irrigation systems. Where irrigation is not possible—and this covers 60% of the land area—the solution lies in improving management of water resources through watershed development, covering rain water harvesting in farm ponds and tanks, and methods of ground water recharge. A major expansion in the Accelerated Irrigation Benefit Programme and a

renewed thrust at watershed development has been planned. The National Rainfed Area Authority, which was established in 2006 and is now fully operational, is expected to help converge different programmes in rainfed areas to achieve better water management in rainfed areas.

On the output side, it is necessary to emphasize measures to ensure food security while also diversifying into non-foodgrain crops and promoting animal husbandry and fishery. The new National Food Security Mission, aims at increasing cereal and pulses production by 20 million tonnes by concentrating on those areas which have the greatest potential for increase in yields with given technology. The National Horticulture Mission which provides support for diversification has been expanded. A new Rashtriya Krishi Vikas Yojana (RKVY), has been introduced which provides additional financial resource to state governments to finance agriculture development programmes emerging from district level agricultural plans which take into account district specific agro-climatic constraints.

The strategy can be aided by the National Rural Employment Guarantee (NREG) Act which has put in place a historic rights-based employment guarantee which provides income support to the weaker sections of rural society. It can also serve the larger objective of enhancing agricultural productivity because the first priority under NREG is being given to projects aimed at water conservation. Effective convergence of resources available under NREG, with a large strategy for water management, will be crucial.

#### EDUCATION AND SKILL DEVELOPMENT

An educated labour force is critical for achieving faster growth and education is also the key to ensuring greater inclusivity. The Eleventh Plan will build on ongoing efforts to strengthen elementary education. The infrastructure for primary schools has been almost completed under the Sarva Siksha Abhiyan and it is now necessary to focus our efforts on issues of quality and the expansion of infrastructure for secondary education. This involves upgradation of upper primary schools to secondary schools, expansion of intake capacity in existing secondary schools, and establishment of high quality model schools to serve as examples of excellence in secondary schooling. The quality of education in public schools suffers from a variety of problems including widespread teacher absenteeism, inadequate teacher training, outdated pedagogy, and insufficient accountability. These problems need to be addressed urgently by state governments and

by the PRIs if we are to provide equality of opportunity for our weaker sections especially in the rural areas.

Higher education will be a key driver in an increasingly globalized and knowledge-driven world and we need to increase the enrolment rate in higher education from around 11% at present to 21% over a ten annum period. This will require a massive expansion in the university system which must be combined with efforts to create competitive world class institutions of higher education. Given the scarcity of resources, private sector initiatives in higher education and various forms of public-private partnerships (PPPs) must be encouraged.

Apart from formal education, there is need to expand the skill capabilities in the labour force as a precondition for embarking on a labour intensive growth process. At present, only 20% of those entering the workforce get some kind of formal training. This proportion must be greatly increased. The Plan proposes a National Skill Development Mission to expand and restructure the public sector skill development efforts and also to support private skill development initiatives in several high growth sectors of the economy.

## HEALTH AND NUTRITION

We have made progress in several areas related to health as evidenced by the success in eliminating or controlling diseases such as small pox, leprosy, polio, and TB, all of which is reflected in the steadily rising life expectancy of the population. However, there are other indicators which highlight serious problems in certain critical areas. High levels of malnutrition continue to affect a large part of our child population, limiting their learning capacity and influencing morbidity and mortality ratios in the country. Our maternal mortality rates and infant mortality rates are far too high. The incidence of anaemia among women and children is at unacceptable levels. Far too large a proportion of the population, especially in rural areas, lacks access to affordable health care.

These problems need to be addressed by multiple interventions, many of which range beyond curative health care. These include dietary improvement, nutrition supplementation for children, better child care practices, access to safe drinking water, improved sanitation, and immunization. However, these efforts must be accompanied by a much better system of affordable curative health care which is lacking at present. The National Rural Health Mission is an important step in providing broad based improvement in health care for the rural population. The Rashtriya Swasthya Bima Yojana is a new and important

innovation providing the population below the poverty line with an insurance policy covering hospital treatment for a defined set of conditions with the government meeting the premium. The policy allows the patient to choose from multiple service suppliers including private hospitals who join the system.

## INFRASTRUCTURE DEVELOPMENT

Poor quality of infrastructure seriously limits India's growth potential in the medium term and the Eleventh Plan outlines a comprehensive strategy for development of both rural and urban infrastructure, defined to include electric power, roads, railways, ports, airports, telecommunications, irrigation, drinking water, sanitation, storage, and warehousing. The total investment in these areas was around 5% of GDP in 2006-07 and the Plan aims at increasing this to about 9% of GDP by the terminal annum 2011-12.

Since various social sector and livelihood support programmes for the poor will have the first charge on public resources, the strategy for infrastructure development has been designed to rely as much as possible on private sector investment through various forms of PPPs. The Plan recognizes that the scope for private participation in infrastructure development in several areas is limited and the infrastructure requirement of these areas therefore, has to be met through public investment. However, it is therefore all the more necessary that the fullest possible use must be made of opportunities to attract private sector investment wherever this is feasible. Both the Centre and the states have seen varying degrees of success in attracting private investment in areas such as power generation, telecommunications, roads, railways, airports, and ports, though much more needs to be done.

The Central Government has sought to evolve policies for private sector participation which are transparent and where the responsibilities of the private concessionaire are clearly defined. Where the nature of the investment involves an element of monopoly rather than free entry by competing suppliers, the choice of concessionaire must be determined by an open competitive bidding process and standards of service should be clearly set and monitored by an independent regulatory authority. The key to successful PPP is that the public must perceive that PPP has added value in terms of the scale of services and also quality and cost.

Special attention is being paid to the Bharat Nirman programme which focuses on the provision of key elements of rural infrastructure such as irrigation, rural

electrification, rural roads, rural drinking water supply and sanitation, housing for the poor, and rural connectivity via community IT service centres.

### Urban Infrastructure

The rate of urbanization in India has been relatively slow so far, but faster growth is likely to change this in future leading to a faster pace of urbanization in the years ahead. Urbanization is a natural outcome of the process of development and we must gear up to the challenge to meet the need for providing infrastructure and utilities in the cities. It will be necessary to upgrade the quality of infrastructure in existing cities to provide improved municipal services and also to develop new cities and suburban townships in the vicinity of existing cities as satellites/counter magnets to redistribute the influx of population.

Urban infrastructure is expensive to construct and, the financial condition of most of our cities is such that they will not be able to finance the scale of investment for quite some time. Accordingly, the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) seeks to provide Central assistance for urban infrastructure development linked to a process of reforms at the city and urban local body level which would make these bodies more financially viable, and ultimately capable of financing the investment we need in urban areas. The JNNURM has got off to a good start, but close monitoring will be necessary in the Eleventh Plan to ensure successful implementation of individual projects and also the larger reforms agenda.

### ENERGY

As in other developing countries, our ability to sustain rapid growth will depend critically upon the availability or affordability of energy. The Eleventh Plan faces special challenges in this area since the start of the Plan coincides with a period of sharp increase in the world prices of petroleum products and a growing concern about the need to increase energy efficiency, both to economize on costs and also to reduce carbon emissions, as much as possible. These challenges must be met in a manner which does not come in the way of our objective of achieving faster and more inclusive growth. It will be essential to ensure efficient functioning of the major energy sectors to maximize domestic production of energy and also to import additional energy as needed. Energy pricing has a critical role to play in this context.

It will be necessary to evolve appropriate policies for the major energy producing sectors—electricity, coal, oil and gas, and various forms of renewable energy—which

are consistent with optimal use of all these energy sources. The Eleventh Plan outlines a broad approach based on the Integrated Energy Policy formulated earlier by the Planning Commission. The sharp increase in international oil prices and also in coal prices poses a major challenge. While large price increases cannot be suddenly transmitted to the economy in one go, artificially suppressing energy prices cannot be a viable solution for an energy deficit economy. It comes in the way of expanding domestic supply, promoting energy conservation and demand management, and also encouraging growth of alternative energy sources. A gradual transmission of permanent changes in these prices is both possible and necessary and can be combined with protecting the most vulnerable sections of the community from sharp price changes.

The compulsions of moving to a rational energy policy are underlined by the emerging threat of climate change which presents special challenges over the longer term. The burden for reducing energy emissions must fall largely on the industrialized countries, which have contributed the most in creating the problem in the past and which today have much higher levels of per capita emissions than India. However, we also need to play our part in containing the growth of our per capita emissions to sustainable levels.

### THE ROLE OF GOVERNMENT

As pointed out earlier, the strategy for delivering faster and more inclusive growth will require an expansion in the role of government in several areas. The Eleventh Plan envisages an expansion in the size of the Plan (Centre plus states) from 9.46% of GDP in the Tenth Plan to 13.54% of GDP in the Eleventh Plan. Part of this increase will come from expanded budgetary support from the Plan and the rest from the internal and extra budgetary reserves of the public sector at the Central Government and the state government levels.

The increase in budget resources depends critically upon the ability of both the Centre and the states to maintain the high growth in tax revenues observed in recent years. This will depend to some extent upon the pace of growth since rapid growth will produce buoyant revenues, but it will also depend significantly upon the continuation and deepening of tax reforms. The strategy of simplifying the tax structure and streamlining tax administration has generated better compliance in both the Centre and the states which is reflected in the rising share of taxes in GDP. This trend must be made to continue. Another important element in mobilizing resources for public investment is the ability to contain

subsidies and use the resources thus saved to undertake much needed public investment. A comprehensive revision of subsidies in the system, including hidden subsidies of one type or another, with a view to rationalizing them to retain only those aimed at the truly vulnerable, is needed. The present subsidies on petroleum products are particularly relevant in this context.

A second aspect of the changed role of government in the Eleventh Plan is that the public sector will increasingly concentrate in areas that lie in the domain of the state governments, and within the states in the domain of panchayati raj institutions. This is especially true of elementary education, health, rural drinking water, rural sanitation, child nutrition, housing for the poor, the national employment guarantee, and schemes for watershed management. Programmes in these areas are implemented at the local level and often depend critically upon local level authorities and the system of governance and accountability should therefore be at the local level. The 93rd and 94th Amendments to the constitution were landmark steps in empowering the Panchayats and urban local bodies and to give full effect to these amendments it is necessary to transfer functions, functionaries, and funds to the PRIs. While the functions to be transferred have been clearly identified, the actual progress made in transferring the functionaries and funds remain limited. It is also necessary to build capacity at the local level. NGOs can play an important role in building capacity or in encouraging empowerment or participation or ways should be found of engaging the NGO community more actively in local level programmes.

## THE EXTERNAL ENVIRONMENT

Work on the Eleventh Plan began in 2006 and the Plan was finally approved by the NDC in December 2007. During this period, there were significant developments in the world economy, the implications of which are not easy to quantify at this point. Oil prices increased very sharply in 2006 and this continued through 2007. Although there was uncertainty initially about whether they would return to more normal levels, the assessment today is that high oil prices are likely to continue, and

indeed further increases cannot be ruled out. There has also been a massive increase in world prices of foodgrains and edible oils reflecting a variety of factors, some short term such as drought and low production in some of the major producing countries, and others long term such as the shift of land from foodgrains production to the production of biofuel crops, reflecting policies of industrialized countries on incentivizing such a shift. There has also been a sharp rise in prices of metals and mineral ores in world markets.

As price pressures have built up in world markets, the world economy also gives signs of entering a cyclical downturn led by a sharp slowdown in the United States. The extent and duration of this cyclical downturn remains uncertain, but it will clearly have some effect on the underlying growth potential of emerging market economies. The Indian economy is less dependent on global demand than many East Asian countries and therefore the impact of a global slowdown on India will be less than for others, but we are also much more integrated than in the past and we should therefore expect that just as we benefit from global prosperity in the upswing we will be affected by the downswing, although less than others.

These developments present formidable challenges as we implement the Eleventh Plan. The Plan is formulated on the assumption that it should be possible for the economy to meet these challenges while still achieving the medium term growth objective of 9% inclusive growth. The objective may have become more difficult, but it is still manageable, provided suitable policies, some of which are not easy to implement, are put in place.

The Tenth Plan marked a historic breakthrough on the aggregate GDP growth front. The challenge before the Eleventh Plan is to improve upon this growth performance and also ensure greater sustainability and inclusiveness so that the development process being unleashed has the widest possible spread of benefits. In the search for inclusion, the Plan pays special attention to the needs of the weaker sections including the Scheduled Castes, Scheduled Tribes, OBCs, and minorities. The objectives of the Plan cannot have meaning if they are not translated into a visible flow of benefits to these groups.



(Montek Singh Ahluwalia)  
Deputy Chairman



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## Acronyms

ACA	Additional Central Assistance	CBWTF	Common Bio-medical Waste Treatment Facilities
ADIP	Assistance to Disabled Persons for Purchase/Fitting of Aids/Appliances	CCPD	Chief Commissioner for Persons with Disabilities
AHWR	Advanced Heavy Water Reactor	CDB	Core Database
AIBP	Accelerated Irrigation Benefit Programme	CCI	Competition Commission of India
AICTE	All India Council for Technical Education	CDC	Consultancy Development Centre
AICOPTAX	All India Coordinated Project on Taxonomy	CDM	Clean Development Mechanism
APDRP	Accelerated Power Development and Reform Programme	CDS	'Current Daily Status' Basis
APSARA	Assessment of Passive System Reliability	CETP	Common Effluent Treatment Plant
APTA	Asia-Pacific Trade Agreement	CFC	Certified Filing Centre
AR4	Fourth Assessment Report	CHC	Community Health Centre
ARC	Administrative Reforms Commission	CIN	Corporate Identity Number
ASHA	Accredited Social Health Activist	CO <sub>2</sub>	Committee of Secretaries
ATI	Advanced Training Institute	COS	Central Pollution Control Board
		CPCB	Central Public Sector Enterprise
BADP	Border Areas Development Programme	CPSE	Central Public Sector Units
BCR	Balance from Current Revenues	CPSU	Common Service Centre
BOD	Biochemical Oxygen Demand	CSC	Council of Scientific and Industrial Research
BPL	Below Poverty Line	CSIR	Civil Society Organization
BPO	Business Process Outsourcing	CSO	Centrally Sponsored Schemes
BRGF	Backward Regions Grants Fund	CSS	Central Standing Tripartite Committee
BSI	Botanical Survey of India	CSTC	Current Weekly Status
BTX	Benzene, Toluence, and Xylene	CWS	
CAAPs	Clean Air Action Plans	DAE	Department of Atomic Energy
CAD	Computer Aided Design	DBT	Department of Biotechnology
CADP	Command Area Development Programme	DDP	District Domestic Product
CAM	Computer Aided Manufacturing	DEM	Digital Elevation Map
CAPART	Council for Advancement of People's Action and Rural Technology	DGCA	Director General Civil Aviation
		DIN	Director Identification Number
CBO	Community-based Organization	DIT	Department of Information Technology

DLCP	Dal Lake Conservation Project	HDI	Human Development Index
DMS	Data Management System	HDR	Human Development Reports
DO	Dissolved Oxygen	HLC	High Level Committee
DoNER	(Ministry of) Development of North Eastern Region	HPI	Human Poverty Index
DoS	Department of Space	HRD	Human Resources Development
DPC	District Planning Committees	IAY	Indira Awaas Yojana
DRM	Disaster Risk Mitigation	ICAR	Indian Council of Agricultural Research
DSIR	Department of Scientific and Industrial Research	ICDS	Integrated Child Development Scheme
DST	Department of Science and Technology	ICFRE	Indian Council of Forestry Research and Education
EAP	Externally Aided Projects	ICOR	Incremental Capital Output Ratio
EBR	Extra-Budgetary Resources	IEBR	Internal and Extra Budgetary Resources
ECB	External Commercial Borrowing	IIFCL	India Infrastructure Finance Company Ltd.
EDI	Entrepreneurship Development Institutes	IITM	Indian Institute of Tropical Meteorology
EIA	Environmental Impact Assessment	IMD	India Meteorological Department
ENVIS	Environment Information System	INO	Indian Neutrino Observatory
FAIR	Facility for Antiproton and Ion Research	INSPIRE	Innovation in Science Pursuit for Inspired Research'
FDI	Foreign Direct Investment	IPCC	Intergovernmental Panel on Climate Change
FII	Foreign Institutional Investment	IT	Information Technology
FIPB	Foreign Investment Promotion Board	ITES	IT enabled services
FOB	Free on Board	JFM	Joint Forest Management
FRBM	Fiscal Responsibility and Budget Management	JNNURM	Jawaharlal Nehru National Urban Renewal Mission
FTA	Free Trade Agreement	JRF	Junior Research Fellow
GAP	Ganga Action Plan	LGBRIMH	LGB Regional Institute of Mental Health, Tezpur
GBPIHED	GB Pant Institute of Himalayan Environment and Development	MCA	Model Concession Agreements
GBS	Gross Budgetary Support	MFP	Minor Forest Produce
GCI	Global Competitive Index	mg	Milligram
GDP	Gross Domestic Product	MLD	Million Litres per Day
GDP <sub>mp</sub>	Gross Domestic Product at market prices	MMA	Ministry of Minority Affairs
GEF	Global Environment Facility	MMPs	Mission Mode Projects
GER	Gross Enrolment Ratio	MNRE	Ministry of New and Renewable Energy
GHG	Green House Gas	MoEF	Ministry of Environment and Forests
GIS	Geographical Information System	MoES	Ministry of Earth Sciences
GMO	Genetically Modified Organism	MSEs	Micro and Small Enterprises
GMP	Good Manufacturing Practices	MSMEs	Micro, Small and Medium Enterprises
GoI	Government of India	MSP	Minimum Support Price
GSLV	Geosynchronous Launch Vehicle	MW <sub>e</sub>	Megawatt electrical
GST	Goods and Service Tax	NBCFDC	National Backward Classes Finance and Development Corporation
GSTP	Global System of Trade Preferences	NCA	Normal Central Assistance
HACCP	Hazard Analysis and Critical Control Points		
HADP	Hill Area Development Programme		
HBNC	Home Based Newborn Care		

NCCS	National Centre for Cell Science	PAH	Polyaromatic hydrocarbons
NCEUS	National Commission for Employment in the Unorganized Sector	PCB	Pollution Control Board
NCMP	National Common Minimum Programme	PESA	Panchayat (Extension to Scheduled Areas) Act
NCMRWF	National Centre for Medium Range Weather Forecasting	PFBR	Prototype Fast Breeder Reactor
NCP	National Competition Policy	PHC	Primary Health Centre
NDC	National Development Council	PHWR	Pressurized Heavy Water Reactor
NDMA	National Disaster Management Authority	PIM	Participatory Irrigation Management Act
NDMP	National Disaster Mitigation Programme	PMGSY	Pradhan Mantri Gram Sadak Yojana
NEC	North East Council	POL	Petroleum, Oil and Lubricants
NEMP	National Environmental Monitoring Programme	PPP	Public–Private Partnership
NEPA	North East Police Academy	PPPAC	Public–Private Partnership Appraisal Committee
NFHS	National Family Health Survey	PRI	Panchayati Raj Institution
NHDP	National Highways Development Programme	PSE	Public Sector Enterprise
NIC	National Informatics Centre	PSLV	Polar Satellite Launch Vehicle
NITA	National Institute of Tribal Affairs	PSU	Public Sector Undertaking
NISER	National Institute of Science Education and Research, Bhubaneswar	PTG	Primitive Tribal Group
NLCP	National Lake Conservation Plan	QR	Quantitative Restriction
NLCPR	Non-Lapsable Central Pool of Resources	RCA	Revealed Comparative Advantage
NMITLI	New Millennium Indian Technology Leadership Initiative	RD	Rural Development
NMNH	National Museum of Natural History	RFP	Request for Proposal Document
NPOP	National Policy on Older Persons	RGVY	Rajiv Gandhi Grameen Vidyutikaran Yojana
NPRE	Non-Plan Revenue Expenditure	RIMS	Regional Institute of Medical Sciences
NRC	National River Conservation Directorate	RIPAN	Regional Institute of Para-medical and Nursing
NRC	National River Conservation Plan	RKVY	Rashtriya Krishi Vikas Yojana
NREGA	National Rural Employment Guarantee Act	RRB	Regional Rural Bank
NREGP	National Rural Employment Guarantee Programme	RSPM	Respirable Suspended Particulate Matter
NRHM	National Rural Health Mission	RTI	Right to Information Act
NRI	Non Resident Indian	SAFTA	South Asian Free Trade Agreement
NRM	Natural Resource Management	SARDP-NE	Special Accelerated Road Development Programme for the North East
NSAP	National Social Assistance Programme	SBBs	State Boards
NSDP	Net State Domestic Product	SC	Scheduled Caste
NSFDC	National Scheduled Castes Finance and Development Corporation	SCA	Special Central Assistance
NSSO	National Sample Survey Organization	SCDC	Scheduled Castes Development Corporation
NSTFDC	National Scheduled Tribes Finance and Development Corporation	SCSP	Scheduled Caste Sub Plan
NTFP	Non Timber Forest Produce	SDC	Skill Development Centre
OBC	Other Backward Class	SDH	Sub-Divisional Hospital
PAB	Project Approval Board	SERC	Science and Engineering Research Council
		SFR	State of Forest Report
		SGRY	Sampoorna Grameen Rozgar Yojana



SGSY	Swarnjayanti Gram Swarojgar Yojana	UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
SHDR	State Human Development Reports	ULBs	Urban Local Bodies
SHE	Scholarships for Higher Education	UNCRPD	United Nations Convention on the Rights of People with Disabilities
SHG	Self-Help Group	UNESCO	United Nations Educational, Scientific and Cultural Organization
SJSRY	Swarna Jayanti Shahri Rozgar Yojana	UNFCCC	United Nations Framework Convention on Climate Change
SME	Small and medium scale enterprise	UNODC	United Nations Office on Drug and Crime
SO <sub>2</sub>	Sulphur Dioxide	UPSS	Usual Principal and Subsidiary Status
SoI	Survey of India	us	Usual Status
SSA	Sarva Siksha Abhiyan	USOF	Universal Service Obligation Fund
ST	Scheduled Tribe	UT	Union Territory
STP	Sewage Treatment Plant	VET	Vocational Education and Training
SWAN	State-Wide Area Network	VGF	Viability Gap Funding
TAC	Tribes Advisory Council	VO	Voluntary Organization
TBA	Traditional Birth Attendant	VOC	Volatile Organic Compound
TFC	Twelfth Finance Commission	VRC	Village Resource Centre
TPDU	Technology Promotion, Development and Utilization Programme	WGDP	Western Ghats Development Programme
TRIFED	Tribal Cooperative Marketing Development Federation of India Ltd.	WPR	Work Participation Rate
TSC	Total Sanitation Campaign	ZPs	Zilla Panchayat
TSDF	Transport, Storage and Disposal Facilities	ZSI	Zoological Survey of India
TSP	Tribal Sub Plan		
TTC	Technology Transfer Cell		
UGC	University Grants Commission		
UID	Unique ID		

# 1

## Inclusive Growth Vision and Strategy

### INTRODUCTION

1.1. India has entered the Eleventh Plan period with an impressive record of economic growth. After a lacklustre performance in the Ninth Plan period (1997–98 to 2001–02), when gross domestic product (GDP) grew at only 5.5% per annum, the economy accelerated in the Tenth Plan period (2002–03 to 2006–07) to record an average growth of 7.7%, the highest in any Plan period so far. Besides, there was acceleration even within the Tenth Plan period and the growth rate in the last four years of the Plan has averaged 8.7%, making India one of the fastest growing economies in the world.

1.2. It can be argued that there is an element of cyclicity in the high growth observed in the past four years since these were also years of a global upswing. However, India's growth performance goes beyond mere cyclicity. It is underpinned by a number of factors which are real sources of strength and will serve us well in the years ahead. Savings and investment rates have increased significantly. The industrial sector has responded well to economic reforms and has shown that it is capable of competing in the global economy. Perceptions about India among global investors are very favourable. These developments suggest that the economy is now at a point when it can achieve sustained economic expansion that has the potential to bring significant improvement in the lives of our people. If this momentum can be accelerated in the years ahead, it will put India on the path to becoming one of the key players in the world economy over the next two decades.

1.3. These positive factors notwithstanding, a major weakness in the economy is that the growth is not perceived as being sufficiently inclusive for many groups, especially

Scheduled Castes (SCs), Scheduled Tribes (STs), and minorities. Gender inequality also remains a pervasive problem and some of the structural changes taking place have an adverse effect on women. The lack of inclusiveness is borne out by data on several dimensions of performance.

1.4. The percentage of the population below the official poverty line has come down from 36% in 1993–94 to 28% in 2004–05. However, not only is this still high, the rate of decline in poverty has not accelerated along with the growth in GDP, and the incidence of poverty among certain marginalized groups, for example the STs, has hardly declined at all. Because population has also grown, the absolute number of poor people has declined only marginally from 320 million in 1993–94 to 302 million in 2004–05. This performance is all the more disappointing since the poverty line on which the estimate of the poor is based is the same as it was in 1973–74 when per capita incomes were much lower. Other indicators of deprivation suggest that the proportion of the population deprived of a minimum level of living is much higher. For example, National Family Health Survey-3 (NFHS-3) shows that almost 46% of the children in the 0 to 3 years' age group suffered from malnutrition in 2005–06, and what is even more disturbing is that the estimate shows almost no decline from the level of 47% reported in 1998 by NFHS-2.

1.5. Indicators of human development such as literacy and education, and maternal and infant mortality rates, show steady improvement, but they also suggest that the progress is slow and we continue to lag behind several other Asian countries. While the literacy rate has gone up from 18.3% in 1951 to 64.8% in 2001, the number of illiterate persons still exceeds 304 million, making India the

## 2 Eleventh Five Year Plan

country with the highest number of illiterate persons in the world. Life expectancy at birth has increased from approximately 32 years for both males and females in 1951 to 63.9 years for males and 66.9 years for females in 2001–06. Yet this is well below the life expectancy of around 80 years in industrialized countries and 72 years in China. Although Indian women now have higher life expectancy than Indian men, as is the case in industrialized countries, India also has an adverse sex ratio with only 933 women per 1000 men. More disturbing, the child sex ratio (ages 0–6) has declined sharply from 962 in 1981 to 927 in 2001. India's maternal and infant mortality rates are much higher than those of countries in East Asia, showing poor access to essential health care services.

1.6. The composition of growth in recent years has also presented some problems. Agriculture has grown very slowly from the Ninth Plan onwards and this has widened the rural–urban divide and also contributed to the severe distress in rural areas in some regions. Although there is an upturn in agricultural growth after 2004, it is too early to be complacent. Total employment in the economy has improved in recent years, but the labour force has grown even faster, leading to an increase in the unemployment rate. Permanent employment in the organized sector has decreased, although organized sector firms may be increasing their informal employment. Also, economic growth across regions has not been balanced, with some of the most backward areas yet to experience any significant growth. The delivery of essential social services at the grass roots level is also poor and this is a major causative factor in unequal development. Much higher levels of human development can be achieved even with the given structure of the economy, if only the delivery system is improved.

1.7. These features suggest that while there are significant economic achievements that India can celebrate in its 60th year of Independence, it is still far from redeeming the pledge which Pandit Jawaharlal Nehru made on the eve of Independence: '[...] for ending of poverty, ignorance, disease and inequality of opportunity'. The Eleventh Plan provides an opportunity to act decisively to consolidate the gains that have been made in the Tenth Plan and also to correct the deficiencies that have been observed.

### VISION FOR THE ELEVENTH PLAN

1.8. The central vision of the Eleventh Plan is to build on our strengths to trigger a development process which

ensures broad-based improvement in the quality of life of the people, especially the poor, SCs/STs, other backward castes (OBCs), minorities and women. The National Development Council (NDC), in approving the Approach to the Eleventh Plan, endorsed a target of 9% GDP growth for the country as a whole. This growth is to be achieved in an environment in which the economy is much more integrated into the global economy, an integration that has yielded many benefits but also poses many challenges. If this is achieved, it would mean that per capita GDP would grow at about 7.6% per year to double in less than ten years. However the target is not just faster growth but also inclusive growth, that is, a growth process which yields broad-based benefits and ensures equality of opportunity for all.

1.9. This broad vision of the Eleventh Plan includes several inter-related components: rapid growth that reduces poverty and creates employment opportunities, access to essential services in health and education especially for the poor, equality of opportunity, empowerment through education and skill development, employment opportunities underpinned by the National Rural Employment Guarantee, environmental sustainability, recognition of women's agency and good governance.

### RAPID GROWTH AND POVERTY REDUCTION

1.10. The persistence of poverty on the scale at which it still exists is not acceptable. A decisive reduction in poverty and an expansion in economic opportunities for all sections of the population should therefore be a crucial element of the vision for the Eleventh Plan. Rapid growth of the economy is an essential requirement to achieve this outcome since it is an instrument for achieving a steady increase in employment and incomes for large numbers of our people.

1.11. Growth in the Eleventh Plan should be better balanced to rapidly create jobs in the industrial and services sectors. This is necessary if a significant portion of the labour force is to shift out of agriculture, where it is currently engaged in low productivity employment, into a non-agricultural activity that can provide higher real incomes per head. This must be accompanied by efforts to improve the income-earning opportunities of those who remain in agriculture by raising land productivity. This process would also lead to higher farm incomes and a rise in real wages of agricultural labour whose bargaining power will improve as surplus labour is shifted out of this sector.

1.12. Rapid growth in the economy at large, and especially in the employment generating sectors such as medium and small industry and services, needs to be supplemented by targeted livelihood support programmes aimed at increasing productivity and incomes of the poor in several low income occupations which will continue as important sources of employment for quite some time. Special programmes aimed at target groups such as small and micro enterprises, weavers, artisans, craftsmen, etc. will therefore remain important in the Eleventh Plan period. Considerable experience has been gained over the years in the management of these programmes. This experience must be brought to bear in redesigning the programmes in the Eleventh Plan to make them more effective in achieving their stated objectives.

### THE EMPLOYMENT CHALLENGE

1.13. The ability to generate an adequate number of productive employment opportunities will be a major factor on which the inclusiveness of growth will be judged. India is currently at a stage of 'demographic transition' where population growth is slowing down but the population of young people entering the labour force continues to expand. This means that a working person will have fewer dependents, children or parents. The dependency ratio (ratio of dependent to working age population) declined from 0.8 in 1991 to 0.73 in 2001 and is expected to decline further to 0.59 by 2011. If the workforce is gainfully employed, a lower dependency ratio means a higher rate of savings which, in turn, can raise the growth rate. This young demographic profile places India favourably in terms of manpower availability and could be a major advantage in an environment where investment is expanding in India and the industrial world is ageing.

1.14. It is, however, essential to produce a growth process in which employment would be available not only for new entrants to the labour force but also in the non-agricultural sector for workers leaving agriculture. Over 1999–2000 to 2004–05, urban employment has grown at a faster rate than population. However, since more urban women have joined the workforce, the unemployment rate has increased over these years.

1.15. Rapid growth focused on labour-intensive industries and small and middle enterprises will create employment opportunities in the manufacturing and services sectors. The ability to create jobs will be enhanced by greater labour flexibility which may require some changes in labour laws.

This is a controversial issue on which it is difficult to reach a consensus but the weight of evidence suggests that while outright hire and fire approaches may not be desirable, there is room for creating greater flexibility, short of this position.

1.16. The ability to sustain a labour-intensive growth process depends crucially upon the expansion of skill capabilities in the labour force. Specific programmes for development of skills at all levels will be a part of the Eleventh Plan.

### ACCESS TO ESSENTIAL SERVICES

1.17. A person is poor because her endowments of capital, land, labour and skills are meagre, and also because her access to public goods and services and natural resources is limited. Often, a poor person is trapped in the prison of illiteracy. Disease and ill-health prevent her from getting the most out of the one asset she has, her labour. Without training and skills she cannot aspire to do a better job. Without an all-weather road that connects her habitation to the nearest market, she cannot get a fair price for her produce. Without electricity and access to credit, her ability to increase productivity of land or of artisan activity is limited. Without the sewers and drains, water works and water mains that service her town; without the policing that should protect her life and limb, property (however meagre), person and dignity as an equal citizen of India; she cannot function effectively. Thus, while in the short run, access to basic facilities such as health, education, clean drinking water, etc. impacts directly on welfare, in the longer run, it determines economic opportunities for the future. Without access to these services one cannot be considered to have equality of opportunity.

1.18. Since access to these services for the majority of the population depends not only upon their income levels but upon the delivery of these services through publicly funded systems, the Eleventh Plan's vision of poverty reduction includes major expansion in the supply of these services. The resources needed to create the infrastructure necessary for delivering these services to the poor are large. Fortunately, the rapid growth being targeted for the Eleventh Plan will facilitate the ability to undertake these programmes, both by way of higher tax revenues resulting from higher growth and a larger borrowing capability even while adhering to fiscal deficit targets expressed as a percentage of GDP. These additional resources can be devoted to Plan expenditure aimed at ensuring effective delivery of essential services.

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### SOCIAL JUSTICE AND EMPOWERMENT

1.19. The vision of inclusiveness must go beyond the traditional objective of poverty alleviation to encompass equality of opportunity, as well as economic and social mobility for all sections of society, with affirmative action for SCs, STs, OBCs, minorities and women. There must be equality of opportunity to all with freedom and dignity, and without social or political obstacles. This must be accompanied by an improvement in the opportunities for economic and social advancement. In particular, individuals belonging to disadvantaged groups should be provided special opportunities to develop their skills and participate in the growth process.

1.20. This outcome can only be ensured if there is a degree of empowerment that creates a true feeling of participation so necessary in a democratic polity. Empowerment of disadvantaged and hitherto marginalized groups is therefore an essential part of any vision of inclusive growth. India's democratic polity, with the establishment of the third layer of democracy at the Panchayati Raj Institution (PRI) level, provides opportunities for empowerment and participation of all groups with reservations for SCs, STs, and women. These institutions should be made more effective through greater delegation of power and responsibility to the local level.

### ENVIRONMENTAL SUSTAINABILITY

1.21. The vision of the Eleventh Plan must also include a clear commitment to pursue a development process which is environmentally sustainable. Natural resources such as water and land are limited and their per capita availability is actually diminishing because of rising population and also because of irrational exploitation of common pool resources. The Eleventh Plan must be based on a strategy that not only preserves and maintains natural resources, but also provides equitable access to those who do not have such access at present. Unless environment protection is brought to the centre stage of policy formulation, what is perceived as development may actually lead to a deteriorating quality of life. This seems to be happening all around, in the poor and generally worsening quality of air in cities and even villages; in the increasingly polluted waters of our lakes and rivers, which are not fit for even bathing, let alone drinking; in the loss of biodiversity, and in the shrinking habitats of wild animals. This degradation of natural resources reduces the well-being of people, and the poor and women suffer more, as they depend much more on natural common property resources for fuel and water, and also have fewer resources to take defensive actions.

1.22. The danger to environment is caused by activities worldwide. The growing evidence on climate change shows that Green House Gas (GHG) emissions, resulting from the cumulative action of all countries, will, if not effectively contained, produce changes in climate which would have very severe effects in the future. India will be seriously affected by such climate change in the form of receding Himalayan glaciers, a variably different hydrological cycle than at present, greater water scarcity and higher temperatures which would have an adverse impact on agricultural production with the presently known technologies. A rise in the sea level, leading to coastal submergence would cause large-scale displacement of people.

1.23. We must certainly begin to consider what steps we need to take to adapt to these changes and to mitigate the damage to climate. However, an effective strategy requires international co-operation to evolve forms of burden sharing for mitigation as well as adaptation that are fair and equitable across nations. We have to address these challenges in the years ahead.

### GENDER EQUITY

1.24. For the first time in the history of Indian planning there is an attempt to move beyond empowerment and recognize women as agents of sustained socio-economic growth and change. The Eleventh Five Year Plan acknowledges women's agencies and tries to ensure that their needs, rights and contribution are reflected in every section of the Plan document. Gender is, therefore, a cross cutting theme; it is not confined to a single chapter on Women and Children. The vision is to develop an integrated approach which would eventually dispense the need for a separate chapter.

1.25. While endeavoring to guarantee the rights and entitlements of all women, the Eleventh Plan recognizes that women are not a homogenous category. Their situations, and consequently requirements, differ based on their locations within various castes, communities, religions, geographic and development zones and the effort during the Eleventh Plan is to cater to all these differential and specific requirements.

### GOVERNANCE

1.26. Finally, the vision for the Eleventh Plan must include an improvement in governance. Over the years, the governments at the Centre and the States have launched a large number of initiatives at substantial public expense

to achieve the objectives of growth with poverty alleviation and inclusiveness. Experience suggests that many of these initiatives have floundered because of poor design, insufficient accountability and also corruption at various levels. Increasingly, there is demand for effective implementation without which expanded government intervention will be infructuous.

1.27. The strategy for the Eleventh Plan must therefore aim at bringing about major improvements in governance which would make government-funded programmes in critical areas more effective and efficient. The best possible way of achieving this objective may be by involving communities in both the design and implementation of such programmes, although such involvement may vary from sector to sector. Experience shows that Civil Society Organizations (CSOs) can work with PRIs to improve the effectiveness of these programmes. For achieving the vision of the Eleventh Plan, it is extremely important to experiment with programme design to give more flexibility to decision making at the local level.

1.28. It is especially important to improve evaluation of the effectiveness of how government programmes work and to inject a commitment to change their designs in the light of the experience gained. Evaluation must be based on proper benchmarks and be scientifically designed to generate evidence-based assessment of different aspects of programme design. Along with greater transparency and feedback from community participation, this is particularly important in the case of programmes delivering services directly to the poor.

1.29. Accountability and transparency are critical elements of good governance. The Right to Information Act (RTI) enacted in 2005 empowers people to get information and constitutes a big step towards transparency and accountability.

## THE ROLE OF THE STATES

1.30. A notable feature of the Tenth Plan was the increase in the share of outlays for Centrally Sponsored Schemes (CSS) in the Gross Budgetary Support (GBS) for the Central Plan. This was done for two reasons; first, the Centre's own investment in industry was almost entirely funded by the Internal and Extra-Budgetary Resources (IEBR) of Public Sector Enterprises (PSEs); and, second, the enlarged role that the Centre has taken for itself in providing for social infrastructure, especially in the backward States, through programmes such as National

Rural Employment Guarantee Programme (NREGP) Sarva Shiksha Abhiyan, Bharat Nirman, etc. The outlay on CSS, taken together with scheme-wise Central assistance provided to State Plans, amounts to over 55% of the Central GBS in 2007–08, the first year of the Eleventh Plan. This level will not go down during the Eleventh Plan period.

1.31. Many of the major CSS are in areas where the State Governments have traditionally borne the bulk of the expenditure. Even during the Eleventh Plan period, the non-Plan expenditure on these sectors by the State Governments will be considerable. The strategy for ensuring the best use of the available resources, therefore, requires that the Central Government engage more intensively with the States not only with regard to Plan expenditure but also in respect of what have traditionally been non-Plan expenditures. Separately, it is proposed to set up a high-level committee (HLC) to suggest how this planning for resources could be best accomplished. More than ever before, the success of the Eleventh Five Year Plan will depend upon the quality of service delivery by the State Governments.

## STRATEGY FOR THE ELEVENTH PLAN: POLICIES FOR INCLUSIVE GROWTH

1.32. The strategy for inclusive growth in the Eleventh Plan is not just a conventional strategy for growth to which some elements aimed at inclusion have been added. On the contrary, it is a strategy which aims at achieving a particular type of growth process which will meet the objectives of inclusiveness and sustainability. This strategy must be based on sound macroeconomic policies which establish the macroeconomic preconditions for rapid growth and support key drivers of this growth. It must also include sector-specific policies which will ensure that the structure of growth that is generated, and the institutional environment in which it occurs, achieves the objective of inclusiveness in all its many dimensions.

1.33. The elements of the strategy proposed in the Eleventh Plan are discussed in detail in the individual chapters. The major components are summarized in the following sub-sections.

## MACROECONOMIC FRAMEWORK

1.34. The broad macroeconomic framework of the Plan is discussed in detail in Chapter 2. It envisages a continuation of the uptrend in domestic investment and savings observed in the Tenth Plan taking domestic

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investment from an estimated 35.9% of GDP in 2006–07 to an average of 36.7% of GDP in the Eleventh Plan period. This is expected to be supported by the domestic savings rate of 34.8% of GDP in the Eleventh Plan period. These investment rates are broadly consistent with achieving an average growth rate of 9% per year in the Eleventh Plan period. The Plan also implies a substantial increase in the total resources for the Central and State Plans from 9.46% of GDP in the Tenth Plan to 13.54% of GDP in the Eleventh Plan. This outcome depends upon government non-Plan expenditure, especially subsidies remaining under control and a significant improvement in the IEBR of the public sector in both the Centre and the States.

1.35. The macroeconomic projections involve a rise in the current account deficit from 1.1% of GDP in 2006–07 to an average of 1.9% of GDP in the Eleventh Plan period, based on oil prices at the average level of 2006–07. The recent hardening of oil prices, if it continues, will involve a further increase in the current account deficit by up to 1 percentage point of GDP. Even if this were to happen, it will be feasible to finance the increased deficit given India's export potential and the prospect of continuing inflows of foreign investment. The real challenge in the persistence of high oil prices lies in the need to pass on these prices to consumers which could moderate growth a little in the short run.

1.36. On balance, the Plan target of 9% per year appears achievable with some downside risks if oil prices harden further. The broad sectoral composition of growth associated with this projection involves doubling the growth rate of agriculture to 4% per year compared with a little over 2% per year in the Tenth Plan and raising the industrial growth rate from 9.2% in the Tenth Plan to between 10% and 11% in the Eleventh Plan. Further, manufacturing is targeted to grow at over 12% per year and this is expected to provide high-quality employment.

### AGRICULTURE

1.37. The target of doubling the rate of growth of agriculture to 4% in the Eleventh Plan is critical for achieving greater inclusiveness. This calls for initiatives on several fronts.

1.38. The poor performance of agriculture in the past decade or so is partly due to the emergence of technology fatigue in the intensely irrigated crop production regions. This is reflected in the fact that the new varieties released

do not seem to have produced significantly higher yields per hectare. The long-term response to this phenomenon is a comprehensive strengthening and restructuring of the Indian Council of Agricultural Research (ICAR) system to give greater focus to research in strategic areas which would help to evolve cropping systems suited to various agro-climatic zones. It is particularly important to focus research on raising the yield potential in rain-fed areas. There is also a need to increase the accountability of the State agricultural universities and to make their research more directly useful. Public expenditure on agricultural research, taking the Centre and the States together, needs to increase from 0.7% of agricultural GDP at present to at least 1% by the end of the Eleventh Plan.

1.39. In the short run, we must exploit the large scope for yield improvement which is reflected in the large gap that exists in most parts of the country between the yields that are actually being realized on the ground and yields that can be achieved with the existing varieties using best practices in farm conditions. This yield gap varies from 60 to 100%, depending on the crop and the region. The Eleventh Plan must focus on evolving suitable strategies for each agro-climatic zone to reduce the gap. This will require better assessment of location-specific potentials and constraints, and more effective extension. A new central assistance programme, the Rashtriya Krishi Vikas Yojana (RKVY) has been launched to incentivize State Governments to prepare district level agricultural plans that take account of local conditions. The programme will encourage effective convergence among various Central schemes which are currently implemented in districts as stand-alone schemes and will provide Central assistance to meet a part of the additional cost of the agricultural plans, above existing expenditure commitments. The preparation of district-specific agricultural plans is an important innovation and it is expected to sharpen the focus on local crop productivity constraints. Adequate funding will be provided to build capacity for such district planning and, simultaneously, there will be a very substantial increase in Central support to State extension systems.

1.40. Adoption of best practices typically involves additional investment. The most important area for investment in agriculture relates to the provision of water and its efficient use. There is definitely a need for more public investment to develop irrigation where it is feasible, including modernisation of the existing irrigation systems to improve efficiency. It is also necessary to undertake

watershed management programmes in dryland areas. The specific initiatives needed in this regard are discussed later in the chapter.

1.41. Private investment by farmers is also needed in land development, pump sets and drip irrigation, agricultural machinery, etc. On-farm investments are limited by the availability of credit to farmers which needs priority attention. Commercial banks have extended credit to agriculture commendably in the later years of the Tenth Plan period, and this needs to continue. However, whereas overall credit has expanded, the number of loan accounts has declined, suggesting that small farmers are not receiving adequate credit. To correct this, the co-operative banking system must be revived along the lines recommended by the Vaidyanathan Committee. The Committee's recommendations have been accepted by many States, but implementation of follow-up action needs to be expedited.

1.42. Deteriorating soil health is a major constraint limiting productivity in agriculture. The present system of fertilizer subsidy which is based on subsidization of products rather than nutrients, contributes to the problem because there is excessive subsidy on nitrogen compared to potassium and phosphates, and no subsidy at all on micronutrients. The result is excessive use of nitrogenous fertilizer which depletes the soil of other micronutrients (sulphur, zinc, boron), reducing soil productivity over time. Most farmers do not have information on the soil health of their farms and the extent of micronutrient deficiency, which varies across areas. Increased awareness of this problem is extremely important. It is necessary to restructure the fertilizer subsidy to make it nutrient based and to enable production of composite fertilizers, including micronutrients, by giving producers the flexibility to charge higher prices which will cover the cost of adding micronutrients. There is also need to expand the network of soil testing laboratories in most States and also to extend soil testing to measure micronutrients, which are typically not covered at present.

1.43. Seed replacement is another major problem constraining crop productivity. Seed replacement rates in most parts of the country are much below recommended levels, partly because of lack of availability of certified seeds, but also because farmers do not trust the quality or truthfulness of labels of certified seeds available from public sector sources. A major effort is needed to increase the supply of certified seeds and also to achieve credibility

in the quality of the seeds supplied. State governments must take steps to revamp seed production and distribution arrangements as quickly as possible. There may be a case in some States for State agricultural universities to take over management of public sector state seed corporations and the land under their control, to help improve seed production.

1.44. Growth of foodgrain production has fallen short of population growth during the last decade. More recently, foodgrain prices have flared up, reflecting both the rising trend of prices internationally, and more robust domestic demand. A strong effort in expanding foodgrain production is therefore needed. A National Food Security Mission has been launched in the first year of the Eleventh Plan which aims at increasing cereal production by 18 million tonnes and pulses production by 2 million tonnes. Nevertheless, it is unlikely that demand for foodgrains will expand by more than 2.5% per year. The target of 4% growth in agriculture will therefore require much faster growth in horticulture, floriculture, dairying, poultry, and fisheries. Agricultural strategies for each agro-climatic zone should pay attention to the scope for agricultural diversification along lines that are technically appropriate.

1.45. Agricultural diversification will pose special challenges in marketing because the high-value produce of diversified agriculture is much more perishable than foodgrains. Farmers need assured linkages to efficient markets with transparent pricing and also modern logistics and cold chains to ensure transportation with minimum spoilage. Several States have amended the Agricultural Produce Marketing Committee Acts to allow private markets to be set up in competition with the existing *mandis*. Modern markets, whether established by the private sector or by co-operatives, can improve marketing facilities by offering grading opportunities and cold storage facilities as well as more transparent price discovery through open auction. Contract farming, which is being encouraged by many States, also provides a mechanism for improving linkages between farmers and markets through the active involvement of the private sector, which can also serve as a supplier of key inputs and extension advice. An important issue in this context is the need to ensure that small and marginal farmers have adequate bargaining strength. An adequate dispute resolution mechanism is also necessary to encourage formation of farmers' groups, not only for contract farming but also to avail other economies of scale. Ways



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of incentivizing such group formation should be part of the agenda for agricultural policy in the Eleventh Plan.

1.46. There is also need for greater predictability in measures designed for price stability. Efforts to control sudden price rise of agricultural produce, such as bans on exports, have often been at the cost of farmers. Also, while the Minimum Support Price (MSP) policy has not reached most farmers at times when prices were low, inadequate procurement often leads to over-reaction. With international prices much more volatile than what Indian farmers are used to, a comprehensive view is required at the possibility of a predictable response both in terms of trade policy and proper regulation of India's new, but fast developing, futures markets in agricultural commodities so as to allow better transmission of price signals and management of risks.

1.47. More generally, market linkages can be improved by improving rural infrastructure, including especially, rural roads and rural electrification. The Pradhan Mantri Gram Sadak Yojana (PMGSY) has already done commendable work in extending rural connectivity and the programme will continue into the Eleventh Plan. The Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) also has ambitious plans to extend rural electrification to hitherto unserved rural areas. It is essential to ensure that RGGVY aims not only at household electrification but also at energization of pumpsets. This will make a big difference to the ability of farmers in the eastern States to utilize available ground water at more reasonable costs.

### IRRIGATION AND WATERSHED DEVELOPMENT

1.48. The Bharat Nirman target is to more than double the pace of addition to the area under irrigation to 2.5 million hectares per year by 2008–09. If this momentum is maintained, we should be able to add 16 million hectares to the irrigated area during the Eleventh Plan.

1.49. There are, however, several problems in the irrigation sector which need to be addressed. A large number of projects have been under construction for a long time as resources have been spread too thin. This has increased costs and also delayed the creation of irrigation capacity. The Accelerated Irrigation Benefit Programme (AIBP) was started to incentivize States to complete projects in a time-bound manner, but progress in the programme has not been satisfactory. Several initiatives relating to irrigation were launched in the last years of the

Tenth Plan, including conversion of loan assistance under AIBP to pure grant. The norms for approving projects under the programme were also relaxed to permit more projects to become eligible. States are being encouraged to change the system of contracting to a fixed cost, time-bound system. A system of monitoring projects through remote sensing has been introduced which will help to identify critical works needing attention and help reduce the large gap between the created and actually utilized irrigation potentials.

1.50. Repair, renovation and restoration of water bodies can expand irrigation capacity in a short period. States will be assisted to take up such projects provided they agree to hand over the water bodies to user groups after renovation so that future maintenance is assured. 25% of the project cost is eligible for grant assistance under AIBP and the rest could come from external assistance. Water-use efficiency in irrigation is quite low in the country. A larger area can be irrigated with the available water if sprinkler or drip irrigation is used to increase efficiency. This calls for additional investment. Assistance will also be extended to extension, renovation and modernization projects subject to the achievement of 'target irrigation efficiency' for water conservation.

1.51. To further reduce the gap between the potential and its utilization, the Command Area Development Programme (CADP) was modified in the Tenth Plan to include water management above the outlet for correcting system deficiencies. Beneficiary contribution of 10% was specified for the execution of Command Area Development works. A model Participatory Irrigation Management (PIM) Act was circulated to States to promote PIM, which is seen in many cases to improve irrigation water distribution to all farmers, including the tail-enders. During the Eleventh Plan, CADP will be made part of major and medium irrigation projects to accelerate utilization and focus on responsibility.

1.52. Groundwater, which is used for irrigating for nearly 60% of the irrigated area, also poses serious problems. Under the Easement Act of 1882, the ownership rights of groundwater rest with the owner of the land. This makes groundwater a common property resource with open access. As a result, groundwater was over exploited in nearly 15% of the blocks in 2004, compared to 4% in 1995 (though the classification scheme was different in the two surveys, they are roughly comparable). When the

water table falls, some wells go dry and others have to spend more energy to lift water. It is therefore important to evolve a system of sustainable use of groundwater.

1.53. Under the Environment (Protection) Act, 1986, the Central Government can intervene where the water table falls. The Eleventh Plan will encourage co-operative management of groundwater by the community, as it is most likely to work. The objective would be to contain average groundwater extraction to average water recharge. For this, the local water user associations will have to be empowered with knowledge and information through monitoring of the water table and recharge by the Central and State Groundwater Boards.

1.54. While groundwater is being depleted in some parts of the country, large parts of eastern India have high water tables, reflecting large unexploited potential for expanding irrigation. This is not done for want of electricity as using diesel pumps is expensive and inconvenient. RGGVY aims at providing power to all villages, and this should facilitate rapid expansion of irrigation in eastern India.

1.55. Groundwater can be recharged through watershed development using check dams, contour bunding, etc. This not only increases availability of water, but also generally leads to its more equitable distribution. The Eleventh Plan will strengthen watershed development programmes and also increase the flow of resources to these programmes by their convergence with other schemes.

1.56. Though irrigation is by far the largest user of groundwater, in specific local situations, industrial use of groundwater can also stress the resource. Industry using water that falls within its land should be required to enhance recharge correspondingly. It is also vital to prevent groundwater contamination by enforcing strict effluent quality standards.

## INDUSTRY AND MINERALS

1.57. The pace of industrial growth quickened during the Tenth Plan and manufacturing in particular showed considerable dynamism. It will be necessary to build on this momentum during the Eleventh Plan and, indeed, impart additional impetus to generate 10% growth in industry, and even higher growth in manufacturing. This will not only provide the additional job opportunities needed to absorb some of the surplus labour in the rural workforce but also generate employment for the new

entrants that are expected to join the labour force both in rural and urban areas. For this, industries must not only grow, but grow in a manner that leads to the absorption of large numbers of workers.

1.58. Industries face a number of impediments in the country, which need urgent attention if industrial growth is to be sustained over a long period. Improvement of physical infrastructure must clearly come at the top of the agenda of action for achieving rapid industrialization. Continuous supply of good quality electrical power from the grid is critical for industries, but the situation in this regard is very unsatisfactory. Large-scale units can deal with this problem by setting up captive power plants, but this is not an economical option for small and medium units. Manufacturing also entails movement of large volumes of goods in order to compete in a globalized context and manufacturers need transport infrastructure which can ensure speedy and reliable movement. Deficiencies in the road infrastructure must be addressed urgently to increase the competitiveness of Indian manufacturing. Much the same is true of ports where insufficient port capacity and inadequate navigation aid facilities and cargo handling equipment lead to longer pre-berthing detention and turnaround time for ships. These problems are compounded by the fact that large vessels do not call on many Indian ports because of the lack of depth of the draft and poor connectivity with the hinterland. Without substantial improvement in all these aspects of the transport infrastructure, growth in manufacturing cannot be sustained.

1.59. A skill deficit has also emerged in virtually all areas of manufacturing as one of the major impediments to rapid industrial growth. The shortages are at all levels, from executives and designers at the top to base-level skilled worker such as tailors and machine operators. There is a huge gap in the vocational training capacity, which is less than one-fourth of the entrants to the work force per annum. There is an urgent need to attend to skill development and the Eleventh Plan strategy in this regard is discussed later in this chapter.

1.60. The perceived lack of flexibility in some of our labour laws, such as Chapter V-B of the Industrial Disputes Act, 1947 and the Contract Labour (Regulation and Abolition) Act, which focus on job protection, remains a psychological block for entrepreneurs against establishing new enterprises with a large workforce. Existing industrial units have learnt to live with Chapter V-B of the Industrial

Disputes Act, albeit at some cost, but newcomers are often deterred. The Contract Labour (Regulation and Abolition) Act also results in the industry letting go of the opportunities for seasonal supplies, particularly in international markets. In a globalized world where our manufacturers have to compete with others who enjoy greater flexibility, it is necessary to find practical solutions for the problems created by these laws.

1.61. The Micro and Small Enterprises (MSE) Sector accounts for the bulk of the employment in manufacturing and has been one of the sources of strength for manufacturing in the country. It has largely withstood the test of international competitiveness resulting from external economic liberalization since 1991–92. However, the ceiling on investment in plant and machinery, together with reservation of a large number of items for exclusive manufacture by small-scale industries, has in the past barred these units from undertaking efforts for upgrading technology, adopting modern manufacturing methods and achieving economies of scale. The loss of fiscal benefits by a small-scale unit graduating into a larger unit is an additional disincentive against expansion and leads to horizontal expansion and deliberate fragmentation. During the Tenth Plan period, major steps were taken to alleviate these problems: the number of reserved items was reduced from 675 to 114 and the ceiling on investment in plant and machinery was raised generally from Rs 3 crore to Rs 5 crore by the Micro, Small and Medium Enterprises Act, 2006. The Act also contains a number of provisions aimed at strengthening these enterprises and, in fact, seeks to integrate the three tiers—medium, small, and micro. This process must continue in the Eleventh Plan.

1.62. Small-scale and medium enterprises are the main beneficiaries of the investment incentives for modernization, upgradation, and additional capacity creation given in schemes such as the Technology Upgradation Fund Scheme for the textile sector. The schemes for establishment of industrial parks such as the Scheme for Integrated Textile Park in the same sector are also aimed at obtaining additional investment in small-scale and medium enterprises. These schemes will be continued and replicated in other areas during the Eleventh Plan.

1.63. Small-scale units are handicapped by insufficient flow of credit despite the measures taken to stimulate priority sector lending by Scheduled Commercial Banks and expansion of direct lending operations by the Small

Industries Development Bank of India (SIDBI). During the Eleventh Plan, credit flows to these units will need to be monitored and improved.

1.64. The Central Public Sector Enterprises (CPSEs) on the whole have registered a strong performance during the Tenth Plan. The number of profit-making CPSEs has gone up and the number of loss-making ones has reduced. Granting of full autonomy to CPSEs remains an unfinished agenda before the government. A great deal of progress has been made in the revival of sick CPSEs, but close monitoring would be needed to implement their restructuring plans. Another issue of importance is the development of a mechanism to ensure optimum investment decisions by large profit-making enterprises.

1.65. A package of fiscal and other incentives has been in place since 1997 aimed at facilitating industrial development of the States of the North East Region (NER). During the Tenth Plan, similar schemes were notified for Jammu and Kashmir (J&K), Himachal Pradesh and Uttarakhand. While the response in the NER and the valley in J&K has not been significant, there is evidence that these incentives have stimulated industrial investment in Jammu, Himachal Pradesh, and Uttarakhand. However, there are complaints from other States, particularly the adjoining ones, of flight of capital induced by excise duty exemptions. Because of the distortions induced by excise duty exemptions in particular, consideration needs to be given to replacing the incentives, fully or partly, by an accelerated programme of infrastructure improvement.

### INFRASTRUCTURE REQUIREMENTS OF INCLUSIVE GROWTH

1.66. Good quality infrastructure is the most critical physical requirement for attaining faster growth in a competitive world and also for ensuring investment in backward regions. This includes all-weather roads; round-the-clock availability of power at a stable voltage and frequency; water for irrigation; railways that are not overcrowded, which run on time and do not overcharge for freight; ports with low turnaround time to reduce costs of imports and exports; airports to handle the growing traffic; air services that provide connectivity to all parts of the country; and telecommunications and broadband connectivity to provide the benefits of the Internet to people all over the country.

1.67. The Eleventh Plan outlines a comprehensive programme for development of infrastructure, especially

in rural areas, and in the remote and backward parts of the country, consistent with the requirements of inclusive growth at 9% per year. The total investment needed in infrastructure, defined to include electricity (including non-conventional energy), roads, bridges and railways (includes Mass Rapid Transit System, MRTS), ports, airports, telecommunications, irrigation (including watershed development), water supply and sanitation, storage and gas distribution will have to increase from an estimated 5.43% of GDP in 2006–07 to 9.34% by the terminal year of the Eleventh Plan. Though public investment has to be a large part of the solution, an increase of this magnitude cannot be achieved through public investment alone since there will be large demands on public sector resources from the health and education and agriculture sectors, and also from various programmes aimed at livelihood support for the poor. The Eleventh Plan therefore proposes a strategy for infrastructure development which involves a combined response—an increase in public sector investment in infrastructure as a percentage of GDP, and also an increase in private sector investment through some form of public–private partnership (PPP) or directly, where feasible.

1.68. The relative contributions of the public and private sectors in meeting the proposed investment targets are summarized in Table 1.1. It may be noted that the absolute increase in public investment is 2.22 percentage points of GDP, which is about 1.3 times the absolute increase in private investment of 1.69 percentage points. The proportional increase in private investment is much larger because of the initial low base but public investment will still constitute 70% of the total investment in infrastructure.

1.69. Public investment will have to give priority to meeting the infrastructure requirements in those sub-sectors and areas where private participation is unlikely to be forthcoming. These include irrigation and other

general rural infrastructure (mainly rural roads, rural electrification, and water supply and sanitation), and also infrastructure development in the more backward areas and the remote parts of the country. In other areas where there is scope for private investment, the aim will be to attract private investment in a transparent manner in which the responsibilities of the private concessionaire are clearly defined and the choice of the concessionaire is determined by an open, competitive bidding process.

1.70. Attracting private investment on the scale envisaged presents formidable challenges. A good start has been made by the Central Government with PPP in many infrastructure sectors in the Tenth Plan, and many State Governments have also begun exploring this option. However, it must be recognized that it will not be easy to bring in private investment at the scale required. Much will depend on the overall investment climate as also the credibility and legitimacy of the processes, which, in turn, will be influenced by the transparency achieved in setting standards and allocating risks and the robustness of the competitive bidding process for awarding contracts. The major initiatives envisaged in each of the infrastructure sub-sectors are summarized below.

### Railways

1.71. The Railways are an important part of our transport infrastructure and they have much higher fuel efficiency than trucks and cars in terms of fuel consumption per tonne kilometre or per passenger kilometre. For movement of bulk commodities, trucks cannot compete with the railways. With containerization, the railways can be competitive even for movement of other goods over long distances.

1.72. The rapid rise in international trade and domestic cargo has placed a great strain on the Delhi–Mumbai and Delhi–Kolkata rail tracks. The government has, therefore, decided to build dedicated freight corridors in the western and eastern high density routes involving construction of 7201 km of new rail tracks. This will help to decongest the two routes for freight movement and also increase the economic potential of the hinterland areas which will benefit from the reduced cost of transport. It will also provide spin-off benefits in terms of location of industrial clusters along the new corridors, thereby attracting potential investment in a number of States.

1.73. With increasing containerization of cargo, the demand for container movement by rail has grown

**TABLE 1.1**  
**Investment in Infrastructure**

	(Percentage of GDP)	
	2006–07	2011–12
Public Sector (Centre + States)	4.23	6.45
Private Sector	1.20	2.89
Total	5.43	9.34

Source: Central Statistical Organization for 2006–07 and computations by the Planning Commission for 2011–12.

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rapidly. This was hitherto a monopoly of the Container Corporation of India, a public sector entity. In a major initiative in PPP, container movement has been thrown open to competition and 15 private sector entities have been licensed for running container trains on tracks owned by the Indian Railways. Private sector container trains have commenced operations and the operators would also be expanding investment into container handling facilities, such as Inland Container Depots, etc.

1.74. The Indian Railways also proposes to take the following steps in an effort to create world-class transport infrastructure:

- Strengthening of infrastructure and improvement in the design of wagons to facilitate movement of heavier freight trains.
- Redevelopment and modernization of important railway stations through PPP.
- A paradigm shift in the delivery of services to include quality passenger services at terminals, introduction of modern rolling stock and improvement in sanitation.
- On the Delhi-Agra route, a high speed train with a maximum speed of 150 km per hour has been introduced. Similar trains will be introduced in selected city pairs.
- Reduction in accidents per million train km; implementation of measures to reduce chances of passenger fatality as a result of train accidents; focus on development of manpower through major improvements in the working environment and training to reduce the accidents attributable to human failure.
- Introduction of a new accounting system in line with internationally accepted accounting principles. This will help to identify the unit cost of different services more accurately.

### Roads

1.75. The Eleventh Plan envisages a major programme of road development covering the national highways, based on a combination of public investment and PPP and completion of rural road connectivity through the PMGSY.

1.76. PMGSY is a massive programme of expanding rural road connectivity and was begun in the Tenth Plan. This will continue into the Eleventh Plan to provide reliable road connectivity to all habitations with

1000+ population (500+ population in hilly regions) by 2009.

1.77. An expanded National Highways Development Programme (NHDP) is currently under way, involving a total investment of Rs 227258 crore. It includes four-laning of the Golden Quadrilateral and the North-South, East-West Corridors (NHDP I and II) covering 14488 km; four/six laning of 10000 km of national highways (the total length approved subsequently has gone up to 12109 km) connecting State capitals and places of tourist importance with the national network under NHDP III; widening of 20000 km of national highways to two lanes with paved shoulders under NHDP IV; six laning of 6500 km of selected national highways under NHDP V; development of 1000 km of expressways under NHDP VI and construction of ring roads around major towns and bypasses, flyovers, etc. on national highways under NHDP VII.

1.78. During the Eleventh Plan, a comprehensive Master Plan is proposed to be formulated for construction of 15600 km of Access Controlled Expressways. Action will also be taken for determining the alignments and acquiring land for about 6000 km of the total length. Establishment of an Expressways Authority of India for implementation of the Expressways Programme should be considered by the Ministry.

1.79. A balanced development of the highway network requires that apart from expeditious completion of the expanded NHDP involving augmentation of riding quality and capacity of 46000 km of national highways, out of the total present length of 66590 km, the non-NHDP section is also kept in reasonably good shape. In addition, the following qualitative improvements will be implemented:

- The NHAI, which is the implementing agency for NHDP, will be restructured and strengthened.
- High priority will be accorded to ensure integrated development of the entire road network, that is, national highways, State highways, major district roads, other district roads and village roads.
- Higher maintenance standards will be employed in order to reduce the frequency of reconstruction of capacity and to preserve road assets already created. The strategy will focus on optimum utilization of existing capacity rather than creating new capacities.

- Based on the lessons learnt, conditions conducive for private sector participation will be created in the States.
- In order to ensure safety along with free flow of traffic, various steps will be taken in the coming years, including strengthening the institutional mechanism by setting up of the National Road Safety and Traffic Management Board as an apex body. Appropriate design of roads with interchanges, segregation of slow moving traffic and adequate provision of underpasses and overpasses and, in some cases, service lanes, will be focused on.

1.80. A Special Accelerated Road Development Programme for the North East Region (SARDP-NE) is presently under implementation for providing road connectivity to all the State capitals and district headquarters in the NER.

### Ports

1.81. Indian ports suffer from inefficiency and congestion as reflected in the high turnaround time of ships. New berths and better handling facilities are needed at the existing ports and new ports also need to be developed. The draft at some ports needs deepening to permit larger ships to berth. Rail connectivity to move goods from the ports is also inadequate. The Eleventh Plan envisages a major programme of expansion in port capacity based on PPP. Many State Governments are also taking initiatives to develop their ports through such partnerships and these initiatives will be encouraged.

### Airports

1.82. Growth of air traffic in recent years has been very high—an average of 30% per year between 2003–04 and 2006–07. Increased competition in air services has lowered fares and contributed to this growth. However, development of airports and related facilities has not kept pace. The Eleventh Plan will accelerate the programme launched in the last two years of the Tenth Plan to upgrade airports and related facilities. Four major airports (Delhi, Mumbai, Hyderabad, and Bangalore) are being developed by private sector entities. Modernization of Kolkata and Chennai airports and 35 non-metro and 13 other airports is underway. Some new greenfield airports will also be constructed during the Eleventh Plan.

1.83. Civil aviation provides crucial transport infrastructure in hilly and inaccessible areas. It is therefore

proposed to augment airport infrastructure in these areas during the Eleventh Plan. This will include: development of three greenfield airports and expansion/modification of six existing airports in the NER; and modernization and upgradation of Jammu, Dehradun, Agatti, and Port Blair airports under the scheme for modernization of 35 non-metro airports.

### Telecommunications

1.84. The Eleventh Plan envisages continued progress towards developing a world-class telecommunications infrastructure with an emphasis on broadening access. It is an irony that the phenomenal growth in the telecom sector has also created a digital divide in terms of mobile and land line connections and Internet and broadband connections between urban and rural India. The Eleventh Plan will address this as an important issue. The targets for the Eleventh Plan period are to reach a telecom subscriber base of 600 million and a rural tele-density of 25%. Expanding rural telephony should be a priority area of the Plan.

1.85. Broadband connectivity plays an important role not only as a medium but also as a means of bringing knowledge and data through networking to the less fortunate institutions. To empower the nation, and to create a world-class ambience for education, science, technology and governance, the country should create a dynamically configurable national multi-gigabit backbone core network.

1.86. It should be our objective to connect 5000 institutions of education, science and technology to this core to enable collaborative research and development nationally and internationally. Campuses should be empowered technologically through campus-wide networks and by providing entry devices to the knowledge network in order to derive the full benefits of this effort.

1.87. India's prowess in software is world-renowned with an estimated share of 65% of global off-shore information technology (IT) and 46% of global business process outsourcing (BPO). The Indian IT and IT-enabled services (ITES)/BPO industry stands at US\$ 31.3 billion in 2006–07. The addressable market for offshore BPO globally stands at US\$ 300 billion, leaving enough headroom for further growth. The IT sector at present is estimated to employ over 3.08 million people and is expected to provide employment opportunity to over

8.73 million by 2012. The above mentioned figure indicate the direct employment in IT sector (both software and hardware). The indirect employment generated by the sector, is approximately three times of the direct employment. This throws up a great challenge for human resources (HR) development. There is an urgent need to augment the existing educational system by introducing special IT courses and establishing finishing schools to impart soft and other important skills.

1.88. With the weakening of the dollar against the Indian rupee, the ITES/BPO industry has come under pressure and it needs to be nurtured. Necessary policy interventions need to be put in place on a fast track mode. Extending the 10A and 10B benefits for the BPO industries beyond 2009 could be one such encouragement. Otherwise, this segment of the sector, which is a huge employment generator, could move to other countries which are more cost effective. The industry also needs to shift from Dollar to Rupee denominated contracts to combat the falling dollar.

### Electric Power

1.89. Rapid economic growth cannot be realized if energy is not available at reasonable costs. Electricity is a crucial energy input in this context. Substantial progress was made in the Tenth Plan in certain dimensions. The Electricity Act, 2003 provides an excellent framework for restructuring of the power sector, and allows full scope for competition within a reasonable regulatory framework. However, while a good start has been made in setting up the regulatory framework and the institutional structure necessary for an efficient market for electricity generation and distribution, much more remains to be done. The performance in the Tenth Plan in adding capacity was disappointing. Against a target addition of 41110 MW, only 21080 MW were commissioned, out of which only 18000 MW were actually made fully operational. Investment in distribution has also been inadequate.

1.90. The most important problem in the power sector is the continued unviability of the distribution segment reflected in very high transmission and distribution losses, including pilferage and also uneconomic tariff for some categories of consumers. As a result, the financial position of the distribution companies, which are in the State sector, is severely strained and this is the cause of inadequate investment by the State sector, both in

generation and in distribution. It also limits the appetite of private investors to invest in generation owing to problems anticipated about the capacity of the unviable public sector distribution companies to pay for power.

1.91. The Eleventh Plan must aim at making a radical break from past practice in the electricity sector. The main thrust should be on the following:

- The position at the start of the Eleventh Plan is better than at the start of the Tenth Plan because the volume of generation capacity under construction or ordered in the middle of the first year (September 2007) was 52000 MW compared with only 20500 MW at the start of the Tenth Plan. Further orders amounting to 23600 MW could be placed by the end of the first year of the Eleventh Plan. In view of the shorter pipeline, concerted attention on implementation and project management could ensure higher actual additions to capacity in the Eleventh Plan than in the Tenth Plan.
- While the regulatory structure consisting of the Central Electricity Regulatory Commission and State Electricity Regulatory Commissions have been established and have begun to operate, they have yet to stabilize and achieve credibility as independent regulators. Many of them suffer from serious staffing problems arising from an inability to attract the necessary technical expertise. Efforts must be made to strengthen the regulatory system by overcoming these constraints.
- Improvement in the efficiency of the distribution system is the most important factor for the health of the system. The Accelerated Power Development and Reform Programme (APDRP), initiated in the Tenth Plan, aimed at reducing aggregate technical and commercial losses from over 40% in 2002–03 to 15% by the end of the Plan. This target proved unachievable and excepting in a couple of States, the Aggregate, Technical and Commercial (ATC) losses were reduced by only 2 to 3 percentage points and are presently estimated at about 40%. The Eleventh Plan must aim to bring about at least a 15 percentage point reduction in these losses during the Plan period. For this purpose, the APDRP programme must be completely restructured and also expanded in scope.
- Rural electrification is an important instrument to bring about inclusive growth by making electricity available to farmers and in rural areas. The RGGVY

is an important initiative aimed at electrifying all un-electrified villages and providing access to 7.8 crore rural households. Efforts should be made to ensure that the rural electrification infrastructure thus created does not focus on households alone but is also capable of providing three phase supply which can be used to energize pump sets for agriculture.

- An important innovation of the Electricity Act, 2003 is the statutory provision for open access which allows generating stations to enter the market and sell directly to high tension consumers. They can do so through assured access to the grid to reach such consumers while paying the distribution company a reasonable wheeling charge and a surcharge in lieu of the cross subsidy element. Unfortunately, most regulators have fixed the surcharge at a very high level. It needs to be clarified that the surcharge is meant only to cover the legitimate loss of cross subsidy from high tariff paying consumers who may migrate to competing suppliers. It should not be set so high as to kill competition nor so low as to leave any uncovered cross subsidy burden on the distribution utilities. Credible steps to implement open access, with reasonable surcharge, will incentivize private investors to set up additional generation capacity while allowing the distribution system to collect the cross subsidy element.
- A major, new initiative for promoting competition and attracting private investment in the power sector launched in the last year of the Tenth Plan was the Ultra Mega Power Projects programme. Under this programme, the government would invite proposals on a competitive basis from the public and the private sector to set up nine large power projects of 4000 MW each. Three such projects have been successfully bid for and the remaining six are expected to be bid out in the first few years of the Eleventh Plan. Successful completion of this programme has the potential to add significantly to the total private sector generation capacity although the benefits would accrue mostly in the Twelfth Plan period.

### Other Energy Sectors

1.92. Transport infrastructure is not of much use unless the fuel—petrol, diesel, and electricity—is available to run scooters, cars, trucks, and the railways. Thus, availability of energy at competitive prices is as important as infrastructure. One also wants clean and convenient cooking fuels to avoid indoor air pollution and the un-

necessary burden of gathering and carrying head loads of wood. All households should be provided clean cooking fuel at reasonable prices. For those who cannot afford them, or need to supplement them, fuel-wood plantations within 1 km of habitations should be developed.

1.93. We are short of most energy resources. Even coal, which is our most abundant resource, may run out in 40–50 years. An integrated energy policy to stimulate efficient use and allocation of fuels is, therefore, important. A key requirement of such a policy is that relative prices of different fuels, their transportation charges, and taxes and subsidies have to be consistent so that they reflect true social costs. Such a pricing system should be established in the Eleventh Plan.

### COAL

1.94. The bulk of electricity generated in the country is based on coal which is our main energy resource and will remain so in the foreseeable future. The coal industry was nationalized in 1973 and Coal India Ltd dominates in production of coal. Under the nationalization Act, only public sector units, and designated users are permitted to mine coal for their own use. There is need to bring in competition in the sector to increase efficiency and to inject new technology. The Eleventh Plan will carry forward the process initiated in the last year of the Tenth Plan of encouraging other public sector units and captive users in coal mining. At the same time, coal must be competitively priced. Sale of at least 20% of coal through e-auction, rail freight rationalization, imports without duty, and pricing of coal based on its gross calorific value will be promoted. Washing of coal to reduce its ash content and save on transport charges will also be encouraged.

### OIL AND GAS

1.95. We are short on oil and gas resources and this is certain to continue. More than 70% of our oil needs are met by imports. The New Exploration Licensing Policy has met with some success in finding gas in the country and in offshore areas. The Eleventh Plan must continue to encourage national and international oil companies to come and explore for oil and gas in the country. New technology to extract more oil from known or depleted reserves will also be encouraged.

1.96. Oil and gas prices offered to producers have to be internationally competitive if we are to attract private



firms and encourage efficient use of oil and gas products. Since the bulk of the oil is imported, crude oil should be priced at import parity price. And, since we have large refining capacities and export a large number of products, petroleum products should be priced at trade parity price, that is, products which are significantly exported should be priced at Free on Board (FOB) prices and products which are significantly imported, at CIF prices. This will be best accomplished by competitive pricing of oil products at the refinery gate and at the retail level. These prices, in turn, must be passed on to the consumer though there is some scope for cross subsidy.

1.97. The pricing policy for petroleum products will pose a major challenge in the Eleventh Plan, given the sharp increase in international oil prices which is yet to be passed on to the consumers. With the present domestic petroleum prices, the extent of under recovery in the petroleum sector is estimated at Rs 100000 crore. This situation is simply not sustainable. Consumer prices of petroleum products involve a significant burden of taxes. Either the taxes have to be reduced or consumer prices have to increase. Also, the subsidies on kerosene and LPG, which lead to substantial diversion, need to be reduced and also rationalized. The scope for disbursing subsidy through a smart card system while shifting to market prices needs to be explored.

1.98. Gas pricing is more complex as gas is not easily tradable. While the cost of imported Liquefied Natural Gas provides a ceiling on the domestic price of gas, the FOB price of gas less the cost of liquefaction and less the risk premium associated with exports constitutes long-term opportunity cost for producers. The price itself has to reflect its opportunity cost in its marginal use. Once we have adequate gas to meet the requirement of existing stranded assets, it will be possible to move to competitively determined gas pricing. In order that there is competition in the oil and gas sector, the distribution infrastructure of pipeline networks and associated facilities would have to be under open access regulated by regulators. While the oil and gas regulator has been put in place, there is no such regulator for coal. There is need to consider whether a coal regulator should also be established.

## RENEWABLES

1.99. The importance of renewable energy in the country arises from a number of factors—it increases energy

security, it provides energy at local levels, improving energy security at these levels and it involves little or no Green House Gas emissions. Appropriate policies will be pursued to encourage renewables by linking subsidies, wherever required, to outcomes rather than to outlays. The Eleventh Plan will follow an integrated energy policy to incentivize appropriate choice of fuels and technologies.

1.100. Most of the programmes for renewable energy development would continue to be promoted but with a maxim of providing subsidies or incentives which are linked to outcomes rather than capital expenditure. This is important to preserve incentives for not just setting up capacities, but also operating them and encouraging cost reduction and technology development.

1.101. Some of areas which would be pushed strongly are wind power, solar applications, biomass gasification, bio-fuels development and other clean technologies. The distributed generation based on wood gasification in rural areas, coupled with biogas plants, could provide village energy security, particularly in remote areas. Such plants can provide clean cooking energy and also electricity before the grid power reaches them and later can also feed into the grid. The programme for biodiesel and ethanol from feed-stocks that do not compete with food production will be encouraged by a well-designed policy to take care of the interests of all the stakeholders in the value chain.

## ENERGY EFFICIENCY AND R&D

1.102. There is large scope for improving energy efficiency in the country and this must be pushed vigorously through a variety of measures. These include energy auditing of large energy consumers, benchmarking with more efficient units, labelling and rating energy consuming equipment, forcing higher efficiency standards in major energy consuming sectors such as automobiles, and promoting energy efficient buildings. While labelling can help consumers buy energy efficient products, changes will be made in procurement policies so that government departments buy equipment based on life cycle costs.

1.103. We need R&D in a number of areas to augment our energy resources and provide cleaner energy. Considering the threat of climate change and the need

to find clean sources of energy, missions in the following areas should be mounted:

- Clean coal technologies of carbon capture and sequestration
- In-situ coal gasification
- Solar photo-voltaics and solar thermal electricity
- Cellulosic extraction of ethanol and butanol from agricultural waste and crop residues
- Improvement in the yield of *Jatropha* and other oilseeds for biodiesel.

1.104. Apart from these, a rigorous R&D programme will encourage development of new sources, more efficient utilization, and improvement in efficiency applications.

#### EDUCATION AND SKILL DEVELOPMENT

1.105. Education and skill development will receive high priority in the Eleventh Plan, both to meet the needs of a growing economy and to promote social equality by empowering those currently excluded because of unequal access to education and skills to participate fully in the growth process. Public expenditure (Centre and States) on education is only around 3.6% of GDP. The National Common Minimum Programme (NCMP) had set a target of raising it to 6%.

1.106. Several steps were taken in the Tenth Plan to expand access to primary education, especially the expansion in the Sarva Shiksha Abhiyan (SSA) and the Mid-Day Meal Scheme. As a result, the number of out-of-school children declined from 32 to 7 million, indicating that SSA brought an additional 25 million children into the education system during the Tenth Plan period. The Gross Enrolment Ratio (GER) for elementary schools (Classes I–VIII) increased from 81.6% in 2001–02 to 94.9% in 2004–05. However, the drop out rate has remained high. It was as high as 48.71% at the elementary level at the end of the Tenth Plan, a decline of only 5.94 percentage points from 2001–02.

1.107. The quality of teaching in our elementary schools is also not what it should be. Teacher absenteeism is widespread, teachers are not adequately trained and the quality of pedagogy is poor. The Eleventh Plan aims to correct these deficiencies and focuses on improving the quality of education at the elementary level, especially in

rural areas. It also begins the process of universalizing secondary education. The massive expansion required in secondary education calls for an expansion in both public schools as well as private aided and unaided schools. While private schools must be allowed to expand and even encouraged, it should be noted that a much larger proportion of the expansion in enrolment would come from the public schools.

1.108. The action proposed in the Eleventh Plan for secondary education includes the following:

- Rapid upgradation of 15000 Upper Primary Schools to Secondary Schools, and expansion of intake capacity in 44000 existing Secondary Schools;
- Establishment of 6000 high quality model schools at the block level to serve as benchmarks for excellence in secondary schooling. About 3500 of these will be public-funded schools while 2500 would be through PPP;
- Provision for laboratories/libraries and also strengthening of the existing facilities available;
- Continuous teacher training;
- Provision for hostels and residential schools for girls; and
- A more liberal approach on the part of State Governments on allowing private schools to be set up to meet the large unmet demand for quality education.

1.109. The Eleventh Plan must also focus on the pressing need to expand capacity in our institutions of higher education and technical and professional education (engineering, medicine, law, etc.). The GER for higher education (percentage of the 18–23 age group enrolled in a higher education institution) currently is around 11% whereas it is 25% for many other developing countries. China has increased its GER in higher education from 10% in 1998 to 21% in 2005. We must aim at increasing the GER to 15% by the end of the Plan and reach 21% by the end of the Twelfth Plan. This is necessary not only to meet the needs of a growing economy, but also to meet the aspirations of younger people who see education as an essential requirement for advancement. Along with expansion, it is also necessary to aim at improvement in quality. While the best of our institutions of higher education compare well internationally, a large number suffer from serious quality problems. A general improvement in the quality of existing universities is

necessary, including upgrading of facilities and improved methods of teaching. There is also need for a special effort to set up world class higher educational institutions. The expansion should aim at a much larger provision for science teaching.

1.110. The following initiatives will be taken in the Eleventh Plan to attain these objectives in higher education.

- Establishment of 30 new Central universities, one in each of the 16 States which do not have a Central university at present, and 14 other Central universities in different parts of the country. Some of these universities will be targeted ab initio to achieve world class standards, which will involve coverage of a wider range of subjects, including, especially engineering and medicine.
- Establishment of eight IITs, seven IIMs and five Indian Institutes of Science Education and Research.
- Since the establishment of world class institutions involves considerable expenditure on creating facilities, the scope for public–private participation in setting up these universities will be carefully explored. The location of these institutions should take advantage of the co-location of other scientific and research institutions in certain places.
- The scope for setting up institutions of higher education in the private sector must also be explored. State governments would be well advised to adopt a supportive stance on this issue, including flexibility in charging higher fees.
- At present, fees vary across universities, but generally these have been kept very low, in many cases not even covering 5% of the operating cost. The Centre and State Governments must either be able to subsidize university education massively or try to mobilize a reasonable amount from those who can afford it by way of fees that cover a reasonable part of the running cost. Since most university students come from the top 10% of the population by income levels, they would be able to pay fees amounting to 20% of the operating cost of general university education. The fees for professional courses could be much higher. The fee levels should, therefore, be increased gradually in existing institutions but the new norms could be implemented in new institutions from the start.

### Skill Development

1.111. In an economy growing at the rate of 9% plus, skill development poses major challenges and also opens

up unprecedented doors of opportunity. The magnitude of the skill development challenge can be estimated by the fact that the NSS 61<sup>st</sup> Round results show that among persons of age 15–29 years, only about 2% are reported to have received formal vocational training and another 8% reported to have received non-formal vocational training, indicating that very few young persons actually enter the world of work with any kind of formal vocational training. This proportion of trained youth is one of the lowest in the world. Our Vocational Education and Training (VET) system needs to cover more trades. Qualitatively it suffers from disabilities such as poor infrastructure, ill-equipped classrooms/laboratories/workshops, below par faculty, absence of measurement of performance and outcomes, etc. Placements are not tracked, training institutions are not rated, and accreditation systems are archaic. End-of-the-training examinations and certification systems are either non-existent or flawed.

1.112. In addition to the existing basic problem with the skill development system in the country, the urgency of skill development is underscored by the demographic changes taking place. It is estimated that the ageing phenomenon globally will create a skilled manpower shortage of approximately 46 million by 2020 and if we can take effective action on skill development, we could have a skilled manpower surplus of approximately 47 million. In an increasingly connected world, where national frontiers are yielding to cross-border outsourcing, it is not inconceivable that within a decade we can become a global reservoir of skilled persons.

1.113. Taking cognizance of this challenge, the consequential endeavour to launch effective measures will require a paradigm change in our VET system and in other forms of skill development. It is, therefore, proposed to launch coordinated action for skill development which will be a major initiative for inclusive growth and development and will consist of an agglomeration of programmes and appropriate structures. The coordinated action would aim at creating a pool skilled personnel in appropriate numbers with adequate skills in line with the employment requirements across the entire economy with particular emphasis on the twenty-one high growth high employment sectors (10 in manufacturing and 11 in services).

1.114. The coordinated action will aim to initiate and guide policy dialogue to energize, re-orient, and sustain

the development of skills through private and the public initiatives towards both self employment and wage employment at various levels. As a part of coordinated action, a National Skill Development Coordination Board will be set up which will act as an instrument of implementation and make appropriate and practical solutions and strategies to address regional imbalances in skill development infrastructure, the socio-economic (SC/ST/OBC, Minorities, BPL, etc.), rural–urban, gender divides and ensure that each sectoral plan have built-in long terms measures with a self-corrective mechanism.

1.115. Furthermore, it is proposed to create a ‘Virtual Skill Development Resource Network’, which can be accessed by trainees at 50000 Skill Development Centres, to provide web-based learning. It is also proposed to create a ‘National Skills Inventory’ and another database for ‘Skills Deficiency Mapping’ for facilitating tracking of careers and placement and for exchange of information between employers and employment seekers. The Eleventh Plan will also see repositioning of Employment Exchanges as outreach points for storing and providing information on employment and skill development, and to encourage them to function as career counselling centres.

## HEALTH AND NUTRITION

1.116. Good health is both an end in itself and also contributes to economic growth. Meeting the health needs of the population requires a comprehensive and sustained approach. Our health services should be affordable and of reasonable quality. The Eleventh Plan will try to strengthen all aspects of the health care system—preventive, promotive, curative, palliative and rehabilitative. This will be accompanied by emphasis on access to clean drinking water, sanitation, diet, hygiene and feeding practices, which will significantly affect the health status of the people. Public health spending will be raised to at least 2% of GDP during the Eleventh Plan period.

1.117. Both the Central and State Governments will have to augment resources devoted to health. This will be accompanied by building absorptive capacity for enhanced allocations and innovative health financing mechanisms, including health insurance for the poor, in which the premium for basic coverage will be borne by the Centre and the States. There is a strong case for experimenting with different systems of PPP and risk pooling. The Eleventh Plan aims to establish 60 medical colleges and

225 new nursing and other colleges in deficit States through PPP. Incentives linking payment to performance will also be introduced in the public health system.

1.118. The following targets have been set during the Eleventh Plan to ensure an efficient public health delivery system under the National Rural Health Mission (NRHM), which was launched in 2005.

- Over 5 lakh Accredited Social Health Activists (ASHAs), one for every 1000 population in 18 Special Focus States and in tribal pockets of all States by 2008.
- All sub-centres (nearly 1.75 lakh) functional with two Auxiliary Nurse Midwives by 2010.
- Primary Health Centres (PHCs) (nearly 30000) with three staff nurses to provide round the clock services by 2010.
- 6500 Community Health Centres (CHCs) strengthened or established with seven specialists and nine staff nurses by 2012.
- 1800 Taluka or Sub-Divisional Hospitals (SDHs) and 600 District Hospitals (DHs) to be strengthened to provide quality health services by 2012.
- Mobile Medical Units for each District by 2009.
- Functional Hospital Development Committees in all CHCs, SDHs, and District Hospitals by 2009.
- Untied grants and annual maintenance grants to every Sub-centre, PHC and CHC released regularly and utilized for local health action by 2008.
- All District Health Action Plans completed by 2008.

1.119. During the Eleventh Plan, special attention will be paid to various aspects of women’s health, including maternal morbidity and mortality, and child sex ratio. Besides encouraging institutional deliveries under NRHM, Traditional Birth Attendants (TBAs) will be trained to upgrade them as Skilled Birth Attendants. Reducing travel time to two hours for emergency obstetric care will be a key social intervention.

1.120. For reducing infant mortality, focus will be on Home Based Newborn Care (HBNC) complemented by Integrated Management of Neonatal and Childhood Illnesses. HBNC will be provided by a trained Community Health Worker (such as ASHA) who will guide and support the mother, family and TBA in the care of the newborn, and attend to the newborn at home if she is sick. The strategy during the Plan is to introduce and make available high quality HBNC in all districts/areas with an infant mortality rate of more than 45 per 1000 live births.

1.121. Improving all district hospitals will be a key intermediate step in the health strategy, till health care through PHCs and CHCs is fully realized. During the Plan period, six AIIMS-like institutions will be set up and 13 medical institutes upgraded to that level.

1.122. For meeting the health needs of the urban poor, particularly slum dwellers, a health insurance based National Urban Health Mission will be launched.

1.123. The Eleventh Plan also focuses on developing human resources to not just meet the needs of the health care system, but also to increase employment opportunities and make India a hub for health tourism. This will involve reintroducing licentiate courses in medicine, and establishing medical, nursing, dental and paramedical colleges in the under-served areas.

1.124. Good governance, transparency and accountability in the delivery of health nutrition and related services will be ensured through involvement of local self governments, community and civil society groups. The Eleventh Plan aims to establish 60 medical colleges.

1.125. High levels of malnutrition continue to influence morbidity and mortality rates in the country. According to the NFHS-3 (2005–06), 38.4% of children under 3 years are stunted, 19.1% wasted and 45.9% underweight. These figures have not improved much since 1998–99 (NFHS-2); in fact the proportion of wasted children has increased. The Body Mass Index (BMI) of 33% of women and 28.1% of men is below normal. Prevalence of anaemia is very high among young children (6–35 months), ever married women (15–49 years) and pregnant women and has increased since 1998–99 in all the three groups.

1.126. A variety of interventions consisting of dietary diversification, nutrient supplementation and public health measures involving better hygiene, sanitation and deworming will be undertaken to tackle the problem of malnutrition. The Integrated Child Development Services (ICDS) scheme, the government's main programme for addressing the problem of malnutrition, will be universalized on a fully decentralized on-demand basis and restructured in the Eleventh Plan as described below. The implementation of ICDS will be improved by giving responsibility of execution to the community and PRIs. Besides, there will be wider coverage of hot cooked meals and extensive promotion of infant and young child feeding practices.

## WOMEN'S AGENCY AND CHILD RIGHTS

1.127. Inclusive growth in the Eleventh Plan envisages respecting the differential needs of all women and children and providing them with equal access to opportunities. This can only happen when women are recognized as agents of socio-economic growth with autonomy of decision-making and the rights of children are respected.

1.128. The Eleventh Plan proposes a five-fold agenda for gender equity. This includes economic empowerment; social empowerment; political empowerment; strengthening mechanisms for effective implementation of women-related legislations; and augmenting delivery mechanisms for mainstreaming gender. For children, it adopts a rights framework based on the principles of protection, well-being, development and participation. Recognizing that women and children are not homogenous categories, the Eleventh Plan aims to have not just general programmes, but also special targeted interventions, catering to the differential needs of different groups. Thus during the plan period, specific pilots for girl children and Muslim women, will be taken up.

1.129. To ensure a gender responsive health care system, maternal health services will be improved and emergency and compulsory obstetrics care will be made available within a travel time of two hours. Targets for halving prevalence of anaemia and malnutrition among women and children have been set and the ICDS scheme is being restructured and reoriented towards this end. A new component of conditional maternity benefits is proposed to target foetal malnutrition, ensure better care for pregnant women and encourage breastfeeding. Universalization of Anganwadis will be carried out, and Panchayats and mothers' groups will be given resources to ensure effective implementation of the scheme. Need based, community-run crèches will also be introduced to tackle child malnutrition.

1.130. Departing from previous Plans, the Eleventh Plan views violence as a public health issue and calls for training of medical personnel at all levels of the health care system to recognize and report violence against women and children. The Eleventh Plan also introduces the Integrated Child Protection scheme and the Scheme for Relief and Rehabilitation of Victims of Sexual Assault. New and empowering bills like the Sexual Harassment at Workplace Bill and the Compulsory Registration of Marriages Bill are expected to become law during the Plan period.

## POVERTY, LIVELIHOOD SECURITY, AND RURAL DEVELOPMENT

1.131. Accelerating agriculture development with emphasis on watershed development in dryland areas and a special focus on small farmers will increase employment and help reduce poverty in rural areas. The Eleventh Plan also places emphasis on several other initiatives which will increase economic well-being and opportunities in rural areas. The NREGP provides income support for those in need of employment while also helping to create assets that will increase land productivity. The Bharat Nirman programme will provide electricity and drinking water to all habitations before the end of the Plan period. PMGSY will provide all-weather connectivity to all villages with a population of over 1000 or with a population of over 500 in hilly areas. SSA will provide eight years of education to all children. The other measures taken for improving education will help give opportunities to all children to fully develop their capabilities. The Rural Health Mission is directed to reach health services to all. The total sanitation campaign (TSC) should provide clean environment in villages.

1.132. When these programmes are effectively implemented, the benefits of growth would spread widely, especially in rural areas and backward regions. An important element of the Eleventh Plan strategy is to empower PRIs through special training as well as funds, supplemented by the Backward Regions Grants Fund (BRGF), to implement and oversee these programmes.

## URBAN INFRASTRUCTURE AND URBAN POVERTY ALLEVIATION

1.133. India is relatively less urbanized (29.2% as on 1 October 2007 as per the projections made by the office of Registrar General of India) than other countries at the same level of development. However, since the scope for employment opportunities in rural areas is somewhat limited, accelerated growth as envisaged in the Eleventh Plan is expected to result in more rapid migration of rural populations to urban centres. To deal with the situation, a two-pronged action plan is necessary. First, the quality of infrastructure in existing cities will have to be upgraded to provide improved municipal services to larger numbers of people and, second, new suburban townships will have to be developed in the vicinity of existing cities as satellites/counter magnets to reduce/redistribute the influx of population.

1.134. Not only is India less urbanized, the state of urban infrastructure, especially the availability of water and

sewage treatment facilities, is much lower than what it should be. Urban transport infrastructure also leaves much to be desired. The Jawaharlal Nehru National Urban Renewal Mission (JNNURM), which commenced in the Tenth Plan, will continue to be the main vehicle for raising the level of infrastructure and utilities in the existing cities. The aim of the Mission is to create economically productive, efficient, equitable and responsive cities and the focus is on: (i) improving and augmenting the economic and social infrastructure of cities; (ii) ensuring basic services to the urban poor, including security of tenure at affordable prices; (iii) initiating wide-ranging urban sector reforms whose primary aim will be to eliminate legal, institutional and financial constraints that have impeded investment in urban infrastructure and services; (iv) strengthening municipal governments and their functioning in accordance with the provisions of the Constitutional (Seventy-Fourth) Amendment Act, 1992.

1.135. The development of satellite townships can be left largely to the private sector. However, in order to facilitate and induce such development the State Governments will need to undertake provision of trunk level infrastructure. The National Capital Region Planning Board is tasked with planning the process of infrastructure development for the areas around Delhi. Similar boards can be set up to undertake coordinated development of townships around other large cities, learning from the Delhi experience to make the planning process more effective.

1.136. Urban poverty alleviation and slum development will continue to be an important component of the Eleventh Plan. Tenth Plan schemes under JNNURM for providing affordable shelter and decent living and working conditions to the poor and for helping them to develop self-employment enterprises will be continued. The Swarna Jayanti Shahri Rozgar Yojana (SJSRY), a CSS to provide gainful employment to the urban unemployed (below the poverty line) will be implemented in a revamped form during the Eleventh Plan period.

## SCIENCE AND TECHNOLOGY AS A DRIVER OF GROWTH

1.137. Science and Technology are important drivers of economic growth and development in the contemporary world. The present juncture is critical for Indian science and major positive steps in this area will help the country to achieve sustained and rapid growth in the future.

1.138. In order to enlarge the pool of scientific manpower in the country and to attract and foster talent in scientific

research a programme for ‘Innovations in Science Pursuit for Inspired Research’ (INSPIRE) will be launched. This will involve innovation funding in schools, summer camp with Science Icons (for high performers), assured career opportunity scheme for proven talent, and retention of talent in publicly-funded research. In addition, the Oversight Committee recommendation regarding Scholarships for Higher Education (SHE) providing 10000 scholarships per year for attracting talented science students of BSc and MSc courses will also be effectively implemented. Further, discipline-specific education programmes would be launched particularly in strategic sectors like, Space Sciences and Nuclear Sciences to capture talent at ‘plus two’ level with a view to developing quality human resources in the country for these sectors.

1.139. Universities are the cradle for basic research. To promote basic research in the country, a two pronged strategy will be adopted, aiming at: (i) Expansion and strengthening of the S&T base in the universities, and (ii) providing support to established centres of advanced research on the basis of competitive research funding for undertaking major and internationally competitive research programmes.

1.140. An effort would also be made to ensure that the wide pool of excellence available in the publically funded research institutions also participate actively as adjunct faculty in the universities and newly created academic and research institutions.

1.141. Effective mechanisms for promoting scientific research in the country need to be established in the Eleventh Five Year Plan. The peer review system will be upgraded to make it more stringent. All matters relating to Science and Technology including scientific audit as well as performance measurement of scientists and scientific institutions would need to be dealt with holistically.

## ENVIRONMENT AND SUSTAINABILITY

1.142. Translating the vision of environmental sustainability will require that environment concerns are given a very high priority in development planning at all levels in the Eleventh Plan. The responsibility of enforcing environmental laws will be defined and shared with the States to broad base the enforcement effort. Enforcement mechanisms for dealing with industrial and vehicular pollution will be strengthened on the principle of polluter pays concept.

1.143. Environmental management (including municipal solid waste and sewage management) is a crucial component of urban planning and has been sadly neglected. Sewage treatment must be given focused attention. Recycling of the treated water for appropriate purposes must be incentivized. Efforts will be made to integrate sewage treatment with water conservation. Local bodies will be provided with adequate financial support for the purpose.

1.144. The River Conservation Programme will be strengthened to ensure that river flows are adequate to provide water of at least bathing quality standards. A Comprehensive Action Plan for Yamuna and a manageable number of important rivers will be implemented urgently with a stiff penalty system for violators.

1.145. Participating systems will be strengthened for sustainable use of forests in keeping with the global consensus on the need for community involvement for management of natural resources. The livelihood potential of forests will be improved for enhancing the stake of the community in conservation. The scope of wildlife management principles will be extended beyond sanctuaries and national parks. Conservation efforts will include compatible human interface with forests. Scientific aspects of ecology and biodiversity will be the basis of conservation planning.

1.146. The prospect of climate change presents a serious threat to our development over the longer term horizon. Available scientific evidence suggests that India will be one of the countries that will be severely affected by climate change. The Himalayan glaciers are already receding and the trend could intensify. There is likely to be an increase in the mean temperatures which would have adverse effects on foodgrain production with the present level of technology. The monsoon would be affected with a greater frequency of extreme events. We have to evolve a positive stance toward adaptation and also engage constructively with the international community to reach a consensus on mitigation based on fair principles of burden sharing. Development and promotion of low carbon and high energy-efficient technologies with reasonable costs will be a priority. The Clean Development Mechanism (CDM) will be used as an incentive. A National Action plan on Climate Change is being prepared. The government’s effort will be towards creating an enabling environment for encouraging energy and carbon efficiency

in public and private sectors and towards internalizing climate change concerns in development planning.

### PANCHAYATI RAJ INSTITUTIONS (PRIS) AS DELIVERY MECHANISMS

1.147. The Eleventh Plan seeks to substantially empower and use PRIs as the primary means of delivery of the essential services that are critical to inclusive growth. The 73rd and 74th Amendments to the Constitution have led to the establishment of about 2.5 lakh elected institutions of local self-government. (about 2.38 lakh in rural areas and the rests in urban areas). As against about 540 directly elected Members of Parliament and about 4500 directly elected members of our State assemblies, we have about 3.2 million elected representatives in the PRIs of which as many as 1.2 million are women. There are more elected women in India alone than in the rest of the world put together. It is absolutely critical for the inclusiveness of our growth process that these large numbers of elected representatives in our PRIs are fully involved in planning, implementing and supervising the delivery of the essential public services.

1.148. The Eleventh Plan recognizes that there is a need to build in incentives that will encourage the States to devolve functions, funds and functionaries to the PRIs. In order to capture the extent to which this process and empowerment of PRIs has actually progressed in each State, a suitable Devolution Index will be developed and will be called PRI-Empowerment Index.

### MONITORABLE TARGETS

1.149. A key feature of the inclusive growth strategy in the Eleventh Plan is that growth of GDP should not be treated as an end in itself, but only as a means to an end. This is best done by adopting monitorable targets which would reflect the multi-dimensional economic and social objectives of inclusive growth. Furthermore, to ensure efficient and timely implementation of the accompanying projects and programmes, these targets need to be disaggregated at the level of the States which implement many of the programmes.

1.150. Following this approach, 27 monitorable targets have been identified at the national level of which 13 can be disaggregated at the level of individual States. These targets are ambitious, but it is better to aim high and fail than to aim low. The Eleventh Plan lays great stress on attaining them.

### THE 27 NATIONAL TARGETS

1.151. Twenty-seven targets at the national level fall in six major categories. The six categories are: (i) Income and Poverty; (ii) Education; (iii) Health; (iv) Women and Children; (v) Infrastructure; and (vi) Environment. The targets in each of these categories are given below.

#### (i) Income and Poverty

- Average GDP growth rate of 9% per year in the Eleventh Plan period.
- Agricultural GDP growth rate at 4% per year on the average.
- Generation of 58 million new work opportunities.
- Reduction of unemployment among the educated to less than 5%.
- 20% rise in the real wage rate of unskilled workers.
- Reduction in the head-count ratio of consumption poverty by 10 percentage points.

#### (ii) Education

- Reduction in the dropout rates of children at the elementary level from 52.2% in 2003–04 to 20% by 2011–12.
- Developing minimum standards of educational attainment in elementary schools, to ensure quality education.
- Increasing the literacy rate for persons of age 7 years or more to 85% by 2011–12.
- Reducing the gender gap in literacy to 10 percentage points by 2011–12.
- Increasing the percentage of each cohort going to higher education from the present 10% to 15% by 2011–12.

#### (iii) Health

- Infant mortality rate (IMR) to be reduced to 28 and maternal mortality ratio (MMR) to 1 per 1000 live births by the end of the Eleventh Plan.
- Total Fertility Rate to be reduced to 2.1 by the end of the Eleventh Plan.
- Clean drinking water to be available for all by 2009, ensuring that there are no slip-backs by the end of the Eleventh Plan.
- Malnutrition among children of age group 0–3 to be reduced to half its present level by the end of the Eleventh Plan.
- Anaemia among women and girls to be reduced to half its present level by the end of the Eleventh Plan.



**(iv) Women and Children**

- Sex ratio for age group 0–6 to be raised to 935 by 2011–12 and to 950 by 2016–17.
- Ensuring that at least 33% of the direct and indirect beneficiaries of all government schemes are women and girl children.
- Ensuring that all children enjoy a safe childhood, without any compulsion to work.

**(v) Infrastructure**

- To ensure electricity connection to all villages and BPL households by 2009 and reliable power by the end of the Plan.
- To ensure all-weather road connection to all habitations with population 1000 and above (500 and above in hilly and tribal areas) by 2009, and all significant habitations by 2015.
- To connect every village by telephone and provide broadband connectivity to all villages by 2012.
- To provide homestead sites to all by 2012 and step up the pace of house construction for rural poor to cover all the poor by 2016–17.

**(iv) Environment**

- To increase forest and tree cover by 5 percentage points.
- To attain WHO standards of air quality in all major cities by 2011–12.
- To treat all urban waste water by 2011–12 to clean river waters.
- To increase energy efficiency by 20% by 2016–17.

**THE 13 STATE-SPECIFIC TARGETS**

1.152. The Eleventh Plan has been formulated in a manner whereby 13 of the 27 monitorable national targets have been disaggregated into appropriate targets for individual States. These are

- (i) GDP growth rate
- (ii) Agricultural growth rate
- (iii) New work opportunities
- (iv) Poverty ratio
- (v) Drop out rate in elementary schools

- (vi) Literacy rate
- (vii) Gender gap in literacy rate
- (viii) Infant mortality rate (IMR)
- (ix) Maternal mortality ratio (MMR)
- (x) Total Fertility Rate (TFR)
- (xi) Child malnutrition
- (xii) Anaemia among women and girls
- (xiii) Sex-ratio

1.153. Appropriate policies and programmes have to be identified both at the Central and State levels so as to ensure realization of these targets in the Eleventh Plan period.

**SIZE OF THE ELEVENTH PLAN**

1.154. The total public sector outlay in the Eleventh Plan (both Centre and States and including their PSEs) is estimated at Rs 3644718 crore. Of this total, the share of the Centre (including the plans of PSEs) will amount to Rs 2156571 crore, while that of the States and union territories (UTs) will be Rs 1488147 crore.

1.155. The proposed size of the Eleventh Plan is much larger than the projected outlay, as well as the actual realization, in the Tenth Plan. At comparable prices, the Eleventh Plan outlay will be 120% higher than the Tenth Plan realization. In relation to GDP, the projected Eleventh Plan public sector outlay will be an average of 13.54% compared to the average of 9.46% that was achieved in the Tenth Plan. It must be emphasized, however, that Plan expenditure is not the same as public investment. It includes revenue expenditure on items such as salaries, which is high precisely because the focus of the Plan has shifted to supporting the social sectors, especially health and education.

1.156. Mobilizing resources in the public sector to finance the proposed Eleventh Plan will call for a major effort at generating tax revenues and controlling non-Plan expenditure and also improving the resource generation capacity of the PSEs. These issues are examined in detail in Chapter 3.

## Macroeconomic Framework

2.1. This chapter presents the basic macroeconomic projections underlying the Eleventh Plan consistent with achieving the target GDP growth rate of 9% on average over the Eleventh Plan period. These projections are not based on a single model of the economy, but on the results of several different models which have been used to explore feasible levels of growth and to derive a broadly consistent macroeconomic picture covering the broad sectoral composition of growth, savings and investment and projections of the balance of payments which are consistent with external viability of the strategy being proposed.

### GROWTH POTENTIAL

2.2. The growth potential of the economy can be judged to some extent by the performance of the economy in the past, and especially the performance in recent years. Table 2.1 presents the growth rates achieved in each Plan period since the First Five Year Plan.

2.3. It shows that the economy grew at 6.5% per year in the Eighth Plan period (1992–1996) and then decelerated to 5.5% in the Ninth Plan period (1997–2001), but recovered sharply to achieve a growth rate of 7.7% during the Tenth Plan. The last four years of the Tenth Plan recorded an average of about 8.7% and this momentum has continued into 2007–08 which is the first year of the Eleventh Plan, and is likely to record a growth of around 8.5% or, perhaps, even a little higher.

2.4. In this background, the 9% growth target for the Eleventh Plan period (2007–2011) approved by the NDC, which involved accelerating gradually from around 8.5% in the first year of the Plan to 10% by the end of the Plan period, appears entirely feasible, provided supportive policies are put in place. China has achieved growth rates exceeding 9% for two to three decades and while circumstances in India are not identical, the Indian economy has many strengths and now looks well

**TABLE 2.1**  
**Growth Performance in the Five Year Plans**

			(% per annum)		
Plan Period	Target	Realization	Plan Period	Target	Realization
1. First Plan (1951–55)	2.1	3.5	8. Sixth Plan (1980–84)	5.2	5.5
2. Second Plan (1956–60)	4.5	4.2	9. Seventh Plan (1985–89)	5.0	5.6
3. Third Plan (1960–65)	5.6	2.8	10. Annual Plan (1990–91)	–	3.4
4. Annual Plans (1966–68)	–	3.9	11. Eighth Plan (1992–96)	5.6	6.5
5. Fourth Plan (1969–73)	5.7	3.2	12. Ninth Plan (1997–2001)	6.5	5.5
6. Fifth Plan (1974–78)	4.4	4.7	13. Tenth Plan (2002–2006)	7.9	7.7
7. Annual Plan (1979–80)	–	–5.2			

*Note:* The growth targets for the first three Plans were set with respect to National Income. In the Fourth Plan it was Net Domestic Product. The actual growth rates are in terms of GDP at factor cost. Average growth rates over a short period can be misleading because of fluctuations in agricultural output due to variable monsoon.

positioned to achieve this goal. The economy has been accelerating gradually for the past fifteen years and the further acceleration needed to achieve the Eleventh Plan target is only modest. If this target is achieved, it would mean that per capita GDP would grow at around 7.6% per annum during the Eleventh Plan period. Per capita consumption growing by about 7% a year would double per capita consumption in about 10 years. Further, if growth is sufficiently inclusive, it will certainly provide an environment conducive to bringing about a broad-based improvement in living standards. Accelerated growth will also boost tax collections in both the Centre and the States, allowing the public sector to finance the special programmes needed to ensure inclusiveness.

2.5. The major macroeconomic parameters associated with achieving the average GDP growth of 9% during the Eleventh Plan are given in Table 2.2 with a comparative picture of the same parameters for the Tenth Plan. It may be noted that the higher growth target in the Eleventh Plan is premised upon a significant increase in the investment rate from an average of 32% of GDP in the Tenth Plan to an average of 36.7% of GDP in the Eleventh Plan. The Incremental Capital Output Ratio (ICOR) is expected to improve marginally. With the competition stimulated by openness and the expected improvement in infrastructure, ICOR can be expected to come down. Considering the acceleration in savings

and investment rates in recent years, the projected growth may seem conservative. However, since private investment may fluctuate over a business cycle, a deliberately conservative target is set.

## SECTORAL COMPOSITION OF GROWTH

2.6. Earlier, planning models placed heavy emphasis on estimating the sectoral composition of growth based on input-output balances established on the basis of detailed multi-sector models. Such detailed sectoral targets have little relevance in an open economy where necessary balances for all the tradable goods can be achieved through exports and imports. The only sectors where it is necessary to plan for a balance between domestic production and likely demands are the non-tradable sectors which are mainly in infrastructure, e.g. electric power, road transport, ports, airports, telecommunications, etc. The capacity requirements for these sectors have been worked out in detail and the policy implications and investment implications are discussed in Chapter 12 and also in the relevant chapters on individual sectors.

2.7. Although detailed sectoral targets are no longer relevant, it is possible to present a broad picture of sectoral growth prospects consistent with the target of 9% growth of the economy as a whole. Table 2.3 presents the sectoral composition of growth in the past three Plans together with indicative projections for the Eleventh Plan.

**TABLE 2.2**  
**Macroeconomic Parameters**

	(at 2006–07 prices)	
	Tenth Plan	Eleventh Plan
1. Investment Rate (% of GDPmp)	32.4	36.7
2. Domestic Savings Rate (% of GDPmp)	30.9	34.8
3. Current Account Deficit (% of GDPmp)	1.5	1.9
4. ICOR	4.3	4.1
5. GDP Growth Rate (% per annum)	7.5	9.0

Note: GDPmp = GDP at market prices.

**TABLE 2.3**  
**Sectoral Growth in Recent Plans**

Sector	(% per annum)			
	Eighth Plan (1992–96)	Ninth Plan (1997–2001)	Tenth Plan (2002–06)	Eleventh Plan (2007–11)
1. Agriculture	4.72	2.44	2.30	4.0
2. Industry	7.29	4.29	9.17	10–11
3. Services	7.28	7.87	9.30	9–11
4. Total	6.54	5.52	7.74	9.0

It may be seen that both agriculture and industry show a marked deceleration in the Ninth Plan compared to the Eighth Plan. The deceleration in industry was reversed in the Tenth Plan but the growth in agriculture continued to be slow. The services sector accelerated sharply in the Tenth Plan.

2.8. The deceleration in agriculture, which began in the Ninth Plan period and continued in the Tenth Plan period, has been a major area of concern from the point of view of inclusiveness. With half our population deriving the greater part of their income from agriculture, faster growth in agriculture is necessary to provide a boost to their incomes. Rising incomes in agriculture will also boost non-agricultural income in rural areas, thus helping redress the rural–urban imbalance. The Eleventh Plan has therefore set a sectoral target of doubling agricultural growth to 4% per year. In this context it may be noted that agricultural growth increased from less than 1% in the first three years of the Tenth Plan to average more than 4% in the last two years and, from early indications, this will be maintained in the first year of the Eleventh Plan also. Although no firm judgement is yet possible, this growth upturn in agriculture is a promising development and suggests that the target of 4% growth in agriculture for the Eleventh Plan is eminently achievable.

2.9. Industrial performance in the Tenth Plan period improved to a respectable 9.2% from the very low growth rate of 4.3% in the Ninth Plan. This revival of industrial growth is a major achievement of the policy in recent years. However, industrial performance needs to be

improved further if high quality employment in the non-agricultural sector is to be generated. Within industry, the manufacturing sector, accounting for 77% of industrial output has shown significant growth acceleration in the last two years. This revival of dynamism in industry has to be sustained to reverse the unacceptable decline in the share of manufacturing in GDP that has happened since 1991. This will also help generate more employment opportunities for the burgeoning workforce. The Eleventh Plan aims at double digit growth both in manufacturing and in industry. At the same time, it will be critical to improve the performance of the core sector (steel, coal, cement, oil, fertilizers and refined petroleum) to ensure that their supply response is adequate to sustain double digit manufacturing and industrial growth. Accelerated growth in industry will help to provide faster growth in organized sector employment, which is typically of a higher quality.

2.10. The services sector has grown impressively in successive Plans with a sharp acceleration in the Tenth Plan period, reflecting the rapid growth in high-end services spurred by the IT revolution. This has opened up new and attractive employment opportunities for our educated youth. We can expect further improvement in performance in this sector with an acceleration of services growth to 10% in the Eleventh Plan. Rapid growth in IT related services and in tourism will contribute to this outcome as will the expected expansion in health and education which should provide additional jobs for teachers, doctors and medical attendants.

**TABLE 2.4**  
**Investment and Savings Rates**

Year	(% of GDP)	
	Investment Rate	Savings Rate
Eighth Plan (1992–93 to 1996–97)	24.4	23.1
Ninth Plan (1997–98 to 2001–02)	24.3	23.6
2002–03	25.2	26.4
2003–04	28.2	29.8
2004–05	32.2	31.8
2005–06	35.5	34.3
2006–07	35.9	34.8
Tenth Plan (2002–03 to 2006–07)	32.1	31.9
Eleventh Plan Targets	36.7	34.8

*Note:* Ratios for Eleventh Plan are at constant 2006–07 price; Ratios for earlier years' Plans are at current price; 2005–06: Provisional Estimates; 2006–07: Quick Estimates.

## AGGREGATE INVESTMENT

2.11. High levels of investment are critical for rapid growth and an important strength of the economy is that we are entering the Eleventh Plan after experiencing several years of a rising level of investment as a percentage of GDP. As shown in Table 2.4, the investment rate averaged 24.4% in the Eighth Plan period and was almost unchanged in the Ninth Plan period. Thereafter it rose to an average of 32.1% in the Tenth Plan with the last year of the Plan showing an acceleration to 35.9%. This rate of investment should normally be adequate to attain 9% growth, but in our circumstances, because of prolonged underinvestment in infrastructure and the consequent need to enhance investment in this area, the Eleventh Plan aims at a further increase in the rate of investment in succeeding years to reach 38% at the end of the Plan period, yielding an average of around 37% in the entire Plan period.

2.12. An important structural change in the investment behaviour of the economy in the recent past is the change in relative shares of public and private investment. As shown in Table 2.5, although the rate of total investment as a percentage of GDP was almost the same in the Eighth Plan as in the Ninth Plan, the composition shifted in favour of private investment. Public sector investment as a percentage of GDP declined from 8.5% in the Eighth Plan to 7% in the Ninth Plan. This meant that the share of public sector investment in total investment declined from 34.7% in the Eighth Plan to 29% in the Ninth Plan. This trend of a declining rate of public investment as a percentage of GDP continued in the first two years of

the Tenth Plan but then began to be corrected in the rest of the Plan period. Private sector investment continued to be buoyant throughout the Tenth Plan period so the share of public investment in total investment in the Tenth Plan fell to 22%.

2.13. The rapid increase in private sector investment in the aggregate investment is in large part a reflection of the impact of the reforms initiated in the 1990s, which reduced restrictions on private investment and created a more favourable investment climate. It reflects the fact that the private sector has responded positively with an improvement in the investment climate. This is clearly a welcome development and should be encouraged in the Eleventh Plan. However, the declining trend in public investment as a percentage of GDP is a matter of concern. It reflects inadequate public investment in the Ninth Plan period in many critical areas such as agriculture and infrastructure. The reversal of the declining trend of public investment as a percentage of GDP in the Tenth Plan is a welcome development which needs to be continued in the Eleventh Plan. It must be emphasized that a higher share of public investment can be justified only if there is a demonstrable improvement in the efficiency of public investment. However, it can be argued that the infrastructure gaps are so large that an increase in public investment in infrastructure will actually crowd in private investment. These objectives are reflected in the projections for the Eleventh Plan, as shown in Table 2.5.

2.14. The private sector, which includes farming, micro, small and medium enterprises (MSMEs), and the larger

**TABLE 2.5**  
**Total and Public Investment in the Ninth and Tenth Plans**

	Total Investment (% of GDPmp)	Private Investment (% of GDPmp)	Public Investment (% of GDPmp)	Public Investment (% of Total Investment)
Eighth Plan (1992–93 to 1996–97)	24.4	15.9	8.5	34.7
Ninth Plan (1997–98 to 2001–02)	24.3	17.3	7.0	29.0
2002–03	25.2	19.2	6.1	24.1
2003–04	28.2	21.8	6.3	22.5
2004–05	32.2	25.3	6.9	21.4
2005–06	35.5	27.9	7.6	21.4
2006–07	35.9	28.1	7.8	21.6
Tenth Plan (2002–03 to 2006–07)	32.1	25.1	7.1	22.0
Eleventh Plan	36.7	28.7	8.0	21.9

*Note:* Ratios for Eleventh Plan are at constant 2006–07 price; Ratios for earlier years' Plans are at current price; 2005–06: Provisional Estimates; 2006–07: Quick Estimates.

private corporate sector, accounts for over 77% of the total investment in the economy and an even larger share in employment and output. Expansion in this sector will have to play a critical role in achieving the objective of faster and more inclusive growth. The MSMEs, in particular, have a vital role to play in making the growth regionally balanced, and in generating widely dispersed off-farm employment, some of it in rural areas. The Eleventh Plan, therefore, aims at an increase in investment in the private sector to 28.7% from an average of 25.1% in the Tenth Plan. This is best done by creating an environment in which entrepreneurship can flourish at all levels. New entrepreneurs should be able to enter and expand. In order to compete with incumbents, there must be strong competitive pressures which promote efficiency, government policies must be investor friendly, transaction costs should be low and infrastructure services of good quality should be readily available, especially to small and medium enterprises. Many elements of this environment are already in place. Licensing controls and discretionary approvals have already been greatly reduced, but remnants of the control regime remain that still need drastic overhaul, if not elimination, especially at the State Government level. Quantitative controls, where they exist, should give way to fiscal measures and increased reliance on competitive markets, subject to effective and transparent regulation. The burden of multiple inspections by government agencies must be removed and tax regimes rationalized. Since MSMEs are expected to create the bulk of new employment, it is particularly important to make the financial system more efficient in meeting the needs of our expanding private sector, and to ensure financial inclusiveness.

2.15. While encouraging private investment, the Eleventh Plan also aims at a substantial increase in public investment in critical areas such as agriculture, irrigation and water management, and in social and economic infrastructure. Public investment in infrastructure is projected to increase from 4.1% in 2006–07 to 6.8% in 2011–12. Since this increase must be accommodated with the overall increase in public investment from 7.8% in 2006–07 to 8.6% in 2011–12, it implies that public investment will shift from the non-infrastructure to infrastructure sector.

## AGGREGATE SAVINGS

2.16. The rise in investment projected in the Eleventh Plan is expected to be supported by a substantial increase

in domestic savings. Table 2.6 presents the structure of savings since the Eighth Plan period. Private savings consist of household savings, including direct investment by households, and corporate sector savings. Public sector savings consist of the savings of the government departments (Centre and States) and public sector corporations. Both components of private savings (households and corporate sector) have risen as a per cent of GDP in the Ninth Plan and also in the Tenth Plan. Corporate savings have been especially buoyant in the Tenth Plan, reflecting the very strong output and financial performance of the private sector in recent years.

2.17. The behaviour of public savings displays a more varied pattern. There was a marked deterioration in public savings in the Ninth Plan period, reflecting the sharp deterioration in the performance of Departmental Savings mainly on account of the impact of the Fifth Pay Commission which led to an increase in government salaries. Departmental Savings deteriorated from –0.9% of GDP in the Eighth Plan to –4.1% of GDP in the Ninth Plan. There was a marginal improvement in the savings of public sector undertakings from 3% of GDP in the Eighth Plan to 3.3% in the Ninth Plan, but the deterioration in Departmental Savings in the Ninth Plan meant that total public sector savings deteriorated from 2.1% of GDP in the Eighth Plan to –0.8% of GDP, a turnaround of 3 percentage points.

2.18. As shown in Table 2.6, both components of public sector savings showed an improvement in the Tenth Plan. Reduction in the dis-savings of government administration has been due to three main reasons: first, the impact of the Fifth Pay Commission's recommendations worked itself out in the system; second the implementation of the Fiscal Responsibility and Budget Management (FRBM) Act, and the fiscal and revenue deficit targets for 2008–09 established thereby helped introduce an element of discipline; and third, the buoyancy in tax revenues arising out of the high growth rate recorded in the Tenth Plan combined with improvements in tax administration contributed to improved savings.

2.19. The projections for the Eleventh Plan assume that the private sector savings effort will continue to be strong with some further improvement and that this will be combined with a very strong improvement in public sector savings. The scale of the public sector effort can

be seen from the fact that the Eleventh Plan projects a combined public sector savings rate of 4.5% of GDP compared with an achieved level of only 1.9% in the Tenth Plan. The projected turnaround of 2.6 percentage points of GDP in public sector savings requires a massive effort on the part of both the PSEs and the departments, mainly, the latter. It is important to note that this favourable outcome assumes that the award of the Sixth Pay Commission will not present severe difficulties. Hopefully, since the Fifth Pay Commission had indexed salaries fully to inflation, the pay increases should be only moderate. Pay revision should also increase private savings. If some of the subsidies financed by the government can be moderated, the savings target of public administration is realizable. It is also assumed that PSEs will maintain their savings performance of the Tenth Plan. One could expect it to increase. However, a slightly lower savings rate of 4% of GDP is conservatively projected to account for government policy on oil product price subsidies and its adverse impact on oil PSUs' balance sheets.

### THE BALANCE OF PAYMENTS

2.20. A key aspect of macroeconomic consistency is the viability of the Plan targets in terms of their implications for managing the balance of payments.

2.21. During the Tenth Plan period, merchandise exports moved on to a new trajectory with an annual average growth rate of 23.2%. Similarly, with a buoyant economy, merchandise imports increased by 27.8% during this period. There has been a continuous shift of exports towards technology intensive high-value manufactures, including machinery and instruments and also petroleum products, gems and jewellery. Despite substantial growth in the export of petroleum products by an annual average of 54.3% in the Tenth Plan, net oil imports increased by 26.5% due to the steep rise in oil prices of the Indian basket. Services exports increased substantially in the Tenth Plan contributing to increase in net invisibles. This provided a cushion for financing a large part of the trade deficit on the merchandise account. The current account deficit in 2006–07 was US\$ 9.6 billion, i.e. 1.1% of GDP.

2.22. Based on the Tenth Plan trends, projections for the Eleventh Plan have been made and are summarized in Table 2.7. These projections reflect a picture of a dynamic Indian economy taking full advantage of the opportunities provided by integration with the world economy.

2.23. Exports in the Eleventh Plan are projected to grow at about 20% per year in US\$ terms, which is lower than

**TABLE 2.6**  
**Composition of Saving**

Period/Years	Private Sector		Total Private Sector	Public Sector		Total Public Sector	Gross Domestic Savings
	Household Sector	Private Corporate Sector		Government Administration	Public Sector Undertaking		
Eighth Plan (1992–93 to 1996–97)	17.0	4.0	21.0	(–) 0.9	3.0	2.1	23.1
Ninth Plan (1997–98 to 2001–02)	20.5	4.0	24.5	(–) 4.1	3.3	(–) 0.8	23.6
2002–03	23.2	3.9	27.0	(–) 4.7	4.0	(–) 0.6	26.4
2003–04	24.4	4.4	28.7	(–) 3.1	4.2	1.1	29.8
2004–05	23.0	6.6	29.6	(–) 2.0	4.2	2.2	31.8
2005–06	24.2	7.5	31.7	(–) 1.4	4.0	2.6	34.3
2006–07	23.8	7.8	31.6	(–) 0.8	4.0	3.2	34.8
Tenth Plan (2002–03 to 2006–07)	23.7	6.3	30.0	(–) 2.2	4.1	1.9	31.9
Eleventh Plan	23.0	7.3	30.3	0.5	4.0	4.5	34.8

Note: Ratios for Eleventh Plan are at constant 2006–07 price; Ratios for earlier years' Plans are at current price; 2005–06: Provisional Estimates; 2006–07: Quick Estimates.

the 23% rate at which they have been growing over the Tenth Plan reflecting somewhat the lower projections of growth in world trade. Even with this moderation in export growth, the projection implies that the share of exports to GDP in the Eleventh Plan period will rise from 13.9% in 2006–07 to 22.5% by the terminal year of the Eleventh Plan, reflecting the continued integration of the economy with the rest of the world. This also implies an increase in India's share of world exports since world trade is unlikely to grow by more than 6%.

2.24. Imports on the other hand are likely to continue increasing at an average rate of 23% over the Eleventh Plan. This will help address critical capacity constraints in the plant and equipment sectors, the demand for which is expected to remain strong due to rising investment. Petroleum, oil and lubricants (POL) imports, which currently accounts for nearly 30% of total imports, will be boosted by the higher oil prices and rising energy consumption levels.

2.25. As Table 2.7 shows, the trade deficit is expected to go up significantly to 16% of GDP by 2011–12. This appears high but is expected to be largely compensated by rising invisible account surplus on the back of

accelerating services sector exports, tourist earnings and remittances. This surplus is projected to be as much as 13.5% of GDP and the current account deficit projected for the Eleventh Plan period therefore increases from 1.1% in 2006–07 to 2.4% of GDP in 2011–12. These projections are calibrated around an international crude oil price of US\$ 80 per barrel. Financing a deficit of this order should not present a problem given the foreign capital inflows that are taking place and which can be expected to continue, barring an unexpectedly severe and prolonged downside shock to the world economy. In fact, the capital flows we have been experiencing in recent years have proved difficult to manage, leading to a sharp build-up in foreign exchange reserves and upward pressure on the exchange rate which has adverse consequences.

## UNCERTAINTIES AND RISKS

2.26. The external environment facing the economy in the Eleventh Plan period presents some uncertainties and risks which could have an impact on performance. These include the following:

- A downturn in the global economy, given the current macro imbalances and uncertainties in the financial markets.
- Uncertainty about the price of oil in world markets.

**TABLE 2.7**  
**Balance of Payments**

Items	(at 2006–07 price)					
	2006–07		2011–12		(2007–12)	
	US\$ billion	% to GDP	US\$ billion	% to GDP	US\$ billion	CAGR
<i>Current Account Balance</i>						
Exports	127.1	13.9	316.2	22.5	1135	20.0
Imports	192.0	20.9	540.5	38.5	1864	23.0
Trade Balance	–64.9	–7.1	–224.3	–16.0	–729	–
Invisibles (net)	55.3	6.0	190.0	13.5	616	28.0
of which:						
Exports of Services	81.3	8.9	238.4	17.0	812	24.0
Imports of Services	48.6	5.3	217.9	15.5	653	35.0
Current Account Balance	–9.6	–1.1	–34.3	–2.4	–113.2	–1.9@
<i>Capital Account</i>						
Foreign Direct Investment (net)	8.4*	0.9	14.0	1.0	48.3	10.7
NRI Deposits	3.9	0.4	9.8	0.7	38.6	20.3
Portfolio (net)	7.1	0.8	11.2	0.8	43.3	9.7
Net Capital Flows	44.9	4.9	51.9	3.7	206.8	2.9

Note: \*Foreign Direct Investment (net) includes US\$ 20.41 billion inflows and US\$ 11.97 billion outflows during 2006–07. @ indicates percentage to GDP.



- Capital flows and exchange rate risks. This risk is more likely to be an upside risk.
- Impact of increase in food prices in the world due to increasing use of foodgrains for ethanol production.
- Continued governance problems that prevent necessary efficiency improvements in public expenditure and public investments.

### SLOWDOWN IN WORLD ECONOMY

2.27. The growth of the world economy affects our economy directly through exports and also through the impact of global growth prospects on Foreign Direct Investment (FDI). It is therefore relevant to evaluate the medium term prospects in this regard. Although unsettled financial conditions prevailing at the end of 2007, combined with the persistence of global imbalances, have raised the prospect of a slowdown in some of the major economies over the next 12 months; this is likely to be temporary and not a medium-term phenomenon. In any case, Indian exports have shown considerable resilience and have also diversified considerably so that the impact of a temporary slowdown in some of the major industrial economies may not be significant. India's share in global trade is still small and an aggressive policy drive for expanding exports may enable us to weather the impact of a temporary slowing down of the global economy. In effect, the constraints on our growth are primarily internal and it is reasonable to assume that uncertainties affecting the world economy are not such as to have an impact on India's growth potential over the Eleventh Plan period.

### HIGH OIL PRICES

2.28. The impact of higher oil prices on our growth can be significant and will depend on the strategy we adopt to deal with the situation. A 25% increase in oil price from US\$ 80 per barrel can be expected to increase our import bill by 5% and the current account deficit to GDP ratio by a little over one percentage point of GDP. Base year deficit at around 1.1% of GDP is projected to increase to 2.4% of GDP by the terminal year. With higher oil prices, the deficit is likely to increase further, but would still be financially viable. In fact, it would enable us to deal with foreign inflows which, at present, appear excessive. The additional foreign exchange cost of oil imports therefore should not present a serious problem. The more important issue is how we deal with the need to pass on high oil prices to the consumer. The present policy of insulating consumers from the full impact of the rise in the global price of oil is not sustainable as the public

sector oil majors bear a very large burden in terms of under-recoveries and there are also fiscal costs which run into constraints posed by the FRBM Act. It is always possible to undertake some subsidization for those who are really needy, but the bulk of the under-recoveries at present are not on account of such targeted subsidization. As and when the global price is passed on fully to the consumers, it would reduce the demand for oil, mitigating the impact on the balance of payments, and also raise the general level of prices somewhat. Given the low rate of inflation at present, this one-time adjustment could be absorbed in the system without too much disruption. A price adjustment would also moderate growth to some extent in the short run but it would not significantly affect growth in the medium term.

### VOLATILITY OF CAPITAL FLOWS

2.29. The volatility of capital flows in a globalized world is a major problem which affects many countries. Traditionally, we have been concerned with volatility in terms of possible outflows triggering a balance of payments crisis. However, recent experience has exposed us to a new phenomenon of managing a surge of inflows. From a low of US\$1 billion in foreign exchange reserves in the middle of 1991, when the economy was plunged into a balance of payments crisis, our foreign exchange reserves have reached over US\$ 290 billion which is generally regarded as more than necessary for managing any conceivable downside shock to external payments. The same phenomenon is evident in many Asian countries which have seen a build-up in foreign exchange reserves.

2.30. This build-up in foreign exchange reserves was facilitated by foreign capital inflows to emerging market countries which have been very buoyant. Some part of the build-up was justified as a measure of insurance against a possible adverse turn in the external climate in future. However it is clear that the accumulation in reserves in recent years is in excess of requirements and reflects the desire to manage capital inflows without allowing them to impact on the exchange rate.

2.31. The problem posed by having to manage large inflows has been discussed in Chapter 13. It arises because of the well known 'trilemma' that it is not possible to achieve three objectives simultaneously, i.e. free capital mobility, an independent monetary policy and a stable exchange rate. Attention should be given to measures to restrain these capital flows and enhance the absorptive

capacity in the economy to avoid running into the classical ‘Dutch Disease’ situation where non-tradables become over-priced and erode the competitiveness of the economy in the tradable sector.

2.32. Faced with a surge of inflows as in the past year, we have to either protect the exchange rate by intervening in the forex market or allow the rupee to appreciate. Rupee appreciation has a negative effect on export, especially in the short run, and is therefore best avoided. However, the option of intervening to buy up foreign exchange and add to reserves also has adverse consequences. If the intervention is not sterilized it leads to a build-up of liquidity, which could lead to inflation. If it is sterilized, as has been done extensively in 2007–08, it involves a significant fiscal cost since the interest paid by the government on market stabilization bond is significantly higher than the interest earned on reserves. It may be noted that if the spread between the two rates is 5 percentage points then the cost of sterilization of US\$100 billion of excess reserves is US\$5 billion per year or Rs 20000 crore.

2.33. In practice, governments have rarely chosen pure strategies. Instead, efforts are made to respond in terms of a mixed strategy of allowing some appreciation in the currency, some unsterilized intervention and some effort to limit inflows at the margin. This is essentially the policy we have followed thus far, and it is on the whole well conceived.

2.34. The cautious approach to opening the capital account followed thus far as a conscious act of policy has given the government some leeway in limiting inflows of certain categories. In determining the categories of capital flows on which restrictions should be imposed, we have rightly followed the approach of exempting FDI flows completely from any restrictions associated with short-term compulsions. We have also kept the door open for

genuine Foreign Institutional Investment (FII) flows, while introducing some regulation of flows through non-transparent mechanisms such as participatory notes. This leaves external commercial borrowing (ECB) (including non resident Indian [NRI] deposits) which is subject to control and should bear the brunt of short-term restrictions, if these become necessary.

### RISING FOOD PRICES IN THE WORLD

2.35. Foodgrain prices in the world markets have increased significantly in the last year due to a combination of poor harvest and a shift towards bio-fuels. The latter tendency is bound to accelerate, which suggest that food prices may remain high in the near future. This will undoubtedly put pressure on Indian agricultural prices. It should be emphasized that farmers are likely to gain from higher prices and to the extent to which low profitability of agriculture have been a cause of low farm income and adequate investment, the favourable shift in prices could actually boost domestic production and rural incomes. However, it must also be noted that consumers are hurt by higher prices and since most of the poor in India are net purchasers of food, it would be necessary to protect them from any undue increases in food prices. How to balance these conflicting objectives will present a major problem especially in the short term.

### CONCLUSION

2.36. On balance, the macroeconomic parameters facing the economy at the start of the Eleventh Plan are very positive reflecting strong fundamentals and the economy is well set to benefit from them. There are risks and uncertainties but these can be managed, especially over the medium term. On the whole, the growth target of 9% proposed for the Eleventh Plan is feasible provided necessary supportive policies are put in place to address domestic constraints. These are discussed in detail in the individual chapters of the Plan document.

# 3

## Financing the Plan

### Financial Resources: Centre and States

#### INTRODUCTION

3.1. This chapter presents projections of the likely availability of total savings in the economy and also of public sector resources in the Eleventh Plan period given the target GDP growth rate of 9%. The overall picture in terms of resources for the economy as a whole suggests that given recent trends, it will be possible to mobilize the savings needed to finance the gross domestic investment needed for 9% growth. As far as public sector resources is concerned, the estimates show resource availability for the Eleventh Plan of Rs 3644718 crore at 2006–07 price for the Centre and States taken together. At comparable prices, this amounts to an increase of 120.5% over the Tenth Plan realization.

3.2. These projections imply that public sector resources for the Plan will increase from 9.46% of GDP in the Tenth Plan to 13.54% in the Eleventh Plan. Thus outcome depends critically on achievement of buoyancy in tax revenue, effective control over consumption expenditure and subsidies, and an improvement in the resource mobilizing capacity of Public Sector Undertakings (PSUs) both at the Central and State levels.

#### PUBLIC SECTOR RESOURCES IN THE TENTH PLAN

3.3. This section presents an overview of the resources of the Centre and States in the Tenth Plan period.

#### CENTRE'S RESOURCES

3.4. The GBS to the Tenth Plan was projected at Rs 706000 crore at 2001–02 price. This included Rs 300265 crore of Central assistance (CA) to the States and UTs. With

the Tenth Plan resources of Central Public Sector Units (CPSUs) projected at Rs 515556 crore, resources available for the Central Plan was fixed at Rs 921291 crore.

3.5. Table 3.1 shows the financing pattern of the Centre's Plan during the Tenth Plan. The realized GBS available for the Plan was 84.2% of the projected amount. Realized Central assistance to States and UTs at Rs 203117 crore was 67.6% of the projected level. As a percentage of GBS, this declined from 42.5% to 34.2%. This decline in the share of CA to States and UTs is partly a reflection of the disintermediation of the loan portion of CA following the Twelfth Finance Commission's (TFC) award in the middle of the Tenth Plan period, and partly also a result of the increasing resource transfers to States through CSS specially in health, education and rural development, which expanded well beyond what was originally projected. CPSUs achieved 71.5% of resources projected in the Plan.

3.6. The total resources available for the Central Plan, consisting of GBS for the Central Plan plus PSUs' resources, worked out to 82.5% of the projected level i.e. Rs 760327 crore at 2001–02 price.

3.7. The pattern of funding GBS in the Tenth Plan as actually realized reflects a significant deterioration of non-debt contribution compared with the Plan projections. The share of Balance from Current Revenues (BCR) in GBS was projected to be (–)0.9% but deteriorated sharply to (–)17.2%. The realized share of borrowings had to

**TABLE 3.1**  
**Projected vis-à-vis Realized Financing Pattern of the Plan Outlay of the Centre (including UTs)**

(Rs crore at 2001–02 price)

Sources of Funding	Tenth Plan		
	Projection	Realization	% Realization
1 BCR	–6385 (–0.9)	–102280 (–17.2)	–1601.9
2 Borrowings including net MCR	685185 (97.1)	683962 (115.0)	99.8
3 Net Flow from Abroad	27200 (3.9)	12966 (2.2)	47.7
4 Gross Budgetary Support for the Plan (1+2+3)	706000 (100.0)	594649 (100.0)	84.2
5 Central assistance to States and UTs	300265 (42.5)	203117 (34.2)	67.6
6 GBS for Central Plan (4–5)	405735 (57.5)	391532 (65.8)	96.5
7 Resources of PSEs	515556	368796	71.5
8 Resources for Central Plan (6+7)	921291	760327	82.5

*Note:* Figures in parentheses are percentages of Gross Budgetary Support to Plan (S. No. 4).

*Source:* Planning Commission.

increase to 115% as against the projected share of 97.1% to bridge the BCR gap.

3.8. The deterioration in BCR during the Tenth Plan as compared to the projections reflects a relatively poor performance in the earlier years of the Plan. The BCR improved continuously, however, during each of the successive years of the Plan and turned positive in 2006–07. A robust economic growth and improved performance of the manufacturing sector helped to ensure that revenue receipts, particularly tax revenues, were buoyant throughout the Tenth Five Year Plan. Gross tax revenue of the Central Government recorded an average annual growth of 20.5%. Net of the share of the States, the tax revenues of the Centre grew at 21.4%. However, growth in non-tax revenue in the same period was moderate at 4.0%. The average annual growth of revenue receipts of the Central Government during the Tenth Plan was 16.7%.

3.9. Revenue receipts of the Centre increased by 1.1 percentage points of GDP from 9.4% in 2002–03 to 10.5% in 2006–07. Between 2002–03 and 2006–07, gross tax revenue as a proportion of GDP increased by about 2.7 percentage points, of which 0.6 percentage points was the increase in the share of the States. The gross tax GDP

ratio increased to 10.3% in 2005–06 and is expected to increase further to 11.5% in 2006–07. Tax revenues (net of States' shares) increased by about 2.1 percentage points from 6.4% in 2002–03 to 8.5% in 2006–07. However, non-tax revenue fell by about 0.9 percentage points from 2.9% of GDP in 2002–03 to 2.0% of GDP in 2006–07. The decline in non-tax revenue has been largely due to a steep decline in interest receipts by about one percentage point owing to debt swap, and debt consolidation and resetting of interest rates, and disintermediation in borrowings arising from the award of the TFC.

3.10. The Non-Plan Revenue Expenditure (NPRE) declined by about 1.86 percentage points from 10.87% of GDP in 2002–03 to 9.01% of GDP in 2006–07 (refer to Table 3.2). This was mainly because of a sharp decline in interest payments of about 1.17% of GDP. Subsidies actually reflected in the Central budget declined by about 0.49% of GDP between 2002–03 and 2006–07. However, this ignores the fact that there was substantial under-provisioning in the budget for fertilizer subsidy. It also does not account for the under-recovery by petroleum companies because of the inadequate adjustment in prices to compensate for oil price increases.

**TABLE 3.2**  
Non-Plan Revenue Expenditure (NPRE)  
and its Components

	(Rs crore)	
	2002–03 Actual	2006–07 Provisional
1 Interest	117804 (4.79)	149553 (3.62)
2 Pension	14496 (0.59)	21984 (0.53)
3 Salary*	18253 (0.74)	23232 (0.56)
4 Subsidies	43533 (1.77)	52935 (1.28)
5 Other NPRE	73058 (2.97)	123940 (3.00)
6 (Total) NPRE	267144 (10.87)	371644 (9.01)

Note: \*2006–07 is BE. Figures in parentheses are percentages of GDP.

Source: Planning Commission.

3.11. During the Tenth Plan, expenditure on subsidies increased by 22.8% from Rs 43533 crore in 2002–03 to Rs 52935 crore in 2006–07. The main factor behind the increase was fertilizer subsidy, which more than doubled. While food subsidy remained stable and other subsidies increased by 29%, petroleum subsidies reflected in the budget declined in nominal terms. The apparent decline in petroleum subsidies, however, does not reflect the quasi-fiscal subsidization of oil prices through the issue of oil bonds. Subsidy rationalization, including targeting of the poor, has been an announced policy objective of the government for over a decade. However, success in this area has been rather limited.

3.12. Because of buoyant revenue receipts and some control over expenditure following the enactment of the fiscal responsibility legislation (see Box 3.1), the borrowings of the Central Government have been contained within the projected level in absolute terms. The percentage of interest payments to revenue receipts declined from 51% in 2002–03 to 34.5% in 2006–07 implying improved sustainability of the Centre's debt burden. The debt burden of the Centre has declined by almost 3.1 percentage points from 63.4% in 2002–03 to 60.3% of GDP as per 2006–07 BE.

3.13. The gross fiscal deficit of the Centre, as a percent of GDP, declined from 5.9% in 2002–03 to 4.1% in 2005–

**TABLE 3.3**  
Gross Fiscal Deficit

Year	(as % of GDP)		
	Centre	States	Combined
2002–03	5.9	4.2	9.6
2003–04	4.5	4.5	8.5
2004–05	4.0	3.5	7.5
2005–06	4.1	2.5	6.7
2006–07 (RE)	3.7*	2.8	6.4
2007–08 (BE)	3.3	2.4	5.6
Tenth Plan (2002–07)	4.4	3.5	7.7

Note: \*3.5 (2006–07 Provisional). BE stands for Budget Estimates.

Source: Macroeconomic and Monetary Developments Mid-Term Review 2007–08, 30 October 2007, RBI.

06 and further to 3.5% in 2006–07. The gross fiscal deficit of the States, as a percent of GDP, also declined from 4.2% in 2002–03 to 2.8% in 2006–07 revised estimates (RE). As a result, the combined fiscal deficit of the Centre and States came down from 9.6% in 2002–03 to 6.4% in 2006–07 (RE). The average fiscal deficit for the Tenth Plan, as a percent of GDP, was 4.4% for the Centre, 3.5% for the States and 7.7% for the Centre and States combined. The year-wise figures of fiscal deficit are provided in Table 3.3.

3.14. The net inflow from abroad on government account, which is deployed for funding externally aided projects, was projected to contribute 3.9% of GBS in the Tenth Plan. However, actual realization was less than half of the projected level, thereby reducing its realized share in Plan resources to 2.2% of GBS. The fall in net inflow from abroad is due to the repayment of costlier debt in the initial years of the Tenth Plan.

3.15. The IEBR of the CPSUs was projected to provide Rs 515556 crore but the actual realization was only Rs 368796 crore or 71.5% of the projected amount. As a result the realized share of IEBR in the Central Plan resources was only 48.5%, substantially lower than the projected share of 56%.

3.16. The investment by CPSUs is financed through budgetary support provided by the Central Government, which is a part of total plan outlay and GBS, and IEBR raised by CPSUs on their own. IEBR comprises of Internal Resources, and Extra-Budgetary Resources (EBR). Internal Resources comprise retained profits—net of dividend paid to government, depreciation provision, and

carried forward reserves and surpluses. EBR consist of receipts from the issue of bonds, debentures, ECB, suppliers' credit, deposit receipts, and term loans from financial institutions.

3.17. IEER contributed 83% of the Plan outlay of CPSUs during the Tenth Plan. Of this, Internal Resources contributed 47% and Extra-Budgetary Resources, 36%. In the original projections, Internal Resources (IR) were to contribute 79% and EBR were to contribute only about 21%. However, over the Tenth Plan, realization of IR has been about half the projection. The shortfall in IR has

led to increased borrowings by the CPSUs. Consequently, EBR have exceeded the Tenth Plan target by about 51%.

### RESOURCES OF STATES AND UNION TERRITORIES (UTs)

3.18. The Tenth Plan resources of the States and UTs were projected at Rs 590948 crore at 2001–02 price. The realization at 2001–02 prices is placed at Rs 569233 crore or 96.3% of the projected level. The realized pattern of funding, however, shows a divergence from the projected levels (as shown in Table 3.4). BCR has deteriorated by about 67 percentage points over the projected

#### Box 3.1

#### FRBMA, 2003 and Fiscal Consolidation

The Fiscal Reforms and Budget Management Act (FRBMA) enacted in 2003, is an important institutional mechanism to ensure fiscal prudence and support for macro economic balance. According to the Rules framed under the Act, revenue deficit is to be eliminated by 31 March 2009, and fiscal deficit is to be reduced to no more than 3% of estimated GDP by March 2009. The process of fiscal consolidation under FRBMA has been continuous. It has yielded rich dividends in terms of creating fiscal space for increased spending on infrastructure and social sectors. The traditional annual budgeting has moved to a more meaningful medium-term fiscal planning framework. FRBMA provides the basic structure around which many fiscal measures have been implemented. Some of the important among these include: reducing peak rates of customs duties, rectifying anomalies like inverted duty structure, rationalizing excise duties, relying on voluntary tax compliance, introduction of State-level VAT, increasing productivity of expenditure through an outcome budget framework, and innovative financing mechanisms like creation of special purpose vehicles for infrastructure projects. The success in fiscal consolidation in the Tenth Plan has provided a good foundation to build the Eleventh Plan.

**TABLE 3.4**  
**Core Tenth Plan Resources of States and UTs**

(Rs crore at 2001–02 price)			
Sources of Funding	Projection	Realization	% realization
1 Balance from Current Revenues	–15295 (–2.6)	–25514 (–4.5)	–166.8
2 Resources of PSEs	82684 (14.0)	95714 (16.8)	115.8
i) Internal resources	–7760 (–1.3)	9653 (1.7)	224.4
ii) Extra-Budgetary resources	90444	86061	95.2
3 Borrowings	264802 (44.8)	299022 (52.5)	112.9
4 State's Own Resources (1+2+3)	332191 (56.2)	369222 (64.9)	111.1
5 Central assistance	258757 (43.8)	200011 (35.1)	77.3
6 Aggregate Plan Resources (4+5)	590948	569233	96.3
7 GBS to Plan (6–2)	508264	473519	93.2
8 GBS as percentage of GDP	3.6	3.4	

*Note:* Figures in parentheses are percentages of Aggregate Plan Resources.

*Source:* Planning Commission.

level. However, with resources of the PSEs being 16% higher and borrowings 13% higher, the States' own resources have improved by 11 percentage points over the projected level.

3.19. Performance of the States can be analysed, broadly, in terms of three components, viz, the BCR reflecting non-debt resources, States' borrowings reflecting debt based funding, and Central assistance, which is now all grant.

3.20. The BCR of the States was expected to be (–)Rs 15295 crore but the actual situation has been much worse, with a negative BCR of Rs 25514 crore. The States' own tax revenues have increased due to improvements made possible through the introduction of value-added tax (VAT). The share of Central taxes devolved to the States has also improved owing to buoyant resources of the Centre. However, compression of non-Plan expenditure has not been as expected.

3.21. Against a projected contribution of 44.8% of the Plan resources, borrowings in the Tenth Plan reached 52.5%. The higher share of borrowings is partly due to the deterioration in BCR. Central assistance to States and UTs in the Tenth Plan was 77.3% of the projected level, and its contribution to Plan resources however, has been only 35% as against the projection of about 44%. This has been a consequence of disintermediation of Plan loans to States and UTs in the wake of recommendations of the TFC and increased resource transfers through CSS.

## PUBLIC SECTOR RESOURCES IN THE ELEVENTH PLAN

### CENTRE'S RESOURCES

3.22. There have been several important developments during the Tenth Plan that have implications for financing of the Eleventh Plan. FRBMA, 2003 is in force and the TFC award for 2005–10 is being implemented. Service tax has emerged as a very promising source of revenue. An announcement has also been made that efforts will be made to introduce a unified goods and service tax (GST) by 1 April 2010. The Sixth Central Pay Commission was constituted in October 2006 and is scheduled to submit its recommendations in 2008–09.

### Effect of FRBMA

3.23. FRBMA, 2003 and the associated rules notified on 5 July 2004, enjoined the Central Government to reduce the fiscal deficit by no less than 0.3% of GDP every year and to bring it down to no more than 3% of GDP by 2008–09. The imposition of a ceiling on the fiscal deficit constrains the scope for enhancing GBS by resorting to more borrowings. While in the short to medium run this appears to constrain the government from making productive investments, it is necessary to take a more long-term view of the implications of FRBMA. Borrowings increase resource availability in the short run but they also increase the outstanding debt, and hence the interest burden of the Centre. This increases NPRE and hence reduces GBS in the future. High fiscal deficits also generate other undesirable consequences such as uncertainty about macro fundamentals which can affect investor confidence and make the climate unsuitable for private investment with adverse effects upon growth.

3.24. The projections assume that FRBMA will effectively constrain the fiscal deficit to the levels indicated, leading to a reduction in debt financing for funding of GBS for the Eleventh Plan. Accordingly, the Centre's net borrowings, which stood at 3.47% of GDP in 2006–07, are projected to decline to 3% in 2008–09 and remain at this level during the Eleventh Plan. Eleventh Plan projections on borrowings do not distinguish between external and domestic debt.

3.25. FRBMA not only prescribes the required reduction in fiscal deficit, but also a reduction in revenue deficit by no less than 0.5% of GDP every year and the elimination of such deficit by 2008–09. The imposition of a zero revenue deficit condition has an impact on total revenue expenditure given revenue receipts. This, in turn, has implications for the composition of Plan expenditure in terms of the revenue component of the Plan. The Centre's GBS deployment now involves a substantial component of revenue expenditure exceeding 80%, reflecting the large grants to States under the CSS which show up as revenue expenditure in the Centre's budget. The imposition of a revenue deficit ceiling, in addition to a fiscal deficit ceiling, makes it vitally important to control non-Plan expenditure to ensure that the total of Plan and NPRE does not exceed the permitted ceiling.

### Effect of TFC

3.26. The Twelfth Finance Commission's recommendations have essentially two critical implications for Plan financing. First, the TFC award increased the devolution to the States and thus improved their financial position and hence their capacity to finance the Plan. This increased capacity must be kept in mind when determining the necessary Plan transfers from the Centre to the States in the form of Normal Central Assistance (NCA). Second, implementation of the TFC's award has also led to a problem of straightforward comparison of GBS in the pre- and post-TFC period. For example, in 2004–05, GBS for the fourth year of the Tenth Plan of Rs 132292 crore included Rs 24806 crore of State Plan loans intermediated by the Centre. A straightforward comparison with GBS of Rs 140638 crore in 2005–06 gives an increase of only 6.3%. However, a proper comparison, after deducting what would have been dis-intermediated in 2004–05 under the TFC award, shows an increase of 30.8% in 2005–06 over the previous year.

3.27. The TFC's recommendations cover the period up to 2009–10, which includes the first three years of the Eleventh Plan. The projections of resources for the Eleventh Plan have been made assuming that the same proportions of resource transfers as under the TFC award will continue in 2010–11 and 2011–12. The assumption may not prove valid, as it is not possible to anticipate the nature of the Thirteenth Finance Commission's recommendations. The only possible basis on which projection can be made is to assume continuation of the existing proportions.

### Effect of Service Tax

3.28. The introduction of service tax has provided a promising source of revenue, but there are some caveats which have to be kept in mind before making projections for the Eleventh Plan. First, the scope for expanding the service tax net to more and more services gets narrower as the net is widened. The contribution of the expanding net will, therefore, reduce over time. Second, the preponderance of small service providers below the taxable limit of turnover constrains the scope of revenue mobilization beyond a certain level. Third, service tax was introduced under the residuary entry No. 97 in List I in the Seventh Schedule of the Constitution and, as such, is not subject to sharing with the States. There are already strong demands for a sharing of the tax base between the

Centre and the States, particularly in the context of phasing out of Central Sales Tax. Any sharing of the tax base with the States will diminish the Centre's available resources to finance the Plan. Fourth, with the declared goal of introducing a unified GST by 1 April 2010, there is considerable uncertainty about the rates, base, and mechanism for setting off (i.e. input tax credit), all of which have implications for future revenue collections.

3.29. Keeping in mind the implication of the FRBM and also the prospects for service tax, an assessment has been made of the likely GBS of the Centre, assuming that the growth rate of GDP will average 9% per annum in the Eleventh Plan, reaching 10% growth in the final year. The resource projection made by the Working Group on the Centre's resources yields a projection of GBS of the Centre which indicates that it will grow from 2.99% of GDP in 2006–07 to 5.38% of GDP in 2011–12. The average GBS for the Central Plan in the Eleventh Plan period stands at 3.97% of GDP as against 2.77% of GDP realized in the Tenth Plan.

3.30. The tax revenue (net of States' share) increases from 8.5% of GDP in 2006–07 to 10.26% of GDP in 2011–12, averaging 9.28% during the Eleventh Plan. Collection of direct tax is projected to exceed indirect tax collection, for the first time in history, from 2008–09 onwards. Corporate tax collection averages 63% of direct tax collection during the Eleventh Plan. It increases from 3.5% of GDP in 2006–07 to 5.31% of GDP in 2011–12 averaging 4.28% of GDP, that is, 1.66 percentage points increase over the average Tenth Plan realization. It may be mentioned that the projection regarding corporate taxes by the Working Group is based on the assumption of a corporate tax elasticity of 2.27. This is the weighted average of the estimated elasticity over the period 1995–96 to 2005–06 and the buoyancy estimated by the Task Force on the implementation of the FRBM Act, 2003.

3.31. Subsidies in the first year of the Eleventh Plan have been taken as per 2007–08 BE. As a proportion of GDP at current market prices, the projection assumes that the total subsidies will decline from 1.17% in 2007–08 BE to 0.93% in 2011–12. This, however, ignores the under recoveries on petroleum items because of the failure to fully pass on the effects of world oil prices and also underpayment on fertilizer subsidy. Inability to pass on



increases in global oil prices to the consumers would have a substantial impact on resources for the Plan if this situation is not addressed urgently.

3.32. Table 3.5 presents the resources of the Centre and its funding in the Eleventh Plan. The GBS available for the Plan is estimated at Rs 1421711 crore at 2006–07 price. Central assistance to the States' and UTs' Plan works out to be Rs 324851 crore. IEBR of CPSUs is estimated at Rs 1059711 crore. The total resources available for the Central Plan are projected at Rs 2156571 crore.

**TABLE 3.5**  
**Projection of the Eleventh Plan Resources of the Centre**

		(Rs crore at 2006–07 price)
Sources of Funding		Projection
1	Balance from Current Revenues	653989 (46.0)
2	Borrowings including net MCR	767722 (54.0)
3	Gross Budgetary Support to Plan (1 + 2)	1421711 (100)
4	Central assistance to States & UTs	324851 (22.8)
5	Total GBS for Central Plan (3–4)	1096860 (77.2)
6	Resources of PSEs including borrowed resource	1059711 (74.5)
7	Total Resources for Central Plan (5+6)	2156571

Note: Figures in parentheses are percentages of GBS to Plan (S. No. 3).

Source: Planning Commission.

3.33. Table 3.6 compares the funding pattern in the Eleventh Plan with the Tenth Plan realization as percentages of GDP. The imposition of the fiscal deficit ceiling ensures that borrowings, including net miscellaneous capital receipts, decline from 5.03% of GDP to 2.86% in the Eleventh Plan.

### STATES' RESOURCES

3.34. The FRBM legislations in the States prescribe that they should achieve a fiscal deficit of 3% of GDP by the end of 2008–09. Therefore, the gross fiscal deficit of all the States, which stood at 3.73% of GDP in 2006–07 has been projected to decline to 3% by 2008–09 and to remain at this level in the remaining years of the Eleventh Plan. This inevitably limits the scope for mobilizing borrowed resources and the States, therefore, have to look at improving revenue realization and controlling non-Plan expenditure.

3.35. The core aggregate Plan resources of the States and UTs have been projected to be Rs 1488147 crore at 2006–07 price (see Table 3.7). This comprises of Rs 1163296 crore of own resources (including borrowings) and Rs 324851 crore of Central assistance. UTs account for 3.8% of the combined aggregate Plan resources of the States and UTs.

3.36. As a proportion of GDP, aggregate Plan resources of the States and UTs are projected at 5.55% of GDP, registering an increase of 1.47 percentage points over the Tenth Plan realization (refer to Table 3.8). The BCR, which was negative in the Tenth Plan, is projected to improve to a large positive figure of Rs 385050 crore. This represents an improvement of 1.59 percentage points of GDP per

**TABLE 3.6**  
**Tenth Plan Realization and Eleventh Plan Projection of Resources of the Centre**

		(as % of GDP)		
Sources of Funding		Tenth Plan Realization	Eleventh Plan Projections	Increases (+)/ Decreases (–)
1	Balance from Current Revenues	–0.84	2.31	3.15
2	Borrowings including net MCR	5.03	2.86	–2.17
3	Net Flow from Abroad	0.06	–	–
4	Gross Budgetary Support to Plan (1 to 3)	4.25	5.17	0.92
5	Central assistance to States & UTs	1.48*	1.20	–0.28
6	GBS for Central Plan (4–5)	2.77	3.97	1.20
7	Resources of PSEs	2.61	4.02	1.41
8	Resources for Central Plan (6+7)	5.38	7.99	2.61

Note: \* If Plan loans intermediated to States and UTs are excluded, this reduces to 0.99% of GDP, which is the relevant figure for comparison.

Source: Planning Commission.

year over the Tenth Plan. However, projections of resources of PSEs and Central assistance to the States show a decline of 0.19 percentage points and 0.23 percentage points, respectively as compared with the Tenth Plan.

3.37. Mobilization of resources of such a magnitude for the Eleventh Plan is contingent upon significant improvement in the States' own resources, mainly through improved BCR. The States will have to step up efforts to

increase their own tax and non-tax revenue collections through better tax administration, plugging the scope for leakages and recovery of cost based user charges.

3.38. As shown in Table 3.8, the Central assistance being transferred to the States in the Eleventh Plan amounts to 1.2% of GDP as against 1.43% in the Tenth Plan. However, as noted in the footnote of Table 3.8, if the Tenth Plan figure is adjusted to remove loans intermediated through

**TABLE 3.7**  
**Eleventh Plan Resources of States and UTs**

(Rs crore at 2006–07 price)

Sources of Funding	Projection		
	State	UTs	Total
1 Balance from Current Revenues	341202 (23.8)	43848 (77.2)	385050 (25.9)
2 Resources of PSEs	128824 (9.0)	–	128824 (8.7)
i) Internal resources	5692 (0.4)		5692 (0.4)
ii) Extra-Budgetary resources	123132 (8.6)		123132 (8.3)
3 Borrowings	636459 (44.5)	12964 (22.8)	649423 (43.6)
4 State's Own Resources (1 to 3)	1106485 (77.3)	56811 (100.0)	1163296 (78.2)
5 Central assistance	324851 (22.7)	–	324851 (21.8)
6 Aggregate Plan Resources	1431336 (100.0)	56811 (100.0)	1488147 (100.0)

Note: Figures in parentheses are percentages of aggregate Plan resources.

Source: Planning Commission.

**TABLE 3.8**  
**Core Tenth Plan Realization and Eleventh Plan Projection of Resources of States and UTs**

(% of GDP)

Sources of Funding	Tenth Plan Realization	Eleventh Plan Projections	Increases (+)/ Decreases (–)
1 Balance from Current Revenues	–0.18	1.41	1.59
2 Resources of PSEs	0.69	0.49	–0.19
3 Borrowings	2.14	2.45	0.30
4 States' Own Resources (1 to 3)	2.65	4.35	1.70
5 Central assistance	1.43*	1.20	–0.23
6 Aggregate Plan Resources (4+5)	4.08	5.55	1.47

Note: \*This is based on the figures reported by the States. Hence, it is slightly different from the figure of Central assistance to States and UTs in Table 3.5. If Plan loans intermediated to States and UTs are excluded, this reduces to 0.99% of GDP which is the relevant figure for comparison.

Source: Planning Commission.

the Centre, the Tenth Plan figure is lower at 0.99%. Besides, Central assistance is not the only means of Plan transfer. Large transfers take place through the CSS which have been greatly expanded in the Eleventh Plan. Accordingly, the States will receive larger transfer of Central resources to them.

### OVERALL FINANCING PATTERN

3.39. Table 3.9 compares the structure of financing projected in the Eleventh Plan for the Centre and States, combined with that actually realized in the Tenth Plan. The most notable feature is that the Eleventh Plan projections show relatively modest dependence on borrowings amounting to 38.9% of the total Plan resources compared with 73.9% in the Tenth Plan realization. This outcome is the consequence of tighter fiscal discipline imposed by the fiscal responsibility framework, both at the Centre and the States, and an optimistic revenue outlook driven by the buoyancies in revenue collections during the last three years of the Tenth Plan reflecting the robust performance of the economy. This is reflected in the projected massive improvement in BCR which was negative in the Tenth Plan and is projected as a large positive figure for both the Centre and the States.

3.40. The financing plan outlined above will pose major challenges. As shown in Table 3.10, the total resources for the Central and State Plans taken together have to increase from an average of 9.46% of GDP in the Tenth Plan to an average of 13.54% of GDP in the Eleventh Plan. It may be noted that while the total size of the Plan is projected at 13.54% of GDP, the total public investment in the economy is projected to be lower at 8.6% (see Chapter 1). This difference reflects the fact that a great deal of Plan expenditure finances current expenditure on various items of public service delivery which are not counted as investment. The increase of 4.08% of GDP in total resources for the Plan has to be achieved while keeping borrowing within the FRBM requirement of reducing the fiscal deficit of the Centre and States to 3% on each account. Taking account of the resources mobilized by the public sector, the combined BCR of the Centre and the States has to increase by more than the projected increase in Plan resources.

3.41. The Centre's BCR, realized in the Tenth Plan, averaged (-)0.84% of GDP. It is projected to average 2.31% of GDP over the Eleventh Plan, that is, an improvement of 3.15 percentage points of GDP. Similarly, the BCR of

**TABLE 3.9**  
**Comparison of Tenth Plan Realization with Eleventh Plan Projection of Resources**

Sources of Funding	(Rs crore at 2006–07 price)					
	Tenth Plan Realization			Eleventh Plan Projection		
	Centre	States & UTs	Total	Centre	States & UTs	Total
1 Balance from Current Revenues	-127166 (-13.4)	-31722 (-4.5)	-158888 (-9.6)	653989 (30.3)	385050 (25.9)	1039039 (28.5)
2 Borrowings including net MCR	850382 (89.9)	371779 (52.5)	1222161 (73.9)	767722 (35.6)	649423 (43.6)	1417145 (38.9)
3 Net Inflow from Abroad	16121 (1.7)	—	16121 (1.0)	—	—	—
4 Centre's GBS (1+2+3)	739337 (78.2)	—	739337 (44.7)	1421711 (65.9)	—	1421711 (39.0)
5 Resources of PSEs	458530 (48.5)	119003 (16.8)	577533 (34.9)	1059711 (49.1)	128824 (8.7)	1188535 (32.6)
6 State's Own Resources (1+2+5)	—	459060 (64.9)	459060 (27.8)	—	1163296 (78.2)	1163296 (31.9)
7 Central assistance to States & UTs	-252539 (-26.7)	248677 (35.1)	-3862 (-0.2)	-324851 (-15.1)	324851 (21.8)	—
8 Resources of the Public Sector Plan (1+2+3+5+7)	945328	707737	1653065	2156571	1488147	3644718

Note: Figures in parentheses are percentages of Resources of the Public Sector Plan.

Source: Planning Commission.

**TABLE 3.10**  
**Plan Resources as Per Cent of GDP**

Aggregate Plan Resources	Tenth Plan	Eleventh Plan	Increase over Tenth Plan
Centre	5.38	7.99	2.61
States	4.08	5.55	1.47
Centre and States	9.46	13.54	4.08
Balance from Current Revenues			
Centre	-0.84	2.31	3.15
States	-0.18	1.41	1.59
Centre and States	-1.02	3.72	4.74

Source: Planning Commission.

the States is also expected to improve substantially from (-) 0.18% of GDP as realized in the Tenth Plan to 1.41% of GDP in the Eleventh Plan. As can be seen from Table 3.10, the projected improvement required in the combined BCR of the Centre and States taken together is therefore 4.74 percentage points of GDP. It must be emphasized that achievement of these BCR targets is a key element in the financing of the Plan.

3.42. Underlying the projected BCR is a projection that tax revenues (net to Centre) would grow from 8.5% of GDP in 2006–07 to 10.26% of GDP in 2011–12. NPRE is expected to decline from 9.01% of GDP in 2006–07 to 6.91% in 2011–12. Thus the projected improvement of 3.15% of GDP in BCR of the Centre is expected to come slightly more from contraction in NPRE than growth in taxes.

3.43. The assumption of strong growth in tax revenues of the Centre and the States built into the projections is not unreasonable. Tax revenues recorded in the recent past has shown high buoyancy facilitated by tax reforms and also significant improvements in the efficiency of tax administration. These efforts will continue in the Eleventh Plan period and should contribute to achieving the targeted tax-to-GDP ratios. However, the BCR projections are equally dependent upon the ability to moderate the growth in NPRE and this aspect of the projections deserves focused attention.

3.44. There are several factors which could make it difficult to contain expenditures to the projected level. There are inevitable uncertainties associated with the impact of the

Sixth Pay Commission's recommendations. Equally, if not, more important is the upward pressure of subsidies, particularly on fertilizer and petroleum, and also on food. Petroleum subsidies have not so far been factored into the plan resources calculations since they have been financed by the issue of bonds not included in fiscal deficit accounting, and some portion being borne by the oil companies themselves. However, this practice cannot be sustained indefinitely. Reform of the subsidy regime has to be urgently taken up to keep the total subsidy, including the present off-budget subsidy, to within the ceiling of 0.93% of GDP in 2011–12 that the resources projections have built in.

### ALLOCATION OF PUBLIC SECTOR RESOURCES: CENTRE AND STATES

3.45. The projection of the overall resources for the Eleventh Plan has been presented in the preceding section. This section focuses on the allocation of Public Sector Resources for the Eleventh Plan between the Centre and the States/UTs and the proposed sectoral distribution of the resources in keeping with the objective of achieving faster and more inclusive growth.

3.46. The projected assessment of resources of the public sector for the Eleventh Plan at Rs 3644718 crore at 2006–07 prices comprises of the Centre's share at Rs 2156571 crore and the States/UTs share at Rs 1488147 crore. The resources for the Central Plan includes the GBS component of Rs 1096860 crore and the IEER component of Rs 1059711 crore at 2006–07 prices. Resource allocation in the Central sector according to different Heads of Development is indicated in Annexure 3.1 and the ministry/department-wise details of budgetary support and IEER are indicated in Annexure 3.2.

3.47. The Eleventh Plan resources of the States and UTs are projected at Rs 1488147 crore at 2006–07 prices, out of which States' own resources are Rs 1163296 crore and the Central assistance to States and UTs is Rs 324851 crore at 2006–07 prices. Head of Development-wise allocation for the States/UTs is indicated in Annexure 3.1 with States/UTs-wise core plan details furnished in Annexure 3.3. These allocations would be finalized in consultation with the States. Table 3.11 indicates the resources and allocation of public sector resources for the Eleventh Plan.

**TABLE 3.11**  
**Public Sector Allocation for Eleventh Plan**

(Rs crore at 2006–07 prices)

Centre		Allocation
Sources of Funding		
1	Budgetary Support	1096860
2	IEBR	1059711
3	Total Centre(1+2)	2156571
States and UTs		Allocation
Sources of Funding		
4	State Own Resources	1163296
5	Central assistance to State/UT Plan	324851
6	Total States & UTs (4+5)	1488147
Total Public Sector Outlay		Allocation
7	Grand Total (3+6)	3644718

Source: Planning Commission.

**TABLE 3.12**  
**GBS Allocation in Tenth and Eleventh Plans**

(Rs crore at 2006–07 prices)

	Tenth Plan Realization		Eleventh Plan Projections		
	Amount	% share in Total GBS	Amount	% share in Total GBS	% increase over Tenth Plan
Central Sector	486798	73.6	1096860	77.2	125.3
Support to State Plan*	175021	26.4	324851	22.8	85.6
Total	661819	100	1421711	100	114.8

Note: \*Grant component only.

Source: Planning Commission.

3.48. A comparison of the distribution of the total GBS in the Tenth and the Eleventh Plan has been shown in Table 3.12. In comparison to the Tenth Plan realization, there is an increase of 125% in the projected GBS for the Centre for the Eleventh Plan. Central assistance to State/UT Plans for State sector programmes is about 85.6% higher than the grant component realized during the Tenth Plan. The share of the projected grant component of the Central assistance to States/UTs plan in the total GBS for Eleventh Plan has decreased slightly from what has been realized in the Tenth Plan (from 26.4% to 22.8%) primarily because a much higher allocation has been made to the CSS. The allocation to CSS has increased from 1.40% of GDP for the Tenth Plan to 2.35% of GDP in the Eleventh Plan.

3.49. The projection of GBS allocation to different sectors, Ministries/Departments and the support to the State/UT Plan has been made in tune with the approach adopted for the Eleventh Plan for 'faster, more broad-based and inclusive growth'. The Eleventh Plan aims at putting the economy on a sustainable growth trajectory with a growth rate of 10% by the end of the Plan period by targeting robust growth in agriculture at 4% per year and by creating productive employment at a faster pace than before. The Eleventh Plan focuses on poverty reduction, ensuring access to basic physical infrastructure, health and education facilities to all while giving importance to bridging the regional/social/gender disparities and attending to the marginalized and the weaker social groups. Accordingly, a major structural shift

**TABLE 3.13**  
Sectoral Allocation—Tenth Plan and Eleventh Plan

(Rs crore at 2006–07 prices)

S. No.	Sectors	Tenth Plan		Eleventh Plan	
		BE <sup>#</sup>	% to Total	Projected Allocation	% to Total
1	Education	62461	7.68	274228	19.29
2	Rural Development Land resources and Panchayati Raj	87041	10.70	190330	13.39
3	Health Family Welfare and Ayush	45771	5.62	123900	8.71
4	Agriculture and Irrigation	50639	6.22	121556	8.55
5	Social Justice	36381	4.47	90273	6.35
6	Physical Infrastructure	89021	10.94	128160	9.01
7	Scientific Departments	29823	3.66	66580	4.68
8	Energy	47266*	5.81	57409	4.04
	Total Priority Sector	448403	55.10	1052436	74.03
9	Others	365375	44.90	369275	25.97
	Total	813778	100.00	1421711	100.00

*Note:* <sup>#</sup>Tenth Plan BE represents the actual allocation during the five years and not the original Tenth Plan projections; \*Includes APDRP grant component only.

across sectors has been proposed by allocating more resources to the priority areas identified for ensuring inclusiveness. A broad picture of the structural change in terms of sectoral allocation of resources has been shown in the Table 3.13.

3.50. About 74% of the total central allocation for the Eleventh Plan has been put aside for the priority sectors listed in Table 3.13, whereas, their share was only 55% in the Tenth Plan. It may be noted that the share of infrastructure and energy in the GBS allocation has fallen despite their being in the priority list. This is not a reflection of lack of priority but a reflection of a conscious policy to shift from public sector funding in these sectors to a strategy of increased IEPR and Public-Private Partnership.

3.51. As pointed out in Chapter 1, the objective of the Eleventh Plan is to increase investment in infrastructure (including irrigation) from 5% of GDP in 2006–07 to 9% by 2011–12.

3.52. The sector-wise thrust areas identified for Eleventh Plan are given in Box 3.2.

3.53. To mobilize resources for allocation to the priority sectors and to realize a sustainable growth of 10% by the end of the Plan period, there is a need to substantially

enhance the resources for infrastructure development, skill development and industrial growth, as well. This will contribute to raising the income levels through employment generation and will also provide impetus to the other programmes. In addition to the identified priority sectors, investment in the private sector including farming, MSMEs has a vital role in achieving regionally balanced and more inclusive growth and also the potential to generate off-farm employment. Steps are proposed to be taken to provide a comfortable and competitive environment for the MSMEs to grow and some structural and regulatory changes have also been proposed to attract private and foreign investors. Keeping in mind the socio-economic diversity in the country, decentralized planning complemented with greater transparency and accountability is desirable for the overall development of the country. Also, our development strategy should be well complemented by policies for environmental protection and sustainability.

3.54. The Eleventh Plan proposes to provide Rs 324851 crore at 2006–07 prices as CA to State/UT Plans. Table 3.14 indicates the details of sector-wise CA component of the resources of the States/UTs. Out of the total CA to States/UTs of Rs 324851 crore at 2006–07 prices, 37% (i.e., Rs 122852 crore) has been earmarked for the Gadgil Formula driven NCA, Special Plan Assistance (SPA) for Special Category States and Special Central

**Box 3.2**  
**Thrust Areas of the Eleventh Plan**

Sectors	Thrust Areas
Education	Quality upgradation in Primary Education, Expansion of Secondary Education, major emphasis on upgradation of Higher Education including Technical Education, ICT throughout education system.
Health, Nutrition, Drinking Water, and Sanitation	Major upgradation of rural health infrastructure, Medical education, Nutritional support to children and pregnant and lactating women through ICDS, health insurance based urban health facilities, Health care for elderly, achieving sustainability, improvement in service levels and moving towards universal access to safe and clean drinking water.
Agriculture and Irrigation	Ensuring Food Security, Supporting State-specific agriculture strategy and programmes, Better seed production, Focused agricultural research, Extension, Development of modern markets.
Rural Development, Land Resources and Panchayati Raj	Universalization and improvement in programme delivery of NREGP, Integrated Watershed management including management of underground water level.
Social Justice and Empowerment	Special attention to the needs of SCs, STs and minorities and other excluded groups through pre and post-metric scholarship, Hostels for boys/girls, Income and employment generation opportunities, Multi-sectoral development programmes for minorities in minority concentration districts.
Physical Infrastructure	Emphasis on the public-private partnership in investment, Initiate policies to ensure time-bound creation of world-class infrastructure, especially in remote and inaccessible rural areas and NE, Hinterland connectivity through improved rail and road infrastructure.
Energy	Electrification of all villages and extending free household connections to all 2.3 crore BPL households through RGGVY, Nuclear power development.
Scientific Departments	Development of satellite launch capabilities to GSLV-Mk-III, Development of new energy systems, viz. advance heavy water reactor and nanotechnology.

**TABLE 3.14**  
**Projected Central Assistance to States/UTs for Eleventh Plan**

(Rs crore at 2006-07 price)

Sectors	Programme	Allocation
State Development Plan	Normal Central assistance	94720
Special Category States	Special Plan Assistance	13238
	Central Pool for North East and Sikkim	3095
Agriculture	Rashtriya Krishi Vikas Yojana	22104
	Shifting Cultivation	212
SCA	Border Area Development Programme/Hill Area Development Programme/North Eastern Council	14894
Irrigation	Accelerated Irrigation Benefit Programme	41568
Power	Accelerated Power Development & Reform Programme	12820
Urban/Local Area Development	Jawaharlal Nehru Urban Renewal Mission	41490
	Brihan Mumbai Storm Water Drain Project, Mumbai	113
	MPs' Local Area Development Programme	6985
Balanced Regional Development	Backward Region Grant Fund	25711
Elderly and Weaker Section	National Social Assistance Programme	15691
Adolescent Girls	National Programme for Adolescent Girls	886
Roads and Bridges		7972
Externally Aided Projects	Various EAPs	14273
Disaster Management	Tsunami Rehabilitation Programme	2985
Sports	Commonwealth Games, 2010	2133
E-governance	National e-Governance Action Plan	2942
<b>Total</b>		<b>324851</b>

Assistance (SCA) for the Border Areas Development Programme (BADP)/Hill Area Development Programme (HADP)/North East Council (NEC), etc. The remaining 63% of Central assistance to the States is assigned to Additional Central Assistance (ACA) for various flagship programmes in accordance with the priority set for the Eleventh Plan, such as the AIBP, National Social Assistance Programme (NSAP), APDRP, BRGF, and JNNURM. A new programme, the RKVY, has been introduced to incentivize the States to accord a much higher priority to the agriculture sector in their investment planning by supplementing area specific agricultural strategies and programmes.

3.55. The overall plan outlay of all the States and UTs is projected to increase from Rs 673132 crore in the Tenth Plan to Rs 1488147 crore in the Eleventh Plan (both at the same 2006–07 price levels), an increase of 21.1% on a comparable basis. The aggregate picture indicates that the States would be allocating more than proportionate increase to social services (40.1%), transport (38.7%) and agriculture and allied activities (37.8%). The States would also be actively pursuing PPP models for infrastructure development wherever possible. The aggregate picture, it must be noted, conceals wide inter-State variations in terms of Plan sizes relative to GSDP, per capita plan expenditure and percentage sectoral outlays.

### ISSUES IN PLAN FINANCING

3.56. Several conceptual issues arise from the present structure of the Plan financing. Important among these are classification of expenditure—which has a bearing on the overall expenditure management, the Central Plan transfers mechanism, the treatment of investment of PSUs financed by IEBR under the Plan, and the role of SPVs/PPPs and other innovative methods of raising additional resources for investment.

### CLASSIFICATION OF EXPENDITURE

3.57. There has been much debate about the utility or otherwise of the classification of expenditure into Plan and Non-Plan. It has been argued that this distinction is illogical and, what is more, even dysfunctional. The argument against continuing with this distinction is that the focus on new schemes/new projects/new extensions to currently running schemes, etc., which alone qualify for being included in the Plan, results in neglect of maintenance of the existing capacity and service levels.

Thus, while strenuous efforts are made by both the Centre and the states to achieve a large increase in Plan size, its impact is often negated by a running down of service delivery capacity already created. The problem arises from a framework that creates a distinction between Plan and non-Plan expenditure within each sector, motivated solely by the need to identify and highlight provision of incremental service.

3.58. Other perceptions that have developed around this distinction, namely, that Non-Plan expenditure is inherently wasteful and has to be minimized, that Non-Plan expenditure is different in kind from Plan expenditure, etc., are patently incorrect assessments that have nevertheless taken deep root in the process of government expenditure planning. This dichotomy also results in a fragmented view of resource allocations to various sectors. The problem has become particularly acute as government's emphasis has shifted to the social sectors where salary costs are high. Routine bans on recruitment for Non-Plan posts, ostensibly imposed to conserve expenditure, cause serious problem for service delivery in health, education, extension systems, etc. The case against the use of these categories, both on grounds of illogicality and dysfunctionality, is therefore indisputable.

3.59. At the same time, it is necessary to understand that this classification of expenditures has been used essentially as a convenient shortcut for the performance of functions that are inherent in public expenditure management. It is perhaps in the manner in which the Plan and Non-Plan distinction has been denuded of its substance over the years, rather than in any inherent conceptual inadequacy, that the causes of the present state of affairs need to be found.

3.60. The basic functions of government expenditure management, as applied to an annual budgeting process, are the following:

- (i) Assessing the amount of committed expenditure, that is, expenditure whose level cannot be altered during the Budget period by any decision that might be taken (though the areas where these expenditures can be applied may still be open to alteration, and, in any case, the levels of expenditures themselves would be capable of being altered over a longer time horizon);



- (ii) The amount of headroom available within the resource envelope after the committed expenditures are provided for;
- (iii) The sectors in which this 'discretionary' expenditure is to be applied; and
- (iv) The process of monitoring and evaluating the efficiency and effectiveness with which the expenditures are made.

3.61. These functions would have to be performed irrespective of whether we continue to have the two categories of Plan and Non-Plan expenditures or not. These two categories, which were initially designed to enable the fulfilment of the above functions, have now acquired connotations that lead to dysfunctionality. The solution, therefore, would be to do away with these categories and, instead, devise other mechanisms that will perform the requisite functions in a rational and effective manner. We need to draw up protocols that will specify who is to perform what part of the above functions and how the entire activity will be coordinated. In this effort, there would be a need to redefine organizational mandates. This activity will be taken up during the Eleventh Plan period.

3.62. The Revenue–Capital categorization of expenditure has acquired renewed significance in the post-FRBM scenario. The FRBM law has stipulated the elimination of revenue deficit in a context where more than three-fourths of Plan expenditure is revenue expenditure. Strict adherence to the FRBM stipulation would have a bearing on the ability of the Centre to formulate Plan schemes directed at national priorities and also at equalizing the availability and provision of services across States. In effect, we may be in a position where the total resources that can be mobilized within the fiscal deficit ceiling cannot be deployed into schemes which have a high revenue component.

3.63. The problem is further complicated by the fact that the categorization of expenditure into revenue and capital that has evolved over the years, does not appear to be strictly in conformity with the constitutional position on this issue. The Constitution distinguishes only between 'expenditure on revenue account' and 'other expenditure'. Over the years, 'expenditure on revenue account' has been construed to mean revenue expenditure. This could be an incorrect interpretation as expenditure met out of

revenues of the Government of India (GoI) has been interpreted earlier (as is clear from reports of Finance Commissions) as expenditure that is not self financing, that is, both revenue expenditure and those capital expenditures that are not self liquidating (in the sense of not providing financial returns to the government that could be used for servicing debt). In this view, the present category of Defence Capital Expenditure, for instance, would have to be treated as 'expenditure on revenue account' only. This is in keeping with the economic classification in the national accounts where Defence capital expenditure is treated as consumption and not as investment.

3.64. It is also relevant to note that capital expenditure as currently defined is not always and invariably tantamount to investment. For example, recapitalization of PSEs, though classified as capital expenditure, is not, in most cases, investment. In fact a loss-making PSU may receive injections of equity to fund losses, in which case what is conceptually a subsidy will be classified as a capital expenditure.

3.65. Some argue that the Revenue–Capital classification is also dysfunctional from an economic management perspective as it militates against the principle of sound and efficient management of the entire expenditure in an integrated manner. Over the years, essential maintenance expenditure has become a casualty of the revenue–capital distinction.

3.66. There are other inconsistencies also with our current system of classification. For example, fertilizer and food subsidies are not counted as Plan expenditure but subsidy to socially desirable insurance schemes, and several other subsidies are also included. Exclusion of large subsidy items from Plan expenditure has the effect of avoiding any resource prioritization in the matter of determining the appropriate balance between subsidy levels and other expenditure to promote common developmental objectives.

3.67. Against the above backdrop, it would be appropriate to set up a HLC that could look into the entire gamut of issues arising from the present classification of expenditure and suggest measures for efficient management of public expenditure.

### CENTRAL PLAN TRANSFERS

3.68. The last two decades have seen a massive increase in both the number of CSS as well as funds available under individual schemes. These schemes provide CA for Plan expenditure in particular sectors which are normally in the domain of the States. However, unlike normal CA which is not tied to specific programmes, funds available under CSS are tied to schemes in particular sectors and are subject to centrally prescribed guidelines. The share of normal Central Plan assistance to the States has declined as a proportion to total Plan transfers. The role of CSS has often been discussed and a view frequently expressed is that CSS should be abolished and the funds flowing through these schemes should simply be transferred to the States directly, presumably as NCA. There are two arguments against this approach. First, there is merit in using Central resources to tackle the specific obstacles that would prevent the achievement of inclusive growth and this is best done by effectively earmarking resources to support State expenditure in particular areas such as rural development, health, education, agriculture and irrigation. Unless this is done, it will be difficult to give a special impetus to these critical areas. Second, the mechanism of CSS enables the Centre to address problems as they exist in different States without being constrained by the Gadgil Formula, which would otherwise guide the transfer of untied funds.

3.69. A large proportion of the fund transfers to the States under CSS are also being routed to State and district level bodies directly by the Central Government, bypassing the State Governments. This practice is motivated by a desire to avoid delays in administrative approvals and to prevent diversion of CSS funds by the States for supporting their ways and means position. Concerns about what this does to accountability mechanisms have been expressed. In view of the growing volume of such transfers, suitable mechanisms would have to be devised to ensure there is no dilution of accountability.

### MONITORING OF PLAN EXPENDITURE

3.70. The existing system of accounting for Plan schemes, both for the Centre and the States, does not adequately support informed planning, budgeting, effective monitoring and decision making regarding these schemes. The current accounting system does not capture transaction-

oriented information. It also does not distinguish between transfers to States, final expenditure and advance payments against which accounts have to be rendered. The extant accounting framework is also not structured to generate State-wise and scheme-wise releases of funds by the Central Government to States and other recipients, and also the actual utilization for the intended purpose. Hence, there is a great need to design and implement a Plan scheme that would thoroughly reform this process. This Plan scheme would, inter-alia, modify the existing Code of Accounts so as to fully capture the entire range of Plan schemes operated by the GoI and the States. The Code of Accounts needs to be restructured to provide information relating to each implementing agency. While there have been stand-alone efforts by various Ministries and programmes, there is no consolidated financial information system based on the accounting structure. A comprehensive Decision Support System (DSS) and Management Information System (MIS) for effective monitoring of Plan schemes would need to be set up. This will work through a core accounting solution on a central data centre. The scheme will be implemented by the Controller General of Accounts (CGA). The details of the scheme would be finalized during the Eleventh Plan.

### SCOPE OF THE PUBLIC SECTOR PLAN

3.71. The administrative machinery through which the public sector plan is implemented has been continuously changing over the years. The setting up of PRIs, the establishment of special purpose societies and agencies and companies that have been mandated to perform special functions, are all elements of the plan implementation machinery that did not exist earlier. At the same time, some organizations that were earlier part of the public sector may have moved out of the public sector due to privatization as in the case with a few enterprises—both in the Centre and in the States. The focus on public-private partnership also creates new categories where public sector resources are made available to projects owned and managed by the private sector. In this context, the definition of the organizational boundaries of the public sector plan assumes importance, both for reasons of analytical clarity as well as inter-temporal comparability. This was a specific issue on which the Working Groups that were set up for estimation of Central and State resources were specifically required to comment.

3.72. While the Centre has consistently followed the practice of including the investment plans of a large number of PSEs in the public sector plan, the States have not adopted any uniform policy in this regard. Even in the case of the Centre, the PSEs that are included in the Plan from year to year show minor variations. Even among those PSEs that are included in the Plan, the resources estimates do not capture the entire quantum of resources available, and a portion of the available resources is treated as being outside the Plan.

3.73. As far as the States are concerned, there is no uniform practice across all States. While requesting the States to estimate resources for the Eleventh Five Year Plan, they were advised that the public sector plan of the States would have to be defined as the sum total of investments made in a State by the State Government, taken as a composite economic entity. It was explained that this economic entity would be comprised of more than one legal entity, and would include, apart from the State Government itself, other legal entities such as the State PSEs, and all urban and rural local bodies. As far as the PSEs themselves are concerned, the guidelines provided that PSEs which are separate from the government only as legal entities (through share-holding or other form of capital being wholly or substantially held by the State Government) and which make materially significant investments (i.e., other than small investments that are only incidental to or supportive of routine activities) in a direct manner (i.e., who are not financial intermediaries whose activities consist of providing either loan or equity capital to other entities who in turn make investments) should be included in the scope of the public sector plan. Unfortunately, the States have not uniformly rationalized their definitions of the public sector plan on these principles. Consequently, the resources estimates have proceeded on the same basis as in earlier plans and, to that extent, comparability across States is not what it should be.

3.74. One of the new innovations that is likely to gain importance in the Eleventh Plan period is the concept of investment in infrastructure through PPPs, which is promoted through means such as Viability Gap Funding (VGF). In such a case, the extent to which the investment was eventually made should be reflected as part of the public sector is an issue on which there is lack of clarity. If the expenditure from the public sector is viewed as a

grant, then it is a revenue expenditure on the part of the government which finances investment in the private sector, the grant being a source of financing for the private investor.

3.75. The HLC referred to above (paragraph 3.67) would perhaps have to be entrusted the task of laying down clearly the definition of the public sector plan.

#### REVENUE DEFICIT CONSTRAINT

3.76. Under the FRBM Act, all the States as well as the Centre are committed to reducing the revenue deficit to zero by 2008–09. This would mean that there would be no net dis-saving on account of government administration. In fact, given the relationship between the revenue deficit and savings of the government, a zero revenue deficit would probably, in fact, result in a small positive saving from government administration. One of the problems with achieving a zero revenue deficit is that the Plan outlays of both the Centre and the States have, in recent years, had an increasing share of revenue expenditure. In the Central budget, in particular, the grant component of transfers to the States is revenue expenditure. As a result, the revenue expenditure component of the Centre's GBS for the Plan has risen to more than 80% in recent years. While the actuals of 2005–06 show that 79.5% of GBS was revenue expenditure, this increased to 83.7% in the revised estimates for 2006–07, and 85% in the budget estimates for 2007–08.

3.77. If the revenue deficit is to be reduced to zero from 2008–09 onwards, this would mean that the revenue expenditure component of GBS cannot exceed the BCR. In recent years, the Central Government has been achieving a positive BCR. However, going by the present projections, the BCR would reach only around 70% of GBS by the end of the Plan period if the gross fiscal deficit were to be taken at the ceiling of 3% of GDP. In other words, leaving the revenue expenditure share in GBS at the same levels at present would effectively mean that the total GBS would have to be reduced to a level below what would be permissible under a 3% gross fiscal deficit constraint.

3.78. The resources estimates now prepared make it very clear that the constraint of maintaining the revenue deficit at zero from 2008–09 onwards will have the inevitable consequence of very substantially limiting the overall GBS for the Plan. The overall pattern of revenue and capital

expenditure in the GBS is the result of the core strategy of the Plan which seeks to substantially improve the supply of social services in the relatively backward States through increased Central funding, while at the same time providing an incentive framework for physical infrastructure to be created under PPP models. Given this strategy, and the consequent high revenue expenditure to GBS percentage, one option would be to insist on the binding nature of only the GFD to GDP constraint while

accepting the inevitability of high revenue expenditure in view of the Plan strategy. The other option would be to try and identify components of what is booked as revenue expenditure in the accounts of the Central Government that lead to capital asset creation in the economy and to suitably reflect this asset creation in the accounting for the purposes of the FRBM Act. On a balance of advantage, it would appear that the former course would be preferable.

### ANNEXURE 3.1

#### Sectoral Allocation for Public Sector's Resources—Tenth Plan (2002–07) Realizations and Eleventh Plan (2007–12) Projections

(Rs crore at 2006–07 prices)

Head of Development	Centre									States and UTs			Centre, States, and UTs		
	Budgetary Support			IEBR			Total Outlay			Total Outlay					
	Tenth Plan Realization	Eleventh Plan Projection	% increase	Tenth Plan Realization	Eleventh Plan Projection	% increase	Tenth Plan Realization	Eleventh Plan Projection	% increase	Tenth Plan Realization	Eleventh Plan Projection	% increase	Tenth Plan Realization	Eleventh Plan Projection	% increase
1. Agriculture and Allied Activities	26108	50924	95.0				26108	50924	95.0	34594	85458	147	60702	136381	124.7
2. Rural Development	79291	190330	140.0				79291	190330	140.0	58419	110739	89.6	137710	301069	118.6
3. Special Area Programmes										16423	26329	60.3	16423	26329	60.3
4. Irrigation & Flood Control	1716	6747	293.3				1716	6747	293.3	110699	203579	83.9	112415	210326	87.1
5. Energy	27262	36912	35.4	238957	591826	147.7	266220	628739	136.2	97415	225385	116.1	363635	854,123	134.9
6. Industry & Minerals	24146	54382	125.2	25108	67196	167.6	49254	121579	146.8	15401	32021	107.9	64655	153600	137.6
7. Transport	97711	120188	23.0	85405	266118	211.6	183116	386306	111.0	80818	186137	130.3	263934	572443	116.9
8. Communications	5312	16133	203.7	77109	79204	2.7	82422	95337	15.7	523	43	-91.8	82945	95380	15
9. Science, Technology & Environment	26667	75421	182.8		25		26667	75446	182.9	2006	12487	522.4	28673	87933	206.7
10. General Economic Services	9972	13920	39.6	456	891	95.3	10428	14811	42.0	19921	47712	139.5	30349	62523	106.0
11. Social Services	183725	524414	185.4	31494	54450	72.9	215219	578864	169.0	221310	523463	136.5	436529	1102327	152.5
12. General Services	4887	7489	53.2				4887	7489	53.2	15602	34794	123	20489	42283	106.4
<b>Total</b>	<b>486798</b>	<b>1096860</b>	<b>125.3</b>	<b>458530</b>	<b>1059711</b>	<b>131.1</b>	<b>945328</b>	<b>2156571</b>	<b>128.1</b>	<b>673132#</b>	<b>1488147</b>	<b>121.1</b>	<b>1618460</b>	<b>3644718</b>	<b>125.2</b>

Note: # Based on the sectoral outlay reported by the States. Totals may not tally due to rounding errors.

### ANNEXURE 3.2

#### Budget Support, IEBR, and Outlay for Central Ministry/Department—Tenth Plan (2002–07) Realizations and Eleventh Plan (2007–12) Projections

(Rs crore at 2006–07 prices)

Ministry/Department	Budgetary Support			IEBR			Total Outlay		
	Tenth Plan	Eleventh Plan	% increase	Tenth Plan	Eleventh Plan	% increase	Tenth Plan	Eleventh Plan	% increase
	Realization	Projection		Realization	Projection		Realization	Projection	
1. Agriculture And Cooperation	16025	36549	128.07				16025	36549	128.07
2. Agricultural Research and Education	4956	11131	124.60				4956	11131	124.60
3. Animal Husbandry Dairying and Fisheries	2520	7121	182.58				2520	7121	182.58
4. Micro, Small, and Medium Enterprises	5786	10168	158.33	339.58	261.71	-22.93	6126	10430	141.16
(i) Agro And Rural Industries	3914	6631	69.43				3914	6631	69.43
(ii) Small-Scale Industries	1872	3537	88.90	340	262	-23	2212	3798	71.73
5. Atomic Energy	16435	20318	23.63	9093	28699	216	25528	49017	92.01
6. Chemicals and Petrochemicals	612	1733	183.32	58	303	421	670	2036	203.99
7. Fertilizers	714	1320	84.84	3210	16919	427	3924	18239	364.76
8. Civil Aviation	588	1680	185.93	9947	41880	321	10535	43560	313.49
9. Coal	1019	1326	30.07	15563	61826	297	16582	63152	280.84
10. Commerce	5062	8767	73.19	53			5115	8767	71.39
11. Industrial Policy and Promotion	1941	3698	90.47				1941	3698	90.47
12. Posts	3845	3536	-8.03				3845	3536	-8.03
13. Telecommunications	906	1549	70.98	76338	79204	4	77244	80753	4.54
14. Information Technology	1902	11048	480.77	771			2674	11048	313.23
15. Corporate Affairs	1	187					1	187	
16. Consumer Affairs	284	958	237.04				284	958	237.04
17. Food and Public Distribution	268	614	128.96	456	891	95	725	1505	107.75
18. Culture	1643	3116	89.63				1643	3116	89.63
19. Defence									
20. Development of North Eastern Region	169	447	164.91				169	447	164.91
21. Earth Sciences	1060	6193	484.45				1060	6193	484.45
22. Environment and Forests	5600	8841	57.86				5600	8841	57.86
23. External Affairs	3463	2201	-36.44				3463	2201	-36.44
24. Economic Affairs*	2893	3946	36.42				2893	3946	36.42
25. Expenditure	2	5	189.35				2	5	189.35
26. Food Processing Industries	531	3564	570.78				531	3564	570.78
27. Health and Family Welfare	38344	120375	213.93		504		38344	120879	215.24
28. AYUSH	1112	3526	217.13				1112	3526	217.13

(Annexure 3.2 contd.)

(Annexure 3.2 contd.)

(Rs crore at 2006–07 prices)

Ministry/Department	Budgetary Support			IEBR			Total Outlay		
	Tenth	Eleventh	%	Tenth	Eleventh	%	Tenth	Eleventh	%
	Plan	Plan	increase	Plan	Plan	increase	Plan	Plan	increase
	Realization	Projection		Realization	Projection		Realization	Projection	
29. Heavy Industry	1409	3619	156.82	2074	6373	207	3483	9992	186.88
30. Public Enterprises	101	48	-52.68				101	48	-52.68
31. Home Affairs	1438	6189	330.31				1438	6189	330.31
32. School Education and Literacy	50112	163506	226.28				50112	163506	226.28
33. Higher Education	13112	75102	472.76				13112	75102	472.76
34. Information and Broadcasting	1611	4809	198.50	1371	127	-91	2982	4936	65.51
35. Labour and Employment	904	2210	144.48				904	2210	144.48
36. Law and Justice	519	1300	150.35				519	1300	150.35
37. Mines	1118	1043	-6.70	2293	6387	179	3411	7430	117.83
38. Minority Affairs	120	6189					120	6189	5078.13
39. Non-Conventional Energy Sources	1808	3537	95.65	2367	6246	164	4175	9783	134.31
40. Panchayati Raj	136	775	471.57				136	775	471.57
41. Parliamentary Affairs									
42. Personnel, Public Grievances and Pensions	188	491	161.43				188	491	161.43
43. Petroleum and Natural Gas	370	174	-52.88	148532	244973	65	148902	245148	64.64
44. Planning **	207	22799	10919.26				207	22799	
45. Power	14444	26924	86.41	72495	278781	285	86938	305705	251.63
46. Railways	40119	40513	0.98	51431	150000	192	91551	190513	108.10
47. Revenue									
48. Rural Development	98432	172350	75.10				98432	172350	75.10
49. Land Resources	6224	17205	176.42				6224	17205	176.42
50. Drinking Water Supply	19893	41825	110.25				19893	41825	110.25
51. Science and Technology	4407	9750	121.23				4407	9750	121.23
52. Scientific and Industrial Research	3256	7957	144.36		25		3256	7982	145.12
53. Biotechnology	1795	5649	214.74				1795	5649	214.74
54. Shipping	1450	4465	207.86	8704	39409	353	10154	43874	332.09
55. Road Transport and Highways	40294	73530	82.48	15323	34829	127	55617	108359	94.83
56. Social Justice and Empowerment	7691	11532	49.95				7691	11532	49.95
57. Space	11945	27305	128.59				11945	27305	128.59
58. Statistics and Programme Implementation	314	530	68.59				314	530	68.59

(Annexure 3.2 contd.)

(Annexure 3.2 contd.)

(Rs crore at 2006–07 prices)

Ministry/Department	Budgetary Support			IEBR			Total Outlay		
	Tenth Plan	Eleventh Plan	% increase	Tenth Plan	Eleventh Plan	% increase	Tenth Plan	Eleventh Plan	% increase
	Realization	Projection		Realization	Projection		Realization	Projection	
59. Steel	113	192	69.84	7979	8254	3	8092	8447	4.39
60. Textiles	4909	12378	152.13	8			4918	12378	151.70
61. Tourism	2849	4558	59.96				2849	4558	59.96
62. Tribal Affairs	1481	3633	145.22				1481	3633	145.22
63. Urban Development	12805	11001	-14.09	5066	13599	168	17871	24600	37.65
64. Urban Employment and Poverty Alleviation	2850	3260	14.37	25057	40220	61	27907	43480	55.80
65. Water Resources	2435	2870	17.88				2435	2870	17.88
66. Women and Child Development	16307	48420	196.92				16307	48420	196.92
67. Youth Affairs And Sports	1949	5305	172.26				1949	5305	172.26
<b>68. Grand Total</b>	<b>486798</b>	<b>1096860</b>	<b>125.32</b>	<b>458530</b>	<b>1059711</b>	<b>131</b>	<b>945328</b>	<b>2156571</b>	<b>128.13</b>

Note: Totals may not tally due to rounding errors. \* The allocation also includes funds for Central Road Fund. \*\* Includes allocation for Energy (R&D) and Skill Development Mission.



**ANNEXURE 3.3**  
**Proposed Sectoral Allocations for States and Union Territories in the Eleventh Plan**

(Rs crore at 2006–07 price)

S. No.	Major Heads of Development	Andhra Pradesh	%-age to total	Arunachal Pradesh	%-age to total	Assam	%-age to total	Bihar	%-age to total	Chhattisgarh	%-age to total	Goa	%-age to total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
I.	Agriculture and Allied Activities	7377.69	5.01	752.00	9.52	517.94	2.16	1697.71	2.80	1482.96	2.76	211.76	2.50
II.	Rural Development	14520.28	9.85	258.22	3.27	1878.69	7.84	7848.78	12.95	3234.57	6.02	234.98	2.77
III.	Special Area Programmes	3552.61	2.41	423.38	5.36	97.41	0.41	646.43	1.07	198.80	0.37	23.10	0.27
IV.	Irrigation and Flood Control	34292.18	23.27	516.95	6.54	2862.96	11.95	7876.15	12.99	5550.35	10.33	579.74	6.83
V.	Energy	22582.35	15.32	1280.19	16.20	2601.67	10.86	4717.84	7.78	13991.40	26.04	830.08	9.78
VI.	Industry and Minerals	5233.51	3.55	195.49	2.47	360.08	1.50	1982.43	3.27	924.16	1.72	117.73	1.39
VII.	Transport	12629.76	8.57	1589.50	20.12	3173.47	13.25	14726.26	24.29	6007.06	11.18	716.84	8.45
VIII.	Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IX.	Science and Technology	35.41	0.02	44.94	0.57	213.74	0.89	311.32	0.51	2772.49	5.16	315.33	3.72
X.	General Economic Services	2544.80	1.73	442.88	5.61	575.66	2.40	2797.37	4.61	1015.51	1.89	181.19	2.14
XI.	Social Services	43111.28	29.25	2237.91	28.32	11152.75	46.56	17480.06	28.83	18316.70	34.09	3977.70	46.88
	Education	6061.14	4.11	1131.59	14.32	3306.90	13.81	5385.65	8.88	4217.84	7.85	1568.60	18.49
	Medical and Public Health	4206.26	2.85	287.62	3.64	848.06	3.54	872.54	1.44	1665.64	3.10	254.69	3.00
	Water Supply and Sanitation	5778.65	3.92	278.63	3.53	426.25	1.78	1587.39	2.62	5625.58	10.47	883.74	10.42
	Housing	5895.80	4.00	189.36	2.40	5.86	0.02	1429.28	2.36	182.68	0.34	94.68	1.12
	Urban Development	5332.86	3.62	230.99	2.92	5948.67	24.83	3666.88	6.05	4411.27	8.21	437.99	5.16
	Others Social Services	15836.57	10.74	119.72	1.52	617.01	2.58	4538.32	7.49	650.14	1.21	738.00	8.70
XII.	General Services	1515.12	1.03	159.54	2.02	519.65	2.17	546.66	0.90	236.41	0.44	1296.55	15.28
	<b>Grand Total</b>	<b>147395.00</b>	<b>100.00</b>	<b>7901.00</b>	<b>100.00</b>	<b>23954.00</b>	<b>100.00</b>	<b>60631.00</b>	<b>100.00</b>	<b>53730.43</b>	<b>100.00</b>	<b>8485.00</b>	<b>100.00</b>

(Annexure 3.3 contd.)

(Annexure 3.3 contd.)

S. No.	Major Heads of Development	Gujarat	%-age to total	Haryana	%-age to total	Himachal Pradesh	%-age to total	Jammu & Kashmir	%-age to total	Jharkhand	%-age to total	Karnataka
1	2	15	16	17	18	19	20	21	22	23	24	25
I.	Agriculture and Allied Activities	5639.37	5.27	1636.27	4.90	1470.08	10.67	1818.21	7.04	2517.75	6.26	4317.30
II.	Rural Development	3154.80	2.95	1536.29	4.60	355.62	2.58	615.61	2.38	5500.57	13.67	4822.5
III.	Special Area Programmes	83.61	0.08	173.54	0.52	20.47	0.15	1419.76	5.50	1855.78	4.61	683.35
IV.	Irrigation and Flood Control	29196.49	27.31	3975.82	11.91	1220.62	8.86	735.02	2.85	3379.37	8.40	26033.78
V.	Energy	3767.21	3.52	3901.64	11.69	1122.14	8.14	8196.95	31.73	5634.62	14.00	12876.51
VI.	Industry and Minerals	3203.92	3.00	410.08	1.23	177.68	1.29	550.88	2.13	871.34	2.17	1259.31
VII.	Transport	9368.75	8.76	4625.88	13.86	2142.28	15.55	2660.81	10.30	4712.74	11.71	12599.10
VIII.	Communications	0.00	0.00	0.00	0.00	0.05	0.00	42.34	0.16	0.00	0.00	0.00
IX.	Science and Technology	793.82	0.74	27.08	0.08	2.92	0.02	23.70	0.09	911.55	2.27	1370.23
X.	General Economic Services	2057.60	1.92	1136.00	3.40	798.59	5.80	2740.98	10.61	647.65	1.61	2461.42
XI.	Social Services	49586.47	46.38	15610.80	46.78	6060.29	43.99	6501.40	25.17	13261.34	32.96	33977.03
	Education	*		3113.30	9.33	1679.87	12.19	2160.37	8.36	4468.63	11.10	5842.5
	Medical and Public Health	*		676.31	2.03	1445.19	10.49	1353.15	5.24	1809.37	4.50	1963.01
	Water Supply and Sanitation	*		4879.76	14.62	1443.93	10.48	1406.28	5.44	1225.51	3.05	5328.05
	Housing	*		406.75	1.22	553.76	4.02	9.90	0.04	17.51	0.04	3931.04
	Urban Development	*		817.66	2.45	127.54	0.93	788.39	3.05	1721.55	4.28	9510.28
	Others Social Services	*		5717.02	17.13	810.00	5.88	783.31	3.03	4018.77	9.99	7402.11
XII.	General Services	65.97	0.06	340.59	1.02	407.25	2.96	528.32	2.05	947.30	2.35	1263.46
<b>Grand Total</b>		<b>106918.00</b>	<b>100.00</b>	<b>33374.00</b>	<b>100.00</b>	<b>13778.00</b>	<b>100.00</b>	<b>25834.00</b>	<b>100.00</b>	<b>40240.00</b>	<b>100.00</b>	<b>101664.00</b>

(Annexure 3.3 contd.)

(Annexure 3.3 contd.)

S. No.	Major Heads of Development	%-age to total	Kerala	%-age to total	Madhya Pradesh	%-age to total	Maharashtra	%-age to total	Manipur	%-age to total	Meghalaya	%-age to total
1	2	26	27	28	29	30	31	32	33	34	35	36
I.	Agriculture and Allied Activities	4.25	2418.65	5.77	3751.24	5.33	10203.04	8.00	439.23	5.39	735.22	8.00
II.	Rural Development	4.74	1926.64	4.59	10739.26	15.27	13391.49	10.50	271.14	3.33	802.30	8.73
III.	Special Area Programmes	0.67	344.88	0.82	887.60	1.26	765.23	0.60	231.43	2.84	189.09	2.06
IV.	Irrigation and Flood Control	25.61	2343.41	5.59	14934.79	21.24	26782.98	21.00	772.38	9.47	219.72	2.39
V.	Energy	12.67	5547.94	13.23	9416.25	13.39	19130.70	15.00	1498.71	18.38	1084.88	11.81
VI.	Industry and Minerals	1.24	1180.84	2.82	591.12	0.84	1913.07	1.50	656.14	8.05	290.50	3.16
VII.	Transport	12.39	2524.56	6.02	8006.72	11.38	8927.66	7.00	403.16	4.94	1623.62	17.68
VIII.	Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IX.	Science and Technology	1.35	1094.17	2.61	161.05	0.23	127.54	0.10	127.63	1.57	245.07	2.67
X.	General Economic Services	2.42	2197.05	5.24	1564.95	2.23	5101.52	4.00	157.98	1.94	253.00	2.75
XI.	Social Services	33.42	10056.12	23.98	20159.98	28.67	38261.40	30.00	3273.20	40.14	3481.74	37.91
	Education	5.75	687.38	1.64	8684.21	12.35	7652.28	6.00	748.44	9.18	1336.29	14.55
	Medical and Public Health	1.93	423.74	1.01	1318.37	1.87	2550.76	2.00	103.05	1.26	633.81	6.90
	Water Supply and Sanitation	5.24	1202.52	2.87	1558.92	2.22	14870.93	11.66	1135.14	13.92	580.99	6.33
	Housing	3.87	367.29	0.88	6.49	0.01	1836.55	1.44	309.20	3.79	121.48	1.32
	Urban Development	9.35	204.92	0.49	4606.36	6.55	5917.76	4.64	237.63	2.91	321.66	3.50
	Others Social Services	7.28	7170.26	17.10	3985.64	5.67	5433.12	4.26	739.74	9.07	487.51	5.31
XII.	General Services	1.24	12305.74	29.34	116.04	0.16	2933.37	2.30	322.98	3.96	259.86	2.83
	<b>Grand Total</b>	<b>100.00</b>	<b>41940.00</b>	<b>100.00</b>	<b>70329.00</b>	<b>100.00</b>	<b>127538.00</b>	<b>100.00</b>	<b>8154.00</b>	<b>100.00</b>	<b>9185.00</b>	<b>100.00</b>

(Annexure 3.3 contd.)

(Annexure 3.3 contd.)

S. No.	Major Heads of Development	Mizoram	%-age to total	Nagaland	%-age to total	Orissa	%-age to total	Punjab	%-age to total	Rajasthan	%-age to total	Sikkim	%-age to total
1	2	37	38	39	40	41	42	43	44	45	46	47	48
I.	Agriculture and Allied Activities	469.58	8.49	494.95	8.28	708.20	2.20	302.76	1.05	1330.46	1.85	276.01	5.85
II.	Rural Development	197.70	3.57	311.81	5.22	1864.71	5.79	2544.37	8.80	4244.11	5.92	510.30	10.81
III.	Special Area Programmes	57.12	1.03	578.93	9.68	4888.23	15.17	0.00	0.00	817.55	1.14	104.70	2.22
IV.	Irrigation and Flood Control	199.06	3.60	151.23	2.53	6518.18	20.23	1404.76	4.86	7655.29	10.67	84.76	1.80
V.	Energy	691.41	12.49	646.94	10.82	3431.93	10.65	8075.08	27.92	26441.82	36.86	511.54	10.84
VI.	Industry and Minerals	196.86	3.56	375.70	6.28	132.66	0.41	363.28	1.26	1005.02	1.40	233.90	4.9
VII.	Transport	886.58	16.02	821.90	13.75	3033.34	9.41	4290.29	14.83	4831.93	6.74	546.84	11.59
VIII.	Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IX.	Science and Technology	88.13	1.59	55.39	0.93	1176.94	3.65	8.48	0.03	31.14	0.04	147.60	3.13
X.	General Economic Services	345.91	6.25	341.06	5.71	1670.47	5.18	2080.37	7.19	754.00	1.05	158.78	3.36
XI.	Social Services	2305.82	41.67	1854.19	31.02	8473.99	26.30	9469.55	32.74	20031.68	27.93	1882.32	39.88
	Education	755.94	13.66	505.03	8.45	2426.52	7.53	1898.92	6.57	3654.31	5.09	799.29	16.93
	Medical and Public Health	495.92	8.96	252.64	4.23	515.55	1.60	406.21	1.40	1549.10	2.16	368.95	7.82
	Water Supply and Sanitation	480.18	8.68	260.05	4.35	1726.24	5.36	2129.89	7.36	5331.95	7.43	255.27	5.41
	Housing	318.64	5.76	302.66	5.06	305.54	0.95	349.14	1.21	847.09	1.18	141.20	2.99
	Urban Development	131.73	2.38	396.43	6.63	579.53	1.80	417.30	1.44	5274.33	7.35	122.05	2.59
	Others Social Services	123.41	2.23	137.37	2.30	2920.61	9.06	4268.10	14.76	3374.90	4.70	195.55	4.14
XII.	General Services	95.82	1.73	345.90	5.79	326.34	1.01	384.05	1.33	4588.99	6.40	263.24	5.58
	<b>Grand Total</b>	<b>5534.00</b>	<b>100.00</b>	<b>5978.00</b>	<b>100.00</b>	<b>32225.00</b>	<b>100.00</b>	<b>28923.00</b>	<b>100.00</b>	<b>71732.00</b>	<b>100.00</b>	<b>4720.00</b>	<b>100.00</b>

(Annexure 3.3 contd.)

(Annexure 3.3 contd.)

S. No.	Major Heads of Development	Tamil Nadu	%-age to total	Tripura	%-age to total	Uttar Pradesh	%-age to total	Uttara-khand	%-age to total	West Bengal	%-age to total	Total (States)	%-age to total
1	2	49	50	51	52	53	54	55	56	57	58	59	60
I.	Agriculture and Allied Activities	7831.57	9.18	694.35	7.84	19146.37	10.57	4564.47	10.67	1122.01	1.76	83927.15	5.94
II.	Rural Development	10241.28	12.00	906.40	10.24	7658.00	4.23	2483.90	5.80	7289.65	11.43	109344.00	7.74
III.	Special Area Programmes	0.0	0.0	497.22	5.62	4534.39	2.50	61.12	0.14	3193.28	5.01	26329.03	1.86
IV.	Irrigation and Flood Control	3313.36	3.88	520.78	5.88	16338.22	9.02	2661.10	6.22	2626.76	4.12	202746.20	14.36
V.	Energy	10743.30	12.59	636.44	7.19	26371.03	14.56	4966.05	11.60	17630.11	27.64	218326.74	15.46
VI.	Industry and Minerals	3715.98	4.35	278.62	3.15	2347.10	1.30	324.25	0.76	1920.67	3.01	30812.34	2.18
VII.	Transport	11646.95	13.65	1024.39	11.57	27328.64	15.09	8376.33	19.57	4601.60	7.21	163826.95	11.60
VIII.	Communications	0.0	0.0	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.76	0.00
IX.	Science and Technology	146.59	0.17	43.74	0.49	303.93	0.17	590.13	1.38	592.91	0.93	11762.96	0.83
X.	General Economic Services	284.15	0.33	255.46	2.89	11798.77	6.52	1567.35	3.66	310.26	0.49	46240.73	3.27
XI.	Social Services	36732.06	43.04	3827.30	43.24	64820.85	35.79	16547.89	38.67	23780.29	37.29	486232.14	34.43
	Education	3649.61	4.28	1068.39	12.07	18850.83	10.41	4323.85	10.10	5955.41	9.34	101933.15	7.22
	Medical and Public Health	2730.00	3.20	638.28	7.21	13194.05	7.29	2189.01	5.11	3532.80	5.54	46284.08	3.28
	Water Supply & Sanitation	7555.35	8.85	482.39	5.45	5367.34	2.96	2582.72	6.03	2013.62	3.16	76397.29	5.41
	Housing	2045.24	2.40	490.63	5.54	2824.06	1.56	417.34	0.98	698.09	1.09	24097.25	1.71
	Urban Development	6110.63	7.16	239.56	2.71	10913.17	6.03	3502.72	8.18	6331.72	9.93	78301.58	5.55
	Others Social Services	14641.22	17.16	908.04	10.26	13671.40	7.55	3532.25	8.25	5248.66	8.23	108068.75	7.65
XII.	General Services	688.78	0.81	166.93	1.89	446.70	0.25	655.41	1.53	711.45	1.12	32438.42	2.30
	<b>Grand Total</b>	<b>85344.00</b>	<b>100.00</b>	<b>8852.00</b>	<b>100.00</b>	<b>181094.00</b>	<b>100.00</b>	<b>42798.00</b>	<b>100.00</b>	<b>63779.00</b>	<b>100.00</b>	<b>1412029.43</b>	<b>100.00</b>

(Annexure 3.3 contd.)

(Annexure 3.3 contd.)

S. No.	Major Heads of Development	Andaman & Nicobar Islands	%-age to total	Chandigarh	%-age to total	Dadra & Nagar Haveli	%-age to total	Daman & Diu	%-age to total	Delhi	%-age to total
1	2	61	62	63	64	65	66	67	68	69	70
I.	Agriculture and Allied Activities	107.50	2.62	4.34	0.20	29.61	2.28	21.63	2.40	163.79	0.30
II.	Rural Development	221.63	5.41	19.24	0.90	35.36	2.72	15.59	1.73	712.69	1.30
III.	Special Area Programmes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IV.	Irrigation and Flood Control	52.94	1.29	3.19	0.15	52.41	4.03	27.89	3.10	333.67	0.61
V.	Energy	183.96	4.49	305.19	14.31	235.14	18.09	138.07	15.34	5488.68	10.02
VI.	Industry and Minerals	27.40	0.67	4.14	0.19	45.37	3.49	35.07	3.90	547.99	1.00
VII.	Transport	1843.63	44.97	189.61	8.89	136.81	10.52	179.71	19.97	18572.89	33.89
VIII.	Communications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IX.	Science and Technology	93.43	2.28	151.10	7.09	117.59	9.05	12.32	1.37	81.89	0.15
X.	General Economic Services	73.21	1.79	15.82	0.74	70.96	5.46	61.51	6.83	173.53	0.32
XI.	Social Services	1237.39	30.18	1418.24	66.52	527.22	40.56	370.59	41.18	27434.52	50.06
	Education	351.65	8.58	282.09	13.23	180.55	13.89	108.59	12.07	4464.55	8.15
	Medical and Public Health	161.25	3.93	472.97	22.18	165.03	12.69	82.93	9.21	5309.43	9.69
	Water Supply and Sanitation	237.78	5.80	55.97	2.63	72.66	5.59	53.55	5.95	9125.89	16.65
	Housing	185.33	4.52	53.49	2.51	17.86	1.37	35.51	3.95	729.44	1.33
	Urban Development	139.06	3.39	484.12	22.71	69.35	5.33	50.96	5.66	5879.34	10.73
	Others Social Services	162.30	3.96	69.59	3.26	21.77	1.67	39.05	4.34	1925.89	3.51
XII.	General Services	258.92	6.32	21.12	0.99	49.52	3.81	37.61	4.18	1289.48	2.35
	<b>Grand Total</b>	<b>4100.00</b>	<b>100.00</b>	<b>2132.00</b>	<b>100.00</b>	<b>1300.00</b>	<b>100.00</b>	<b>900.00</b>	<b>100.00</b>	<b>54799.15</b>	<b>100.00</b>

(Annexure 3.3 contd.)

(Annexure 3.3 contd.)

S. No.	Major Heads of Development	Lakshadweep	%-age to total	Puducherry	%-age to total	Total (UTs)	%-age to total	Total (States & UTs)	%-age to total
1	2	71	72	73	74	75	76	77	78
I.	Agriculture and Allied Activities	185.30	8.82	1018.20	9.44	1530.37	2.01	85457.53	5.74
II.	Rural Development	12.25	0.58	378.25	3.51	1395.02	1.83	110739.02	7.44
III.	Special Area Programmes	0.00	0.00	0.00	0.00	0.00	0.00	26329.03	1.77
IV.	Irrigation and Flood Control	47.55	2.26	314.98	2.92	832.63	1.09	203578.84	13.68
V.	Energy	165.30	7.87	541.58	5.02	7057.94	9.27	225384.68	15.15
VI.	Industry and Minerals	9.12	0.43	539.35	5.00	1208.45	1.59	32020.79	2.15
VII.	Transport	564.91	26.90	822.51	7.63	22310.08	29.31	186137.03	12.51
VIII.	Communications	0.15	0.01	0.00	0.00	0.15	0.00	42.91	0.00
IX.	Science and Technology	81.85	3.90	186.25	1.73	724.43	0.95	12487.39	0.84
X.	General Economic Services	638.43	30.40	438.17	4.06	1471.63	1.93	47712.35	3.21
XI.	Social Services	297.12	14.15	5946.89	55.13	37231.97	48.91	523463.11	35.18
	Education	60.97	2.90	1348.27	12.50	6796.67	8.93	108729.83	7.31
	Medical and Public Health	34.53	1.64	1386.85	12.86	7613.01	10.00	53897.09	3.62
	Water Supply and Sanitation	37.26	1.77	466.33	4.32	10049.44	13.20	86446.74	5.81
	Housing	61.42	2.92	827.18	7.67	1910.23	2.51	26007.48	1.75
	Urban Development	23.51	1.12	582.17	5.40	7228.51	9.50	85530.10	5.75
	Others Social Services	79.42	3.78	1336.09	12.39	3634.10	4.77	162852.88	10.94
XII.	General Services	98.02	4.67	600.82	5.57	2355.49	3.09	34793.91	2.34
	<b>Grand Total</b>	<b>2100.00</b>	<b>100.00</b>	<b>10787.00</b>	<b>100.00</b>	<b>76118.15</b>	<b>100.00</b>	<b>1488147.48</b>	<b>100.00</b>

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## Employment Perspective and Labour Policy

4.1. The generation of productive and gainful employment, with decent working conditions, on a sufficient scale to absorb our growing labour force must form a critical element in the strategy for achieving inclusive growth. Past record in this respect is definitely inadequate and the problem is heightened by the fact that the relatively higher rate of growth achieved during the last decade or so is not seen to generate a sufficient volume of good quality employment.

4.2. The Eleventh Plan provides an opportunity to focus on and diagnose the reasons for past failings observed in the employment situation and to reverse at least some of the adverse employment outcomes associated with the pattern of economic growth in the recent past.

### WEAKNESSES IN PAST PERFORMANCE

4.3. The basic weakness in our employment performance is the failure of the Indian economy to create a sufficient volume of additional high quality employment to absorb the new entrants into the labour force while also facilitating the absorption of surplus labour that currently exists in the agricultural sector, into higher wage, non-agricultural employment. A successful transition to inclusive growth requires migration of such surplus workers to other areas for productive and gainful employment in the organized or unorganized sector. Women agricultural workers in families where the male head has migrated, also require special attention given the need for credit and other inputs if they are self-employed in agriculture or for wage employment if they do not have land.

4.4. The approach to the Eleventh Plan had identified the following specific weaknesses on the employment front which illustrate the general failing just discussed.

- The rate of unemployment has increased from 6.1% in 1993–94 to 7.3% in 1999–2000, and further to 8.3% in 2004–05.<sup>1,2</sup>
- Unemployment among agricultural labour households has risen from 9.5% in 1993–94 to 15.3% in 2004–05.
- Under-employment appears to be on the rise, as evident from a widening of the gap between the usual status (us) and the current daily status measures of creation of incremental employment opportunities between the periods 1994 to 2000 and 2000 to 2005 (Annexure 4.1).
- While non-agricultural employment expanded at a robust annual rate of 4.7% during the period 1999–2000 to 2004–05, this growth was largely in the unorganized sector.
- Despite fairly healthy GDP growth, employment in the organized sector actually declined, leading to frustration among the educated youth who have rising expectations.
- Although real wages of casual labour in agriculture continue to rise during 2000–2005, growth has decelerated strongly, as compared to the previous

<sup>1</sup>Unless otherwise stated, the employment and unemployment estimates are on 'Current Daily Status' (CDS) basis. See Box 4.1 for other measures of employment which are also relevant.

<sup>2</sup>Three kinds of estimates for the unemployed are obtained following the three different approaches. See Box 4.1.



quinquennium (1994–2000), almost certainly reflecting poor performance in agriculture. However, over the longer periods 1983 to 1993–94 (period I) and 1993–94 to 2004–05 (Period II), the decline is moderate for rural male agricultural casual labour, from 2.75% to 2.18% per annum.

- Growth of average real wage rates in non-agriculture employment in the period 1999–2000 to 2004–05 has been negligible. Seen over the longer period of two decades (Period I and Period II), the wages have steadily increased at over 2% per annum.
- In respect of entire rural male casual labour, the growth in real wages accelerated from 2.55% (Period I) to 2.78% per annum (Period II) (Annexure 4.6).
- Real wages stagnated or declined even for workers in the organized industry although managerial and technical staff did secure large increase.
- Wage share in the organized industrial sector has halved after the 1980s and is now among the lowest in the world.

4.5. It is only through a massive effort at employment creation, of the right quality, and decent conditions of work for all sections of population and at all locations that a fair redistribution of benefits from growth can be achieved. This indeed is a stupendous task. Alternative policy measures focusing on different sectors and

occupations, and the specific requirements of different target groups are needed to create employment on a sustainable basis.

#### RECENT EXPERIENCE REVISITED

4.6. The Tenth Plan was framed against the backdrop of concerns that were posed by the employment and unemployment survey in 1999–2000 (NSS 55th Round), which showed very low growth of employment compared with 1993–94. Jobless growth therefore became a key concern and the Plan set a target of creating 50 million new employment opportunities on a current daily status basis. (For a brief description of different concepts of employment see Box 4.1.)

4.7. The results of the most recent 61st Round of NSS for 2004–05 reveal a somewhat better picture of employment growth in the Tenth Plan period than in the previous period. During 1999–2000 to 2004–05, about 47 million work opportunities were created as compared to only 24 million in the previous period 1993–94 to 1999–2000. Further, employment growth accelerated from 1.25% per annum during the period 1993–94 to 1999–2000 to 2.62% per annum during the period 1999–2000 to 2004–05. The annual increase in work opportunities increased from 4.0 million per year in the first period to 9.3 million per annum in the second period (Table 4.1).

#### Box 4.1

##### The Three Kinds of Estimates of the Unemployed<sup>1</sup>

Unemployment rate is defined as the number of persons unemployed per 1000 persons in the labour force. Three kinds of estimates for the unemployed are obtained following the three different approaches. These are:

- number of persons usually unemployed based on 'usual status' approach,
- number of persons unemployed on an average in a week based on the 'weekly status' and
- number of person-days unemployed on an average during the reference period of seven days preceding the survey.

The first estimate indicates the magnitude of persons unemployed for a relatively longer period during a reference period of 365 days and approximates to an estimate of chronically unemployed. Some of the unemployed on the basis of this criterion might be working in a subsidiary capacity during the reference period. The former is called as the usually unemployed according to the principal status and the latter, the usually unemployed excluding the subsidiary status workers (us adjusted) which admittedly will be lower than the former. The second estimate based on the weekly status gives the average weekly picture during the survey year and includes both chronic unemployment and also the intermittent unemployment, of those categorized as usually unemployed, caused by seasonal fluctuations in the labour market. The third estimate based on the daily status concept gives average level of unemployment on a day during the survey year. It is the most inclusive rate of 'unemployment' capturing the unemployed days of the chronically unemployed, the unemployed days of the usually employed who become intermittently unemployed during the reference week, and the unemployed days of those classified as employed according to the priority criterion of current weekly status.

<sup>1</sup>NSSO Report No. 409: Employment and Unemployment in India 1993–94: NSS 50th Round; Chapter 7.

4.8. Despite these positive features, it must also be noted that the labour force also grew faster in the second period. However, the pace of growth in labour force in the second period at 2.84% per annum exceeded the growth in the workforce (employment) of 2.62% per annum, so that the unemployment rate increased from 7.3% in 1999–2000 to 8.3% in 2004–05.

#### LONG-TERM TRENDS IN EMPLOYMENT SITUATION: 1983 THROUGH 2005

4.9. Some analysts have viewed the 1999–2000 survey as an ‘outlier’ because of the relatively depressed employment situation in that year, and have commented that 1999–2000 was a case of low statistical base, which shows up as high growth of employment in the next period 2000–05. On this view, a better assessment of trends emerges if we compare developments over two relatively longer periods, that is, 1983 to 1993–94 (period I–10.5 years) and 1993–94 to 2004–05 (period II–11 years).

4.10. Table 4.1 presents a comparison of the trends in employment and labour force over a longer period. It is evident that population growth decelerated in Period II as compared with Period I and this led to a deceleration in labour force growth also. However, the growth of the workforce, that is, total employment, also decelerated in Period II. Employment grew more slowly than the labour force in Period II which raised the unemployment rate from 6.1% in 1993–94 to 8.3% in 2004–05. Measured in absolute terms, the average annual increase in employment opportunities during Period II was 6.45 million, which is lower than the annual increase of 7.09 million in Period I.

4.11. The inadequate increase in aggregate employment in Period II is associated with a sharp drop in the pace of creation of work opportunities in agriculture. Agriculture should not be expected to create additional employment but, rather, to reduce the extent of under-employment and thereby increase incomes and wages

**TABLE 4.1**  
**Past and Present Scenario on Employment and Unemployment**

	1983	1993–94	1999–2000	2004–05	(current daily status basis)			
					1993–94 to 1999–2000	1999–2000 to 2004–05	1983 to 1993–94	1993–94 to 2004–05
	('000 person years)				(% per annum)			
<b>All India</b>								
Population	718101	893676	1005046	1092830	1.98	1.69	2.11	1.85
Labour Force	263824	334197	364878	419647	1.47	2.84	2.28	2.09
Workforce	239489	313931	338194	384909	1.25	2.62	2.61	1.87
Unemployment Rate (%)	9.22	6.06	7.31	8.28				
No. of Unemployed	24335	20266	26684	34738	4.69	5.42	–1.73	5.02
<b>Rural</b>								
Population	546642	658771	728069	779821	1.68	1.38	1.79	1.55
Labour Force	206152	252955	270606	303172	1.13	2.3	1.97	1.66
Workforce	187899	238752	251222	278076	0.85	2.05	2.31	1.40
Unemployment Rate (%)	8.85	5.61	7.16	8.28				
No. of Unemployed	18253	14203	19383	25097	5.32	5.3	–2.36	5.31
<b>Urban</b>								
Population	171459	234905	276977	313009	2.78	2.48	3.04	2.64
Labour Force	57672	81242	94272	116474	2.51	4.32	3.32	3.33
Workforce	51590	75179	86972	106833	2.46	4.2	3.65	3.25
Unemployment Rate (%)	10.55	7.46	7.74	8.28				
No. of Unemployed	6082	6063	7300	9641	3.14	5.72	–0.03	4.31

Note: Estimates both on UPSS basis and CDS basis are given in Annexure 4.1.

of those employed in agriculture while surplus labour shifts to the non-agriculture sector. However, the increase in employment in the non-agricultural sectors was disappointing.

4.12. As shown in Table 4.2, the dependence of the work-force on agriculture and allied sectors declined from 61% in 1993–94 to 52% in 2004–05, that is, a decline of 9 percentage points as compared with a decline of only 4 percentage points in the period 1983 to 1993–94. Thus, work opportunities diversified away from agriculture at a faster pace during the latter period 1993–94 to 2004–05.

4.13. Table 4.3 shows the annual increase in the work-force by category of employment in Period I compared with

Period II. There has been a sustained increase in employment opportunities since 1993–94, although at a slower rate than in the earlier period. A notable feature is the sharp increase in the number of jobs created at regular salaried wage—from 0.98 million per year in Period I to 1.68 million per year in Period II. This is a direct consequence of the step-up in the expansion of the manufacturing and services sectors, as already discussed. However, the pace of opening up of employment opportunities for casual wage labour getting released from the agriculture sector has slowed down sharply in Period II. The annual increase in this category was 2.40 million in Period I but which declined to 0.54 million in Period II (Table 4.3), mainly reflecting the lower absorption in agriculture which was not offset by an expansion in other sectors.

**TABLE 4.2**  
Sector-wise Share of Employment by Current Daily Status

Industry	(CDS basis) (%)				
	1983	1993–94	1999–2000	2004–05	2006–07
Agriculture	65.42	61.03	56.64	52.06	50.19
Mining and Quarrying	0.66	0.78	0.67	0.63	0.61
Manufacturing	11.27	11.10	12.13	12.90	13.33
Electricity, water, etc.	0.34	0.41	0.34	0.35	0.33
Construction	2.56	3.63	4.44	5.57	6.10
Trade, hotel, and restaurant	6.98	8.26	11.20	12.62	13.18
Transport, storage, and comm.	2.88	3.22	4.06	4.61	5.06
Financial, insurance, real estate, and business services	0.78	1.08	1.36	2.00	2.22
Community, social, and personal services	9.10	10.50	9.16	9.24	8.97
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Note: \*Projected.

**TABLE 4.3**  
Annual Increase in Workforce by  
Category of Employment

Category of Employment	(CDS basis) (million)	
	1983 to 1993–94	1993–94 to 2004–05
Self-employed	3.71 (52.39)	4.23 (65.57)
Salaried wage	0.98 (13.83)	1.68 (26.02)
Casual wage	2.40 (33.78)	0.54 (8.41)
<b>Workforce</b>	<b>7.09</b> <b>(100.00)</b>	<b>6.45</b> <b>(100.00)</b>

Note: Figures in parentheses are percentages.

Source: Derived from data in Annexure 4.3(C).

#### SECTOR-WISE EMPLOYMENT GENERATION ACHIEVED IN THE TENTH PLAN

4.14. Though the aggregate employment generation of 47 million work opportunities in the period 1999–2000 to 2004–05 was fairly close to the target of 50 million employment opportunities for the Tenth Plan, the performance across sectors has varied (see Table 4.4).

4.15. The achievement with respect to employment creation was short of the Tenth Plan target in the agriculture sector by 0.6 million persons (8.84 million increase against a target of 9.47 million). The increase in the manufacturing sector was short by 3 million persons (8.64 million increase against a target of 11.62 million); in trade, hotel, and restaurants by 0.53 million (10.70 million against a target

**TABLE 4.4**  
Sector-wise Performance and Targets of Employment

(CDS basis)

Sector	Incremental Employment (million)			
	Target (2002–07) (5 years)	Achievement (2000–05) (5 years)	Achievement (1994–2005) (11 years)	Projected (2007–12) (5 years)
Agriculture	9.47	8.84	8.82	0.00
Mining and Quarrying	–0.2	0.17	0.00	0.00
Manufacturing	11.62	8.64	14.84	11.94
Electricity, water, etc.	–0.21	0.18	0.00	0.02
Construction	6.3	6.44	10.05	11.92
Trade, hotel, and restaurant	11.23	10.70	22.67	17.40
Transport, storage, and comm.	5.51	4.04	7.64	9.02
Financial, insurance., real estate, and business services	1.93	3.12	4.31	3.43
Community, social, and personal services	0.49	4.59	2.62	4.34
<b>Total</b>	<b>49.00</b> {(a)(b)}	<b>46.72</b>	<b>70.98</b>	<b>58.07</b>

Notes: <sup>a</sup> Including 2.87 million contribution from special employment programmes.

<sup>b</sup> To create 50 million opportunities, the Tenth Plan envisaged a contribution of 20 million from selective innovative programmes and policies leading to a changed pattern of growth in favour of the labour intensive sectors, over and above 30 million through normal buoyancy from growth.

of 11.23 million); and in transport and communication by 1.47 million (4.04 million against a target of 5.51 million). In contrast, the construction, financial services, and community, social and personal services sectors exceeded the Tenth plan target of employment. In proportional terms, the largest shortfall in employment generation has been in manufacturing.

## INFORMALIZATION OF EMPLOYMENT

4.16. A critical issue in assessing employment behaviour of the economy is the growth of employment in the organized sector vis-à-vis the unorganized sector. Public debate on this issue is usually conducted on the basis that unorganized sector employment is generally of low quality while organized sector employment is of high quality, and the focus of attention is on whether employment has increased in the organized sector. The inadequacy of growth in the organized sector has traditionally been illustrated using data on employment by units registered with the Directorate General of Employment and Training, which are typically large units in the organized sector. These data are presented in Table 4.5 below and they clearly show that whereas organized sector employment increased at the annual rate of 1.2% per year in the period 1983–1994, it actually declined at 0.3% per year in the period after 1994.

**TABLE 4.5**  
Growth in Organized Employment

Sector	(% per annum)	
	1983–1994	1994–2005
Public Sector	1.53	–0.70
Private Sector	0.44	0.58
Total Organized	1.20	–0.31

This decline is shown to occur primarily on account of a decline in employment in public sector units. Employment growth in the private sector units has accelerated in the second period but the acceleration is clearly insufficient to offset the decline in public sector employment.

4.17. This issue can be explored further on the basis of data from the NSS employment surveys in 1999–2000 and 2004–05 which distinguish individuals according to type of establishment and also type of labour conditions. Data for the 61st Round<sup>3</sup> is presented in Annexures 4.4

<sup>3</sup>Wage workers among the household members who answered NSSO questions in the 61st Round (2004–05) were asked as to whether the employers provide the following types of benefits to them, and also the method of receiving payment:

and 4.5. The design of enquiry in the two rounds was not identical, and in the 55th Round it was restricted only to the receipt of PF benefits by employees.<sup>4</sup>

4.18. Using this data it is possible to obtain a broad picture of employment growth in three categories of establishments,

that is, private establishments hiring less than 10 workers, private establishments hiring 10 workers or more, and public sector establishments. Within each category, one can distinguish between regular employees, casual employees, and self-employed. Table 4.6 presents data for the set of employees other than those engaged in crop agriculture.

**TABLE 4.6**  
**Non-Agricultural Workers by Size and by Ownership of Establishment (Usual Principal Status Basis)**

Employment Status by Ownership and by Workers' Size of Enterprise	1999–2000	2004–05	Increase/Decrease (absolute)	Increase/Decrease (%)
	(thousands)			
<b>I. Regular Employees</b>				
Private < 10	24171	27446	3275	13.55
Private > 10	11225	15650	4425	39.42
Public	19760	22042	2283	11.55
Subtotal I—Regular Employees	55155	65138	9983	18.10
<b>II. Casual Employees</b>				
Private < 10	26197	28497	2300	8.78
Private > 10	5083	8075	2992	58.86
Public	943	1102	159	16.86
Subtotal II—Casual Employees	32223	37674	5451	16.92
<b>III Self-Employed</b>				
Private < 10	65514	81535	16021	24.45
Private > 10	1330	1998	668	50.23
Public	145	250	105	72.41
Subtotal III—Self Employed	66989	83783	16794	25.07
<b>All Enterprises and All Employment Status</b>				
Private < 10	115882	137478	21596	18.64
Private > 10	17637	25722	8085	45.84
Public	20848	23394	2547	12.22
<b>Total I–III</b>	<b>154367</b>	<b>186595</b>	<b>32228</b>	<b>20.88</b>

Note: Derived from unit level data of NSS 55th round and 61st round

- (i) Benefits eligible for:
  1. Only PF/pension (that is, GPF, CPF, PPF, pension, etc.)
  2. Only gratuity
  3. Only health care and maternity benefits
  4. Only PF/pension and gratuity
  5. Only PF/pension and health care and maternity benefits
  6. Only gratuity and health care and maternity benefits
  7. PF/pension, gratuity, health care, and maternity benefits
  8. Not eligible for any of above social security benefits
- (ii) Method of payment received by the wage workers:
  1. Regular monthly salary
  2. Regular weekly payment
  3. Daily payment
  4. Piece rate payment
  5. Others

<sup>4</sup>In the 55th Round (1999–2000), all the usual status workers (note here 'all' includes self-employed workers, too) were asked whether they had the benefit of:

4.19. The picture that emerges is the following:

- Total employment in public sector establishments has increased by 12.2% in the period 1999–2000 to 2004–05.
- Total employment in private sector establishments hiring less than 10 workers has increased by 18.6% in the same period.

1. GPF
2. PPF
3. CPF
4. A combination of the above
5. None of the above

No question was asked on the method of payment to wage workers.

- Total employment in private sector establishments hiring more than 10 workers has increased by as much as 45.8%!

4.20. If we treat employment in establishments hiring more than 10 workers as a measure of organized sector employment, the increase in organized sector employment in the private sector is more than the increase in the private unorganized sector.

4.21. If we limit our focus on regular employees in the larger private sector units, this category shows growth of 39.42%. However, the growth of casual employees in the larger private sector units was even faster at 58.9%.

4.22. The above conclusions emerge from unit level data of the NSS surveys focusing on the distinction between regular and casual employees. However some so-called regular employees do not have the benefits of social security. It is also possible to define organized employment more tightly to limit it to employees who receive provident fund and social security benefits. This has been done by the National Commission for Employment in the Unorganized Sector (NCEUS). As per NCEUS estimates, 20.46 million of the 54.12 million employees working in the organized sector in 1999–2000, were unorganized workers, and the remaining 33.67 million were organized. During the next five-year period, that is, 2000–05, while the number of organized workers by this definition remained constant, the number of unorganized workers in organized enterprises increased by 8.68 million to 29.14 million (Table 4.7).

4.23. The NCEUS data does not correspond with those in Table 4.6 since they include all of agriculture workers

in the unorganized sector. Of the total increase in employment of 61 million on a Usual Principal and Subsidiary Status (UPSS) basis, the increase in the unorganized sector is 52 million and the increase in the organized sector is 9 million. However, while total employment in the organized sector has increased over the period, the increase is entirely on account of what is classified as informal employment in the organized sector, that is, workers who do not have the benefit of provident fund and social security. Whereas employment of this category expanded by over 42%, employment categorized as formal was more or less stagnant.

4.24. To summarize, the recent experience with employment growth presents a mixed picture. If we focus on the most recent period, 1999–2000 to 2004–05, there appears to be an acceleration in employment growth compared with the preceding period which is consistent with expectations, given the acceleration in GDP growth. However, looking at longer term trends, this acceleration in employment growth disappears and in any case the rate of unemployment has increased throughout. Concerns about the quality of employment appear valid although different sources of data are not easily reconciled. However, it does appear that total employment provided by the organized sector has expanded in the period 1999–2000 to 2004–05 and this is entirely because of the growth of informal employment in the organized sector.

4.25. These trends highlight the major challenges of employment in the Eleventh Plan which can be summarized as follows:

- How to ensure faster growth in employment than in the labour force so as to reduce unemployment.

**TABLE 4.7**  
**Distribution of Workers by Type of Employment and Sector**

Sector	1999–2000			2004–2005		
	Informal	Formal	Total	Informal	Formal	Total
Unorganized Sector	341.28 (99.60)	1.36 (0.40)	342.64 (100)	393.47 (99.64)	1.43 (0.36)	394.90 (100)
Organized Sector	20.46 (37.80)	33.67 (62.20)	54.12 (100)	29.14 (46.58)	33.42 (53.42)	62.57 (100)
Total:	361.74 (91.17)	35.02 (8.83)	396.76 (100)	422.61 (92.38)	34.85 (7.46)	457.46 (100)

Notes: 1. UPSS basis.

2. Figures in bracket indicate percentages.

Source: Estimates by NCEUS.

- How to ensure faster growth in the organized sector than the unorganized sector so that the share of organized sector employment increases.
- How to ensure growth in formal employment in the organized sector and not just the informal employment.

### UNEMPLOYMENT AMONG THE YOUNG AND EDUCATED

4.26. Unemployment is typically higher among the youth and the educated who look for better quality of jobs, and this phenomenon is illustrated in Tables 4.8 and 4.9. Table 4.8 shows that unemployment

**TABLE 4.8**  
**Unemployment Rate among Youth**  
**(Age Group 15–29 Years)**

Year	(%)(CDS basis)			
	Rural Areas		Urban Areas	
	Male	Female	Male	Female
1993–94	9.0	7.6	13.7	21.2
1999–2000	11.1	10.6	14.7	19.1
2004–05	12.0	12.7	13.7	21.5

Source: NSSO Report No. 515(61/10/1)

**TABLE 4.9**  
**Unemployment Rates for Persons of Age 15 Years and above by Level of Education on**  
**Current Weekly Status (CWS) Basis**

General Level of Education	(%)											
	Rural male			Rural female			Urban male			Urban female		
	1993–94	1999–2000	2004–05	1993–94	1999–2000	2004–05	1993–94	1999–2000	2004–05	1993–94	1999–2000	2004–05
Not literate	1.8	3.0	2.7	2.2	2.7	2.5	2.2	3.1	2.8	2.2	2.0	2.5
Literate and up to primary	1.9	3.0	3.0	2.6	2.6	3.1	3.5	4.1	3.7	4.8	3.6	4.0
Secondary and above	8.3	7.3	6.5	19.8	16.9	18.2	7.0	6.9	6.2	19.6	15.8	17.9
ALL	3.1	3.9	3.8	2.9	3.7	4.2	5.2	5.6	5.2	7.9	7.3	9.0

Source: NSSO Report No. 515(61/10/1).

among the age group 15–29 years for both males and females and in urban and rural areas is significantly higher than the average level of unemployment of all persons.

4.27. CDS measure has been used for analysis of trends in workforce, in keeping with the practice followed in the Tenth Five Year Plan. However this, being a person days measure (that is, a time-based measure), is not amenable, straightaway, to study of person-specific characteristics of the workers. Current weekly and the us measures study the activity status of a person over the reference period (week or the year) (CWS, UPSS, and UPS) and are therefore amenable to study of person-specific characteristics. Hence, in presenting the person-specific features of employed or unemployed persons Current Weekly Status (CWS) or the UPSS measures have been used.

### THE EMPLOYMENT SITUATION AMONG THE VULNERABLE GROUPS

4.28. It is useful to distinguish between several different groups who face special difficulties in employment.

#### (i) Agricultural Labour Households and Casual Labour in Rural Areas

4.29. Out of 460 million workers (UPSS), 94 million earn so little that they are below the poverty line. And if that is the lot of employed workers, the lot of the poor who are unemployed in the labour force must be worse, which is a cause of concern to the planning process.

4.30. The proportion of poor among the workers in the rural areas decreased from 25.2% in 1999–2000 to 20.3% in 2004–05. In urban areas, the incidence of poverty among the workers decreased from 22.29% to 21.22%. Though there is a net decrease by 3.5 million in the number of poor workers during 2000–05, the magnitude of poor workers at 94.3 million in 2004–05 remains very high. The incidence of poverty among the regular wage/salaried workers is much lower (around 11%) as compared to the casual labour (32%) and the self-employed workers (17%). This suggests that all efforts should be made to increase the regular wage/salaried jobs. (Annexure 4.7).

**TABLE 4.10**  
Incidence of Unemployment among  
Rural Agricultural Households

Year	(CDS basis) Unemployment Rate (%)
1983	7.73
1993–94	9.50
1999–2000	12.29
2004–05	15.26

4.31. Unemployment among the rural agriculture labour households, which is the single largest segment of the poor labour households, is now 15.3% (Table 4.10). It is possible to infer that the magnitude of poverty among them may have remained the same or even increased.

4.32. There has been a slight deceleration in the growth in wages of rural male casual agricultural labour from 2.75% per annum during 1983–94 to 2.18% per annum during 1994–2005. The fall in the case of females is more steep, from 3.07% per annum to 2.10% per annum (Annexure 4.6).

#### (ii) Weaker Social Groups: The Scheduled Castes (SCs) and Scheduled Tribes (STs)

4.33. Table 4.11 gives the unemployment rates among SCs vis-à-vis others (excluding SC, ST and OBC) from National Sample Surveys from 1983 (38th Round) to 2004–05 (61st Round). It is pertinent to mention here that for 1983 (38th Round) and 1993–94 (50th Round), there was no separate category of OBC and therefore the category 'others' included OBC also in these two rounds. It may be seen that between 1999–2000 and 2004–05, the unemployment rates for females, SCs as well as others, in both rural and urban areas have increased; by 0.8 percentage point in rural areas and 1.5 percentage point in urban areas. For urban males, unemployment among SCs increased by 0.4 percentage point, whereas among others it declined by 0.8 percentage point during 1999–2000 to 2004–05.

4.34. Table 4.12 presents a comparative picture of unemployment among STs and Others; so far as rural males are concerned, there is no change in unemployment rates between 1999–2000 and 2004–05 for SCs; but for others, the unemployment rate has declined slightly. On the other hand, during the same periods, the unemployment rate for females in rural areas has declined for SCs, and for Others it has increased by 0.8

**TABLE 4.11**  
Unemployment Rate according to Usual Status  
(ps+ss)<sup>1,2,3</sup> for Scheduled Castes during 1983 to 2004–05

	(%)			
	1983	1993–94	1999–2000	2004–05
<b>Rural Areas</b>				
Male	1.2 (1.4)	1.2 (1.4)	1.8 (1.8)	1.7 (1.6)
Female	0.5 (0.7)	0.4 (0.8)	0.6 (1.0)	1.4 (1.8)
<b>Urban Areas</b>				
Male	5.1 (0.7)	4.6 (4.0)	5.1 (4.6)	5.5 (3.8)
Female	2.9 (4.9)	4.4 (6.2)	3.1 (5.4)	4.6 (6.9)

*Note:* <sup>1</sup>CDS measure has been used for analysis of trends in the work-force, in keeping with the practice followed in the Tenth Five Year Plan. However, this, being a person days measure (that is, a time based measure), is not amenable, straightaway, to the study of person-specific characteristics of the workers. Current weekly and the us measures study the activity status of a person over the reference period (week or the year) (CWS, UPSS, and UPS) and are therefore amenable to the study of person-specific characteristics. Hence, in presenting the person-specific features of employed or unemployed persons, CWS or the UPSS measures have been used.

<sup>2</sup>CDS estimates are not available from NSS reports. Therefore, UPSS estimates are given in this Table. However it should be noted that these are under-estimates of unemployment because CDS measure is the most comprehensive measure of unemployment and CDS estimates are significantly higher than UPSS estimates.

<sup>3</sup>Figures in parentheses are the corresponding unemployment rates for others (excluding SC, ST, and OBC).

*Source:* Report No. 516 (61/10/2), *Employment and Unemployment Situation among Social Groups in India, 2004–05*.

**TABLE 4.12**  
Unemployment Rate according to Usual Status  
(ps+ss)<sup>1,2,3</sup> for Scheduled Tribes during 1983 to 2004–05

	(%)			
	1983	1993–94	1999–2000	2004–05
<b>Rural Areas</b>				
Male	0.5 (1.4)	0.8 (1.4)	1.1 (1.8)	1.1 (1.6)
Female	0.1 (0.7)	0.3 (0.8)	0.5 (1.0)	0.4 (1.8)
<b>Urban Areas</b>				
Male	4.3 (0.7)	4.7 (4.0)	4.4 (4.6)	2.9 (3.8)
Female	1.5 (4.9)	1.7 (6.2)	2.8 (5.4)	3.4 (6.9)

*Note:* <sup>1</sup>CDS measure has been used for analysis of trends in the work-force, in keeping with the practice followed in the Tenth Five Year Plan. However, this, being a person days measure (that is, a time based measure), is not amenable, straightaway, to the study of person-specific characteristics of the workers. Current weekly and the us measures study the activity status of a person over the reference period (week or the year) (CWS, UPSS, and UPS) and are therefore amenable to the study of person-specific characteristics. Hence, in presenting the person-specific features of employed or unemployed persons, CWS or the UPSS measures have been used.

<sup>2</sup>CDS estimates are not available from NSS reports. Therefore, UPSS estimates are given in this Table. However it should be noted that these are under-estimates of unemployment because CDS measure is the most comprehensive measure of unemployment and CDS estimates are significantly higher than UPSS estimates.

<sup>3</sup>Figures in parentheses are the corresponding unemployment rates for others (excluding SC, ST, and OBC).

*Source:* Report No. 516 (61/10/2), *Employment and Unemployment Situation among Social Groups in India, 2004–05*.



percentage point. In urban areas, the unemployment rate for males in both categories, namely SCs and Others has declined, but for females it has increased.

### (iii) The Children at Work

4.35. Estimates from the 61st Round reveal that 5.82 million children (age 5–14 years) work; 1.136 million in urban areas and 4.682 million in rural areas (Table 4.13).

**TABLE 4.13**  
**Estimated Number of Children (5–14 Years)**  
**in the Labour Force, Workforce, and Unemployed—**  
**All India (CDS Basis)**

Heads	('000)					
	1993–94		1999–2000		2004–05	
	Rural	Urban	Rural	Urban	Rural	Urban
Labour Force	9919	1552	7792	1447	5182	1292
Workforce	9441	1442	7203	1320	4682	1136
Unemployed	479	110	589	127	501	156
Unemployment Rate (%)	4.83	7.08	7.56	8.78	9.66	12.08

4.36. The Child Labour (Prohibition and Regulation) Act, 1986 prohibits employment of children below 14 years in hazardous occupations and processes and regulates the working conditions in other employments. Compliance with the provisions of this Act is the responsibility of Labour Sector of the Plan (Ministry of Labour and Employment). At present, the laws do not prohibit employment of children in non-hazardous occupations but children so employed must have access to education. Against this background, the Eleventh Plan Working Group on Child Labour has estimated that 3.643 million children (5–14 years) were working in the non-agricultural sector, out of which 1.219 million children were engaged in hazardous occupations. Chapter 6 (Volume II) Towards Women's Agency and Child Rights gives the comprehensive approach to deal with the problem of children at work and exposed to other risks.

4.37. The education sector has a pre-eminent role in ensuring that all children in the age group 9–14 years are at school. To the extent this goal of SSA can be ensured (now that there is a fourfold increase, at constant price, in the Eleventh Plan over the Tenth Plan, duly backed by scheme-tied revenue through a Cess), the tendency to utilize child labour at a cheap cost to increase profits from making children work, can be curbed. The

Integrated Child Development Scheme (ICDS), also, has a responsibility with regard to the development of adolescent girls and thus keeping them away from wage employment.

4.38. The focus of efforts to eradicate child labour has to be location specific, confined to those pockets where employers are prone to be exploitative in accessing the cheapest cost labour. High per-capita income locations (metro towns, in particular), destinations of migrant worker families and 'industrial belts', where informal work relationships for labour-intensive occupations thrive, have therefore to be closely monitored through innovative mechanisms that provide intelligence to the enforcement agencies.

4.39. Any expansion of the Child Labour Eradication Plan has to be made only after a careful evaluation of the existing scheme with regard to:

- Its effectiveness in dovetailing SSA and ICDS;
- The ability to involve State administrations which implement the CSS pertaining to the development, education, nutrition, and protection of children;
- A purely Central Plan funded effort should be in the nature of an emergent action over a limited duration at the location, where the local administration are, by ignorance or by design, seem to be aiding the use of cheap child labour for serving the profit motive of the citizens at that location.
- A suitable form of penalization should be imposed in such local and State Governments that seem to be paying only 'lip service' to curb the problem of the use of 'cheap cost child labour'.

### (iv) Women Workers

4.40. Women comprise 48.3% of the population but have only 26.1% share in the persons employed. This is presently because their share in the labour force is only 26.4% (Table 4.14). The female labour force participation rates (LFPR) across all age groups are 25 to 30% of the male LFPR in urban areas, and 35 to 40% of male LFPR in the rural areas.

4.41. Along with lower participation rates, women face a higher incidence of unemployment than men. This is especially so for higher levels of education. While the unemployment rates between men and women

**TABLE 4.14**  
**Past and Present Macro Scenario on Employment and Unemployment—Male and Female**

	(CDS basis)							
	1983	1993–94	1999–2000	2004–05	1993–94 to 1999–2000	1999–2000 to 2004–05	1983 to 1993–94	1993–94 to 2004–05
	('000 person years)				(% per annum)			
<b>All India</b>								
Population	718101	893676	1005046	1092830	1.98	1.69	2.11	1.85
Labour Force	263824	334197	364878	419647	1.47	2.84	2.28	2.09
Workforce	239489	313931	338194	384909	1.25	2.62	2.61	1.87
Unemployment Rate (%)	9.22	6.06	7.31	8.28				
No. of Unemployed	24335	20266	26684	34738	4.69	5.42	-1.73	5.02
<b>Female</b>								
Population	346546	430188	484837	527355	2.01	1.70	2.08	1.87
Labour Force	68011	86728	92859	110886	1.14	3.61	2.34	2.26
Workforce	61218	81151	85952	100491	0.96	3.18	2.72	1.96
Unemployment Rate (%)	9.99	6.43	7.44	9.37				
No. of Unemployed	6793	5578	6907	10395	3.63	8.52	-1.86	5.82
<b>Male</b>								
Population	371556	463488	520209	565475	1.94	1.68	2.13	1.82
Labour Force	195813	247468	272019	308761	1.59	2.57	2.25	2.03
Workforce	178270	232780	252242	284417	1.35	2.43	2.57	1.84
Unemployment Rate (%)	8.96	5.94	7.27	7.88				
No. of Unemployed	17542	14688	19777	24343	5.08	4.24	-1.68	4.70

do not differ much up to the primary level of schooling, unemployment among women educated up to the secondary and higher levels is much higher than among men. In the urban areas, unemployment among young women in the 15–29 years age group is much higher than for men, and is highest among young urban women in the 20–24 years age group where one among every four girls seeking work cannot find it. They are in a especially vulnerable position when they seek entry into the regular wage jobs in the unorganized or even in the private organized sector, in urban areas. This has many implications for our labour policy, particularly the gender sensitive regulations, the social policies and programmes that are designed to promote 'equality' at work.

4.42. A measure of 'underemployment' is the change in activity status of the persons employed, when the reference period for the study of time disposition is reduced from one year (the US measure) to an average day of the past week (CDS measure). Only 66% of rural women who are counted as employed on the US measure,

are seen as employed on the CDS measure, whereas the corresponding proportion for men is higher at 89% (NSS Report No. 515 (61/10/1) (Part I) (September 2006) (Statement 7.2.1). The deceleration in wage rates of casual labour in agriculture between the periods 1994–2000 and 2000–05 has been higher for women (2.93% per annum to 0.93% per annum) than for men (2.79% to 1.21%). Participation in education by girls (15–19 years) in rural areas is only 33% (as compared to 47% for men), and the gender disparity increases sharply in the next age group, that is, 20–24 years. Only 1.3% of young women (15–29 years) in rural areas received formal vocational training. Such features of the labour market for women are reflected in the fact that as much as 21.7% of employed women have consumption levels below poverty line in 2004–05, that is, they are employed yet still poor. This proportion is lower among men—19.9%. (Annexure 4.7).

4.43. The principal reasons for low participation by women in the labour force are:

- Wage rates of women are lower than of male for comparable occupations.
- Women are denied access to certain occupations, though they may be capable of doing that work as well as the men.
- Skill development of women is not uniform across all trades; participation by them remains confined to a few labour-intensive occupations such as stitching, teachers training, etc., which forces a majority of the women to enter the labour market as unskilled labour.

4.44. Whenever equal opportunity has been given to women in recruitments, equality in wage with the men has been ensured, and an equal exposure in training has been given, the participation by women in work has improved. This is illustrated in ample measure in the IT and enabled services sectors and in various other professional services—legal, financial, commercial, education and health.

4.45. In order to promote gender equity, steps have to be taken to increase women's participation in the labour force. This has to be pursued through skill development, labour policies and also the social security framework. Significant outcomes can be expected only if the gender issue is addressed through the planning initiatives across all the 'heads of development' in the Plan, with requisite lead from the 'Women and Child Development' Head. Gender-budgeting has not, so far, received due attention.

4.46. The Eleventh Plan must seek to reduce the gender differentials by pursuing (i) target shares for women beneficiaries in the programmes for 'Skill Development initiatives', 'New initiatives at Social Security', implementation of regulations such as the Apprentices Act, 1961, the Factories Act, the Building and Construction Workers (Conditions of Service) Act, and better implementation of The Maternity Benefit Act, 1976 and The Equal Remuneration Act, 2000, and for guarding against sexual harassment at the work place.

#### (v) Migrant Workers

4.47. Inter-State population migration rates for the inter-census period (1991–2001) are given in Annexure 4.8. The net out-migrant and in-migrant States are presented in this Annexure. Large absorbers of migrants are the States of Punjab, Haryana, Delhi, Gujarat, Maharashtra, Karnataka and Goa. The large net out-migrant States are

Rajasthan, Uttar Pradesh, Bihar, Assam, West Bengal, Jharkhand, Orissa, Chhattisgarh, Andhra Pradesh, Kerala, and Tamil Nadu. Implicit in these population movements is an origin-destination migration matrix of workers. The numbers shown in the Annexure are inter-decadal and are presumably much smaller than the shorter period movements of migrant workers.

4.48. Migration itself is not an abnormal phenomenon and is common all over the world since growth centres which generate demand for labour often tend to concentrate in certain areas. However, migrant workers are the most vulnerable and exploited among the informal sector workers, and have not received any attention in the labour policy. In the States which are sources (origin) of supply of migrant workers—and most of them migrate to take up some labour-intensive, low-wage occupation—an effective and large-scale effort for vocational training in the labour intensive occupations is required. And such a programme should be amenable to the special needs of the entrants to informal labour markets. In the destination States, the focus of public policy (including Labour Policy) should be to improve the conditions under which the bulk of these in-migrants live and work. And in so far as the destination locations fail to provide certain basic minimum conditions to the new in-migrants, it would be better to restrain economic growth at such locations. In the labour and employment sector, better implementation of certain legislations pertaining to unorganized workers can protect the interests of most of the migrant workers; for example, the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1976; the Building and Other Construction Workers (Cess) Act, 1976; the Workmen's Compensation Act, 1923 and the Minimum Wages Act, 1948. An initiative has been taken recently by the government (in September 2007) with the introduction of 'The Unorganized Workers' Social Security Bill, 2007' in the Rajya Sabha.

#### (vi) The Self-employed and Casual Wage Employed

4.49. The self-employed and casual wage employed account for 83% of the workforce. About 20–25 million enter the labour force each year. Thus 17–21 million will enter the labour market in the non-regular wage employed category. The only strength of the self and the casual employed is their occupational skill, and the entrepreneurial skill to negotiate the price of labour put

in by them. At present, a majority of the new entrants in this category have little or no education, not to speak of any vocational training. And many of them migrate to new locations, and to new occupations other than their traditional ones. The skill development set up of the government(s) has practically no space for them, at present. The National Skills Mission, discussed in the Chapter 5 on Skill Development and Training could make a major difference by upgrading the skills of new entrants to the informal sector.

### EMPLOYMENT PROJECTIONS FOR THE ELEVENTH AND TWELFTH PLANS

4.50. The Approach Paper for the Eleventh Plan had projected an addition of 52 million to labour force in the Plan period and had called for the creation of 70 million employment opportunities. However, the projections of labour growth have been revisited in view of the latest

population projections made available by the National Commission on Population and work done by the Eleventh Plan Working Group on Labour Force and Employment Projections. The projected increase in labour force during the Eleventh Plan period is now estimated at 45 million.

4.51. The employment prospects in the Eleventh Plan period have also been revised and the results are presented in Tables 4.15(A) and (B) with projections of labour force and employment over a longer period, 2006–07 to 2016–17, encompassing both the Eleventh and the Twelfth Plans.

4.52. As shown in Table 4.15(B), population growth is expected to decelerate through this period with a corresponding deceleration in labour force growth to 1.6% per year. However, although the labour force growth is projected to decelerate, the absolute increase in the labour force is very large. In fact, India's demographic profile is

**TABLE 4.15(A)**  
**Population, Labour Force, Employment Projections**

		1993–94*	2004–05*	2006–07	2011–12	2016–17
						(’000)
Population (age 0+)		893676	1092830	1128313	1207971	1283242
Population (age 15–59)		501760	652940	687120	760110	820570
Labour Force	UPSS	378650	471250	492660	541840	586440
Labour Force	CDS	334197	419647	438948	483659	524057
Employment Opportunities	CDS	313931	384909	402238	460310	51820
Unemployed (’000)	CDS	20266	34738	36710	23348	5853
Unemployment Rate (%)	CDS	6.06	8.28	8.36	4.83	1.12

Note: \* Actual estimates derived from NSS.

**TABLE 4.15(B)**  
**Projected Population, Labour Force, and Employment in Different Periods**

	Basis	Growth rates (% per annum) and absolute increase (’000)			
		1993–94 to 2004–05*	2004–05 to 2006–07	2006–07 to 2011–12	2011–12 to 2016–17
Growth Rate in Population (age 0+)		1.85	1.43	1.37	1.22
Growth Rate in Population (age 15–59)		2.42	2.29	2.04	1.54
Growth Rate in Labour Force	UPSS	2.01	1.99	1.92	1.59
Growth Rate in Labour Force	CDS	2.09	2.02	1.96	1.62
Growth Rate in Employment Opportunities	CDS	1.87	1.98	2.73	2.40
Addition to Population (’000)	UPSS	199154	35483	79658	75271
Addition to Labour Force (’000)	UPSS	92600	21410	49180	44600
Addition to Labour Force (’000)	CDS	85450	19301	44711	40398
Addition to Employment Opportunities (’000)	CDS	70978	17330	58072	57893

Note: \* Actual estimates derived from NSS.

such that the expansion in the labour force in India will be larger than in the industrialized countries, and even China. As discussed in Chapter 5, the demographic dividend could be a source of global competitive advantage if it is combined with successful efforts at skill upgradation and at expansion of employment opportunities.

4.53. The growth of total employment over the period has been estimated on the basis of employment projections for individual sectors which are then aggregated. These sectoral employment projections are based on sectoral GDP growth rates combined with assumptions about employment elasticity moderated by the implicit growth of productivity (see Annexure 4.2). The resulting projections indicate that 58 million job opportunities will be created in the Eleventh Plan period which exceeds the projected addition to the labour force, leading to a reduction in the unemployment rate to below 5%.

4.54. Over the longer period up to 2016–17, spanning the Eleventh and Twelfth Plan periods, the additional employment opportunities created are estimated at 116 million as compared to 71 million during the 11-year period from 1993–94 to 2004–05 (Table 4.16). Since the labour force will increase by 85 million in this period, a substantial part of the surplus of labour force that exists at the commencement of the Eleventh Plan could get absorbed into gainful employment by the end of the period. The unemployment rate at the end of the Twelfth Plan period is projected to fall to a little over 1%.

4.55. There are important qualifications to these projections which must be kept in mind, arising from the limitation of employment elasticity as a projection tool. The concept of employment elasticity is at best a mechanical device to project employment on the basis of projected growth of output and past relationships between employment and output. These relationships can change as a result of changing technology and change in real wages. The labour force participation rate is also subject to changes, especially because of possible changes in female participation rates in urban areas associated with advances in women's education. For all these reasons, the projected decline in the unemployment rate must be treated with caution. It could well be that the projected increase in labour demand induces greater labour supply through an increase in participation rates and also higher wages which moderate demand. However, the overall picture of an acceleration in the rate of creation of job opportunities and a reduction in unemployment rates is relatively robust, if GDP growth takes place as projected.

#### SECTORAL EMPLOYMENT PROJECTIONS

4.56. The projected growth of employment in the Eleventh Plan and beyond is decomposed into its sectoral components in Table 4.16.

#### AGRICULTURE EMPLOYMENT

4.57. The agriculture sector has long been known to be characterized by underemployment, which means that with the same number of workers it is possible to generate

**TABLE 4.16**  
**Projected Increase in Number of Workers by Sector, 2007–12 and 2007–17**

Industry	(CDS) ('000)			
	Estimated		Projected	
	1983 to 1993–94 (10 <sup>1</sup> / <sub>2</sub> Years)	1993–94 to 2004–05 (11 Years)	2006–07 to 2011–12 (5 Years)	2006–07 to 2016–17 (10 Years)
Agriculture	34900	8816	0	–3967
Mining and Quarrying	855	3	1	3
Manufacturing	7850	14834	11937	24516
Electricity, water, etc.	487	30	17	36
Construction	5260	10052	11922	26370
Trade, hotel, and restaurant	9190	22667	17397	34402
Transport, storage, and communication	3213	7639	9025	18764
Finance, insurance, real estate, and business services	1524	4312	3428	7472
Community, social, and personal services	11163	2624	4344	8369
Total	74442	70978	58072	115965

more output. The projection for the Eleventh Plan assumes that the projected doubling of the rate of agricultural growth during the Eleventh Plan will be possible without any increase in agricultural employment. Whereas agriculture contributed 8.8 million job opportunities in the 11-year period from 1993–94 to 2004–05, it is projected to contribute no increase in the Eleventh Plan and a net decrease of 4 million agricultural workers over the Twelfth Plan period (2006–07 to 2016–17). This is a reasonable projection considering that the number of main workers in agriculture declined by about 1.8 crore between 1991 and 2001 and there has been a large increase in marginal workers in agriculture during 1991–2001. Rising wage differentials between the agriculture and non-agriculture sectors are also very likely to shift labour out of agriculture, and the continued growth into the Twelfth Plan period would provide sufficient pull factor from non-agriculture to encourage such a shift.

4.58. An alternative projection of agricultural employment has also been made, applying the actual employment elasticity (0.15) observed during 1993–94 to 2004–05 to the projected growth of output over the perspective period (2007–2017). This gives an estimate of employment in agriculture for 2011–12, that is, about 9 million more than in Table 4.16. In this projection there is positive growth of employment in agriculture at 0.6% per year and productivity growth is correspondingly lower at 3.4% per annum. In this scenario, employment increase would be 9 million more, with unemployment correspondingly less at only 14 million in 2011–12. However, this would be at the cost of lower productivity growth and, therefore, wages and incomes in agriculture and a larger proportion of low quality jobs.

4.59. During the 11-year period 1994–2005, the pace of increase in per worker GDP in agriculture was only 2.24% per annum as compared to 4.35% per annum growth in aggregate GDP per worker. (Annexure 4.2). During the Eleventh Plan, also, the pace of productivity increase being projected is lower for agriculture than for the aggregate economy, irrespective of the scenario regarding employment growth in agriculture. Since the main employment issue in the agriculture sector is the increase in farm labour income, and not the creation of a larger number of employed workers, it would be appropriate to work towards a strategy in which there is higher growth in non-services employment opportunities in

rural areas which can provide additional income for the rural workforce by providing additional non-agricultural employment.

### EMPLOYMENT IN MANUFACTURING, CONSTRUCTION, AND SERVICES

4.60. The Eleventh Plan should aim at significantly stepping up growth in employment in other sectors, countering the long-term trends observed in the past. Employment in manufacturing should grow at 4% per annum against the trend of growth in the preceding 11 years (1994–2005) of 3.3% per annum. Employment in construction should grow at 8.2% per annum against the trend of 5.9% growth, and in the transport and communication sector at 7.6% against the long-term trend of 5.3%.

4.61. These growth rates in employment in individual sectors are achievable provided they are supported by programmes for skill development, which will ensure availability of the relevant skills without which the growth of employment will probably choke. It is also necessary to ensure a wider provision of social security and welfare of unorganized workers, particularly in sectors such as construction and transport. Initiatives for these areas are elaborated in the Chapters on ‘Skill Development and Training’ and ‘Nutrition and Social Safety Net’.

4.62. The sectors with prospects for high growth in output, creation of new establishments and for creation of new employment opportunities (direct as also indirect) are:

#### Services

- IT-enabled Services
- Telecom Services
- Tourism
- Transport Services
- Health Care
- Education and Training
- Real Estate and Ownership of Dwellings
- Banking and Financial Services
- Insurance
- Retail Services
- Media and Entertainment Services

#### Other Sectors and Sub-Sectors

- Energy-Production, Distribution and Consumption of Horticulture

- Floriculture
- Construction of Buildings
- Infrastructure Projects Construction

### Industry Groups

- Automotive
- Food Products
- Chemical Products
- Basic Metals
- Non-Metallic Mineral Products
- Plastic and Plastic Processing Industry
- Leather
- Rubber and Rubber Products
- Wood and Bamboo Products
- Gems and Jewellery
- Handicrafts
- Handlooms
- Khadi and Village Industries

### The Services Sector

4.63. The services sector is currently the fastest growing sector of the economy, and employment growth in the sector has remained more than 5% per annum since the 1990s as compared with the aggregate employment growth at less than 2%. This sector has the unique opportunity to grow due to its labour cost advantage, reflecting one of the lowest salary and wage levels in the world coupled with a rising share of working age population. However, two types of initiatives are required: (i) fostering the establishment of a viable size for delivery of services based on labour intensive occupations. Only in establishments of a reasonable size (in contrast to the average enterprise size of 1.2 workers, as it exists today), with a reasonable level of occupational specialization and corresponding productivity and wage levels, is this feasible; and (ii) a massive skill development effort, as discussed later, for vocational training of the new entrants to the labour force.

4.64. Planning initiatives in health, nutrition, care of children, care of the aged, education, skill development and expansion of social security services will create a large potential for employment for delivery of these services. Quantum jumps in the requirement of personnel, their skill and in their composition—by gender, by social group and by location in favour of the backward regions—will arise from:

- A massive increase in Central funding of education which is a four fold increase over the Tenth Plan in constant price;
- Emphasis on the next phase of SSA on improvement in the quality of education;
- Reaching these services to the districts having a concentration of SC, ST, and minorities;
- Rapid expansion in the mid-day meal (MDM) scheme to cover 60 million additional children at the upper primary level by 2008–09; and
- Enrolling one crore children in vocational education—skill development streams.

4.65. Already, a substantial increase in the number of teachers has been made, which will continue further. During the three-year period of 2002–03 to 2005–06, 0.285 million para teachers were recruited, of which 0.27 million are in the rural areas (NUEPA; *Progress Towards UEE—Analytical Report 2005–06*; Table E 20). And much of this expansion has occurred in the low per capita income States of Bihar, Madhya Pradesh, Chhattisgarh, Rajasthan, and Uttar Pradesh. Further, the expansion of mid-day meals programme, will require a substantial step up in the personnel required for delivery of such services.

4.66. The Central Government has recently announced an expansion in social security services such as: (i) Old age pension to all citizens, (ii) Life and disability cover against injury or death to either the head of, or to one earning member of each poor family; and (iii) Health insurance, so that the poor do not have to bear a high cost of medical care. These would require a commensurate expansion in the requirement of a variety of professionally trained and skilled personnel by the institutions that (i) cover risk; (ii) identify, issue and update the identity of the beneficiaries (smart cards); (iii) design specific schemes for the target groups and market the same; (iv) render medical services; or (v) reach out to the prospective beneficiaries. Most of the beneficiaries of the new Central initiatives would be the aged, the poor and the landless, and thus vulnerable to vagaries of the market. The institutional base that exists at present for delivery of the kinds of services, discussed here, is quite insensitive to the special needs of the prospective beneficiaries, and breeds ‘exclusion’. While the beneficiaries could be (and should be) expected to make a contribution, howsoever small, to participate in the scheme, the personnel that are

hired for rendering these services have to be trained to reach out to the prospective beneficiaries, in a manner that is responsible and transparent, and thus evokes her/his confidence to participate in the scheme. Moreover, some token contribution to become a member of the scheme is essential to empower these beneficiaries to lay a claim to the services that especially allocated funds by the Central Government for their benefit.

#### (i) EXPANSION OF IT SERVICES IN RURAL AREAS

4.67. Village kiosks will require expansion of IT personnel deployment across the rural areas of the country, in particular to facilitate the expansion of an IT enabled governance set-up. Such improvements are essential for keeping pace with the demand for public services that will guide the diversification of the economy away from agriculture and towards the secondary and tertiary sectors, duly supported by: (i) investments in industrial infrastructure, (ii) creation of institutional infrastructure in the rural areas, and (iii) for fostering integration of rural markets with the rest of the economy. These would require manifold expansion in a variety of matching services to be delivered by the local governments and by the village Panchayats, and that would be feasible only if the governance set-up at the local level is overhauled and handled in an IT-friendly mode.

#### (ii) PERSONAL SERVICES

4.68. The increase in the income of middle-class households in the high growth phase entails a spurt in consumption of personal services related to attire, appearance, baby care, health upkeep, personal drivers, security, care for the aged dependents, household governance and management, and so on. And such personal services have to be delivered by professionally trained, hired personnel of formal establishments, quite distinct from the earlier one-person operations. But in this area, a major effort at nurturing the right type of serving establishments at reasonable fees, training and certification of their personnel who can earn a reasonable income and thereby keep themselves above exploitation by the well off and informal employers, by way of access to the social security arrangements, is required. So far, services of a reasonable standard have by and large remained confined to the few who have a very high level of personal income, leaving the average urban consumer of such services to the vagaries of a market driven by 'short-life', one or two-person establishments, thriving

on profits from cheap and untrained young in-migrants to high-income locations. The local administrations, including the labour administrations, have not handled the issue in a labour–employment–income perspective, and have generally ignored the problems arising due to the law and order enforcement agencies.

### EMPLOYMENT AND LABOUR POLICY

4.69. The employment strategy for the Eleventh Plan must ensure rapid growth of employment while also ensuring an improvement in the quality of employment. While self employment will remain an important employment category in the foreseeable future—it accounted for 58% of all employment in 2004–05—there is need to increase the share of regular employees in total employment. As shown in Annexure 4.3(C), this category has increased from 17% of total employment in 1983 to 18% in 2004–05. It should be the focus of policy to achieve a substantial increase in the share of regular employment with a matching reduction in the share of casual employment which at present is as high as 23%.

4.70. The above analysis implies that the success of labour policy should be seen in terms of the number of regular wage employment opportunities based on some form of a written contract between the employer and the employee, that is, an increase in the number of 'formal' jobs. The potential for creation of formal employment can be fully utilized by making appropriate changes in rules and procedures. It is often said that one of the obstacles to growth of formal employment in the organized sector is the prevalence of excessively rigid labour laws which discourage such employment. Steps that should be taken for a greater flexibility in labour laws are discussed in the Chapter on Industry. Broadly, it is necessary to review existing laws and regulations with a view to making changes which would:

- encourage the corporate sector to move into more labour-intensive sectors
- facilitate the expansion of employment and output of the unorganized enterprises that operate in the labour-intensive sectors.

4.71. At present, the incentives and subsidies are so designed as to strongly penalize entrepreneurs for crossing a threshold size from a micro/small to a medium/



large unit. The excise and other taxation policies need to be reviewed in this perspective.

4.72. Changes in policies also need to be examined in regard to:

- Linking incentives with the outcomes measured in terms of employment. For example, incentives are given to a wide range of production activities primarily with the objective of promoting employment and income of workers engaged in such activities. However, such incentives are hardly ever calibrated against the benefits realized in terms of employment and wages.
- Regular wage employment, that is, formal employment, merits fiscal incentives. Such incentives already exist at a limited scale for the larger establishments, but are so designed as to make it difficult for medium and small establishments to benefit from these.

4.73. Changing labour laws is a sensitive issue and it is necessary to build a consensus. However, there are several changes short of hire and fire which should not present problems. These include:

- The locations and production activities that have a high potential for employment creation merit a differential treatment.
- Employment of women must be encouraged ensuring, inter alia, the special needs that they may have by virtue of change in working hours (night shifts, for example) or the requirements of the family, for example, child care.
- Contract labour in the domestic tariff area merits encouragement, provided commensurate steps are taken to increase social security
- Monitoring the implementation of labour laws, that is, the reporting system should be simplified and be permitted in an IT-friendly mode.

4.74. Even as steps are taken to increase the volume of formal or regular employment, it is also necessary to take steps to improve the quality of employment in the unorganized sector. NCEUS in its August 2007 Report has summarized, in the form of a 13-point Action Programme, the main recommendations for the workers of Enterprises in the Unorganized/Informal Sector. These are presented in Box 4.2.

4.75. Unorganized sector enterprises mostly hire most workers who get released, or relocated, from crop agriculture (due to the reasons discussed earlier), and seek wage employment in the manufacturing or services sector. Any significant improvement in their income, and quality of employment, is feasible only if the institutional environment in the labour market makes it feasible for the formal sector to reach out to such workers on a decentralized basis rather than through a centralized plan programme. The large coverage (in terms of absolute numbers) through Provident Fund (43 million), Employee State Insurance (33.0 million) a variety of welfare funds (5.0 million), for *beedi* workers, for example) has been possible because the institutional framework created through the various Acts<sup>5</sup> (P.F., E.S.I., Beedi Workers Welfare Fund, etc.) recognized a relationship of those employed on regular wage, with either the employer, or the specific formal commodity market that provides work to (that is, absorbs the output of labour put in by) the unorganized enterprises' workers.

4.76. As already argued, the creation of a formal relationship between the worker and the hiring establishment, in the regular wage employment mode, is a critical factor in improving the quality of employment of the workers hired by the unorganized enterprises. In this context, the work being done by NCEUS<sup>6</sup> on: (i) the 'employment strategy' to be pursued in respect of, and through the, unorganized enterprises, (ii) the regime of labour regulations to attract the unorganized enterprise to give a formal recognition to the multitudes of workers hired by them, and (iii) to enable them to gain access to 'social security', is of paramount importance.

<sup>5</sup>Of course, many of these organizations have to reorient their pattern of working to the new realities of the market for wage labour in which the role of public sector is diminishing and the average number of workers hired by the private enterprises is reducing consequent upon changes in technology leading to improvement in the productivity of labour.

<sup>6</sup>The relevant terms of reference of NCEUS are:

- Suggest elements of an employment strategy focusing on the informal sector;
- Review Indian labour laws, consistent with labour rights, and with the requirements of expanding growth of industry and services, particularly in the informal sector, and improving productivity and competitiveness; and
- Review the social security system available for labour in the informal sector, and make recommendations for expanding their coverage.

### Box 4.2

#### A Thirteen Point Action Plan Suggested by the NCEUS for Employment in the Unorganized Sector

##### A. Protective Measures for Workers

1. *Ensuring Minimum Conditions of Work in the Non-agricultural and Agricultural Sectors:*  
Two bills, for agricultural workers and non-agricultural workers, that specify the minimum conditions of work, including a statutory national minimum wage for all workers
2. *Minimum Level of Social Security:*  
A universal national minimum social security scheme, as part of a comprehensive legislation covering life, health and disability, maternity and old age pension to protect the workers in the unorganized sectors.

##### B. Package of Measures for the Marginal and Small Farmers

3. *Special Programme for Marginal and Small Farmer:*  
Revival of the targeted programme focusing on small and minor farmers, with an initial thrust in the areas wherein the existing yield gap is also considered high. A special agency or a coordinating mechanism should be set up if required.
4. *Emphasis on Accelerated Land and Water Management:*  
Immediate priority to, and significant up-scaling of, programmes for land and water management.  
Revision of the priority sector lending policy to provide a quota for micro and small enterprises.
5. *Credit for Marginal/Small Farmers:*  
RBI to monitor, separately, credit to this segment, expansion in the outreach of credit institutions in rural areas and a credit guarantee fund to obviate the need for collateral by the marginal/small farmers in accessing the institutional credits. A 10% share for small and marginal farmers in the priority sector credit (Table below)
6. *Farmers' Debt Relief Commission:*  
The Central government to lay guidelines and provide 75:25 assistance for setting up State-level Farmers' Debt Relief Commissions, in the States experiencing agrarian distress—natural or market related.

##### C. Measures to Improve Growth of the Non-agricultural Sector

7. *Improve Credit Flow to the Non-agricultural Sector:*

Percent	Sector and Sub-Sector/Purpose
18	10% for small and marginal farmers; 8% for other farmers
10	4% for micro enterprises with capital investment (other than land and building) up to Rs 0.5 million and 6% for other micro and small enterprises
12	12% on loans up to Rs 0.5 million to the socio-economically weaker sections for housing, education, professions, and so on.
40	Total priority sectors lending

8. *Encouraging SHGs and MFIs for Livelihood Promotion:*  
Measures to encourage growth of micro finance and SHGs in poor States and in the backward areas
9. *Creation of a National Fund (NAFUS):*  
Rs 5000 crore initial corpus for an exclusive statutory agency to take care of requirements of micro and small enterprises in agriculture and non-agriculture sectors that are presently not reached by SIDBI and NABARD.
10. *Up-scaling Cluster Development through Growth Poles:*  
Twenty-five growth poles in the traditional industries clusters with incentives at par with SEZs

##### D. Measures to Expand Employment and Improve Employability

11. *Expand Employment through Strengthening Self-employment Programmes:*  
Rationalization and strengthening of the four major self-employment generation programmes with 5 million annual employment generation target.
12. *Universalize and Strengthen National Rural Employment Guarantee Act (NREGA):*  
Extension of NREGA Programmes to all districts.
13. *Increase Employability through Skill Development:*  
On-job-training cum employment-assurance programme to provide incentive of Rs 5000 per person to any employer willing to provide one-year training on job skill enhancement.

**ANNEXURE 4.1**  
**Population, Labour Force, Employment, and Unemployment (1993–94 to 2016–17)**

Status	Estimated			Projected		
	1993–94	1999–2000	2004–05	2006–07	2011–12	2016–17
(million)						
<b>Population</b>						
Age 0+	893.68	1005.05	1092.83	1128.31	1207.97	1283.24
Age 15–59	501.76	572.23	652.94	687.12	760.11	820.57
<b>Labour Force</b>						
<b>UPSS</b>						
Age 0+	378.65	408.35	471.25	492.66	541.84	586.44
Age 15–59	337.71	369.22	431.95	451.70	496.65	535.20
<b>CDS</b>						
Age 0+	334.20	364.88	419.65	438.95	483.66	524.06
Age 15–59	298.95	330.78	385.87	403.75	444.72	479.70
<b>Employment</b>						
<b>UPSS</b>						
Age 0+	371.12	398.93	459.72			
Age 15–59	330.34	360.04	420.74			
<b>CDS</b>						
Age 0+	313.93	338.19	384.91	402.24	460.31	518.20
Age 15–59	279.88	305.70	352.92			
<b>Unemployed</b>						
<b>UPSS</b>						
Age 0+	7.53	9.41	11.53			
Age 15–59	7.37	9.17	11.21			
<b>CDS</b>						
Age 0+	20.27	26.69	34.74	36.71	23.35	5.86
Age 15–59	19.07	25.08	32.95			
<b>Unemployment rate (%)</b>						
<b>UPSS</b>						
Age 0+	1.99	2.30	2.45			
Age 15–59	2.18	2.48	2.60			
<b>CDS</b>						
Age 0+	6.06	7.31	8.28	8.36	4.83	1.12
Age 15–59	6.38	7.58	8.54			

**ANNEXURE 4.2**  
**Annual Growth Rate of GDP per Worker**

(%)

Industry	1983 to 1993–94	1993–94 to 2004–05	2006–07 to 2016–17
1. Agriculture	1.03	2.24	4.57
2. Mining and Quarrying	1.66	4.95	5.64
3. Manufacturing	2.29	3.31	7.27
4. Electricity, gas and water supply	3.70	5.46	7.51
5. Construction	–1.43	1.45	5.56
6. Trade, hotels and restaurants	1.06	2.69	5.68
7. Transport, storage and communication	2.06	4.94	9.77
8. Finance, insurance, real estate and business services	2.79	–0.40	4.26
9. Community, social and personal services	1.57	5.90	6.11
<b>Total</b>	<b>2.29</b>	<b>4.35</b>	<b>7.82</b>

**ANNEXURE 4.3(A)**  
**Percentage Distribution of Employed Persons by Category of Employment (CDS)—Rural India**

('000)

Category	Male				Female				Persons			
	1983	1993–94	1999–2000	2004–05	1983	1993–94	1999–2000	2004–05	1983	1993–94	1999–2000	2004–05
Self-Employed	64.62	62.50	59.83	62.91	61.81	60.91	59.51	66.51	63.83	62.05	59.74	63.95
Regular Employees	11.50	9.52	10.25	10.25	4.45	4.55	4.88	5.12	9.52	8.10	8.72	8.76
Casual Labour	23.89	27.92	29.92	26.84	33.74	34.55	35.61	28.37	26.65	29.85	31.53	27.29
<b>All</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Estimated Number of Workers ('000)	135203	170677	179866	197391	52695	68075	71357	80685	187898	238752	251223	278076

Note: Derived from NSS reports on employment and unemployment situation in India.

**ANNEXURE 4.3(B)**  
**Percentage Distribution of Employed Persons by Category of Employment (CDS)—Urban India**

('000)

Category	Male				Female				Persons			
	1983	1993–94	1999–2000	2004–05	1983	1993–94	1999–2000	2004–05	1983	1993–94	1999–2000	2004–05
Self-Employed	40.96	42.57	42.24	45.86	39.09	40.83	41.07	43.94	40.66	42.27	42.05	45.50
Regular Employees	46.68	43.78	43.47	42.39	35.72	36.67	40.18	43.18	44.87	42.54	42.92	42.54
Casual Labour	12.35	13.65	14.29	11.75	25.19	22.50	18.75	12.88	14.47	15.19	15.03	11.96
<b>All</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Estimated Number of Workers ('000)	43067	62103	72376	87027	8523	13076	14595	19806	51590	75179	86971	106833

Note: Derived from NSS reports on employment and unemployment situation in India.

**ANNEXURE 4.3(C)**  
**Percentage Distribution of Employed Persons by Category of Employment (CDS)—All India**

('000)

Category	Male				Female				Persons			
	1983	1993–94	1999–2000	2004–05	1983	1993–94	1999–2000	2004–05	1983	1993–94	1999–2000	2004–05
Self-Employed	58.91	57.18	54.79	57.69	58.64	57.67	56.38	62.06	58.84	57.31	55.19	58.83
Regular Employees	20.00	18.66	19.78	20.08	8.81	9.72	10.87	12.62	17.14	16.35	17.52	18.13
Casual Labour	21.10	24.16	25.43	22.22	32.55	32.60	32.75	25.32	24.03	26.34	27.29	23.03
<b>All</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
Estimated Number of Workers ('000)	178270	232780	252242	284418	61218	81151	85952	100491	239488	313931	338194	384909

Note: Derived from NSS reports on employment and unemployment situation in India.

**ANNEXURE 4.4**  
**Conditions of Employment of Regular Wage/Salaried Workers—2004–05**

(per 1000) (UPSS basis)

Condition of Employment	Rural	Urban	All
No written job contract	592	592	592
Not eligible for Paid Leave	480	455	464
Neither written job contract nor eligible for paid leave	712	549	630
Not eligible for Social Security Benefit <sup>1</sup>	569	535	547
Paid a Monthly Salary	857	900	884
Non-existence of Union/Associations	513	541	531
Sample Workers	17033	26385	43418

Source: Derived from NSS 61st round (2004–05).

<sup>1</sup>Coverage under any of the Schemes-Provident Fund, PPF with employer contribution, Gratuity, Health care and Maternity benefits.

**ANNEXURE 4.5**  
**Distribution of Regular Wage/Salaried Workers by Type of Enterprise**

Type of Enterprise	Distribution of Workers
Proprietary	378
Partnership	45
Employer household	49
Subtotal	472
Govt./Public sector	333
Public/Pvt.Ltd. Co.	127
Society/Trust	38
Subtotal	498
Others	18
N.R.	12
<b>All</b>	<b>1000</b>
<b>Sample persons</b>	<b>43418</b>

Source: Table 1, Appendix A, of NSS Report of 61st Round, No. 519.

**ANNEXURE 4.6**  
**Growth of Average Daily Wage Earnings in Rural India (at 1993–94 price)**

(% per annum)

Category	Rural Male				Rural Female			
	1983 to 1993–94	1993–94 to 2004–05	1993–94 to 1999–2000	1999–2000 to 2004–2005	1983 to 1993–94	1993–94 to 2004–05	1993–94 to 1999–2000	1999–2000 to 2004–2005
Casual Labour in Public Works	2.28	3.81	3.83	3.15	4.10	3.83	5.03	2.01
Casual Labour in Agriculture	2.75	2.18	2.79	1.21	3.07	2.10	2.93	0.93
Casual Labour in Non Agriculture	2.38	2.34	3.69	0.62	4.08	3.47	5.06	1.32
Casual Labour in all Activities	2.55	2.78	3.59	1.51	3.13	2.40	3.19	1.21

**ANNEXURE 4.7**  
**The Working Poor in India by their Gender, Location, and Category of Employment, 1999–2000 and 2004–05**

('000)

Population Segment	1999–2000				2004–05			
	Self Employed	Regular Wage/Salaried	Casual Labour	Total	Self Employed	Regular Wage/Salaried	Casual Labour	Total
Rural Persons	32762 (19.39)	2457 (11.62)	41466 (36.34)	76686 (25.21)	33139 (16.08)	2273 (9.30)	34125 (30.34)	69537 (20.27)
Urban Persons	9387 (23.60)	4201 (11.10)	7531 (43.96)	21120 (22.29)	12141 (22.87)	5302 (11.49)	7321 (41.90)	24765 (21.22)
All Males	27728 (19.68)	5545 (11.18)	31602 (36.77)	64875 (23.47)	29135 (17.17)	5863 (10.24)	27388 (31.85)	62386 (19.94)
All Females	14421 (21.27)	1114 (11.84)	17396 (38.41)	32931 (26.88)	16145 (18.03)	1713 (12.83)	14058 (31.99)	31916 (21.74)
All Persons	42150 (20.19)	6658 (11.29)	48998 (37.34)	97806 (24.52)	45280 (17.47)	7576 (10.73)	41446 (31.90)	94302 (20.51)

Notes: 1. Figures in brackets are the proportion of Poor workers to total workers in that category.

2. UPSS basis.

**ANNEXURE 4.8**  
**Net Migrants Rate (1991–2001)**

States/UTs	Male	Female	Person (%)
1. Andhra Pradesh	-0.03	-0.03	-0.03
2. Assam	-0.06	-0.09	-0.07
3. Bihar	-0.39	-0.17	-0.28
4. Chhattisgarh	-0.06	-0.07	-0.06
5. Gujarat	0.22	0.09	0.16
6. Haryana	0.40	0.35	0.37
7. Himachal Pradesh	0.04	-0.06	-0.01
8. Jharkhand	-0.08	-0.02	-0.05
9. Karnataka	0.04	0.00	0.02
10. Kerala	-0.08	-0.08	-0.08
11. Madhya Pradesh	-0.01	0.00	-0.01
12. Maharashtra	0.37	0.21	0.29
13. Orissa	-0.10	-0.04	-0.07
14. Punjab	0.20	0.07	0.14
15. Rajasthan	-0.08	-0.05	-0.06
16. Tamil Nadu	-0.08	-0.07	-0.08
17. Uttranchal	-0.03	-0.06	-0.04
18. Uttar Pradesh	-0.25	-0.16	-0.21
19. West Bengal	-0.04	-0.04	-0.04
20. Delhi	1.93	1.57	1.77
21. Jammu and Kashmir	-0.04	-0.06	-0.05
22. Arunachal Pradesh	0.73	0.57	0.65
23. Manipur	-0.16	-0.13	-0.14
24. Meghalaya	0.09	0.04	0.07
25. Mizoram	-0.16	-0.35	-0.25
26. Nagaland	0.05	-0.41	-0.17
27. Sikkim	0.26	0.16	0.21
28. Tripura	0.02	0.02	0.02
29. Andaman and Nicobar	0.80	0.66	0.74
30. Chandigarh	2.15	1.78	1.98
31. Dadra and Nagar Haveli	4.29	1.90	3.12
32. Daman and Diu	6.15	1.88	4.05
33. Lakshadweep	1.04	0.20	0.63
34. Pondicherry	0.74	0.94	0.84
35. Goa	0.83	0.59	0.71
36. NE States	0.07	-0.03	0.02

## Skill Development and Training

### INTRODUCTION

5.1. Skills and knowledge are the driving forces of economic growth and social development of any country. They have become even more important given the increasing pace of globalization and technological changes provide both challenges that is taking place in the world. Countries with higher and better levels of skills adjust more effectively to the challenges and opportunities of globalization.

5.2. As India moves progressively towards becoming a 'Knowledge economy' it becomes increasingly important that the Eleventh Plan should focus on advancement of skills and these skills have to be relevant to the emerging economic environment. In old economy, skill development largely meant development of shop floor or manual skills. Even in this area there are major deficiencies in our workforce which need to be rectified. In new or knowledge economy the skill sets can range from professional, conceptual, managerial, operational behavioural to interpersonal skills and inter-domain skills. In the 21st century as science progresses towards a better understanding of the miniscule, that is, genes, nano-particles, bits and bytes and neurons, knowledge domains and skill domains also multiply and become more and more complex. To cope with this level of complexity the Eleventh Plan has given a very high priority to Higher Education (See Volume II, Chapter 1). Initiatives such as establishing 30 new Central universities, 5 new IISERs, 8 IITs, 7 IIMs, 20 IIITs, etc. are aimed at meeting that part of the challenge of skill development. In this Chapter, however, it is proposed to focus on mass-scale skill development in different trades through specially developed training modules delivered by ITIs,

Polytechnics, vocational schools, etc. The Eleventh Plan aims at launching a National Skill Development Mission which will bring about a paradigm change in handling of 'Skill Development' programmes and initiatives.

5.3. The NSS 61st Round results show that among persons of age 15–29 years, only about 2% are reported to have received formal vocational training and another 8% reported to have received non-formal vocational training indicating that very few young persons actually enter the world of work with any kind of formal vocational training. This proportion of trained youth is one of the lowest in the world. The corresponding figures for industrialized countries are much higher, varying between 60% and 96% of the youth in the age group of 20–24 years. One reason for this poor performance is the near exclusive reliance upon a few training courses with long duration (2 to 3 years) covering around 100 skills. In China, for example, there exist about 4000 short duration modular courses which provide skills more closely tailored to employment requirement.

### REVIEW OF THE EXISTING VOCATIONAL TRAINING SYSTEM

5.4. In India, skill acquisition takes place through two basic structural streams—a small formal one and a large informal one. The formal structure includes: (i) higher technical education imparted through professional colleges, (ii) vocational education in schools at the post-secondary stage, (iii) technical training in specialized institutions, and (iv) apprenticeship training. A number of agencies impart vocational education/training a various levels. Higher professional and technical education, primarily in the areas



of agriculture, education, engineering and technology, and medicine, is imparted through various professional institutions.

5.5. There are seventeen ministries and departments of GoI which are imparting vocational training to about 3.1 million persons every year. Most of these are national-level efforts and individually they are able to reach a very small part of the new entrants to the labour force. Even collectively, they provide training to about 20% of the number of annual additions to the labour force. Each ministry/department in charge of subject sets up training establishments in its field of specialization. The attempt to meet training needs through multiple authorities—labour, handlooms, handicrafts, small industry, education, health, women and child development, social welfare, tourism, etc. leads to redundancy at some locations. While each of the training initiatives has a definite area of specialization, there is need for coordination amongst these ministries/departments.

5.6. Vocational training being a concurrent subject, Central Government and the State Governments share responsibilities. At the national level, Director General of Employment & Training (DGE&T), Ministry of Labour is the nodal department for formulating policies, laying down standards, conducting trade testing and certification, etc. in the field of vocational training. At the State level, the State Government departments are responsible for vocational training programmes.

5.7. There are 1244 polytechnics under the aegis of the Ministry of Human Resource Development with a capacity of over 2.95 lakh offering three-year diploma courses in various branches of engineering with an entry qualification of 10th pass. Besides, there are 415 institutions for diploma in pharmacy, 63 for hotel management, and 25 for architecture.

5.8. There are about 5114 Industrial Training Institutes (ITIs) imparting training in 57 engineering and 50 non-engineering trades. Of these, 1896 are State Government-run ITIs while 3218 are private. The total seating capacity in these ITIs is 7.42 lakh (4 lakh seats in government ITIs and the remaining 3.42 lakh in private ITIs). These courses are open to those who have passed either Class 8 or 10 depending on the trade and are of 1 or 2 years duration, which varies from course to course. In addition to ITIs, there are six Advanced Training

Institutes (ATI) run by the Central Government which provide training for instructors in ATIs for electronics and process instrumentation, offering long and short courses for training of skilled personnel at technician level in the fields of industrial, medical, and consumer electronics and process instrumentation.

5.9. In order to provide sufficient autonomy in academics, administration, finance, management, improved physical infrastructure (building, equipments) etc., the government launched a scheme for upgradation of 100 ITIs into Centres of Excellence, with effect from the year 2004–2005.

5.10. The Apprentices Act, 1961, as amended from time to time, regulates the training of apprentices. The Act serves a dual purpose—first, it regulates the programme of training apprentices in industry so as to conform to the prescribed syllabi, period of training, etc. prescribed by the Central Apprenticeship Council and second, to utilize fully the facilities available in industry for workers. As on 30.06.2006, over 20800 public/private sector establishments were covered under the Act and number of seats allocated were 2.30 lakh, out of which about 1.72 lakh seats were utilized.

5.11. Skill building activity was also initiated under the 10+2 level of school education. A scheme of pre-vocational education at lower secondary level was started from 1993–94 to impart training in simple marketable skills and to develop vocational interests. There are now about 9583 schools offering about 150 educational courses of two years duration in the broad areas of agriculture, business and commerce, engineering and technology, health and paramedical, home science and science and technology at +2 stage covering about one million students. Under the aegis of the Ministry of Rural Development, banks and Non-Governmental Organizations, through 2500 Rural Development and Self-Employment Training Institutes (RUDSETI), have undertaken entrepreneurship and skill building of the rural youth for self-employment in areas with a pre-existing market for the goods/services produced, with a reported success rate of 70%. The Entrepreneurship Development Initiative (EDI) and other programmes of the Ministry of Micro, Small and Medium Enterprises train about one lakh persons a year.

5.12. The unorganized sector which constitutes about 93% of the workforce is not supported by any structural

system of acquiring or upgrading skills. By and large, skill formation takes place through informal channels like family occupations, on the job training under master craftsmen with no linkages to the formal education training and certification. Training needs in this sector are highly diverse and multi skill-oriented. Many efforts for imparting training through Swarnjayanti Gram Swarajgar Yojana (SGSY), PMRY, KVIC, Krishi Vigyan Kendra (KVK) and Jan Shiksha Sansthan (JSS) are in place but the outcome is not encouraging.

5.13. The quantitative dimension of the Skill Development challenge can be estimated by the following:

- 80% of new entrants to workforce have no opportunity for skill training. Against 12.8 million per annum new entrants to the workforce the existing training capacity is 3.1 million per annum.
- about 2% of existing workforce has skill training against 96% in Korea, 75% in Germany, 80% in Japan, and 68% in the United Kingdom.

#### THE QUANTITATIVE ASPECT OF THE SKILL SHORTAGE

5.14. The NSS 61st Round Survey on Employment and Unemployment indicates (Annexures 5.1.1. to 5.1.4) that educational institutions attendance rates (5–14 years) drop by nearly half in the age group 15–19 years and by 86% after the age 15 years. Labour force participation rates rise sharply after the age of 14 years and reach close to 100% at the age of 25–29 years. The said results also reflect that 38.8% of the Indian labour force is illiterate, 24.9% of the labour force has had schooling up to the primary level and the balance 36.3% has had schooling up to the middle and higher level. They also reveal that about 80% of the workforce in rural and urban areas do not possess any identifiable marketable skills.

#### THE QUALITATIVE ASPECT OF DEFICIENCIES

5.15. A basic problem with the skill development system is that the system is non-responsive to labour market, due to a demand—supply mismatch on several counts: numbers, quality and skill types. It is also seen that the inflexibilities in the course/curriculum set-up, lead to over supply in some trades and shortages in others. Of the trained candidates, the labour market outcomes as seen from placement/ absorption rates are reportedly very low. The institutional spread in the VET system shows acute regional disparity with over half of the ITIs/ITCs located

in the southern States, both in terms of number of institutions as well as the number of seats.

5.16. The quality of the training system is also a matter of concern, as the infrastructural facilities, tool/kits, faculty, curriculum are reportedly substandard. The existing institutions also lack financial and administrative autonomy. The testing, certification and accreditation system is reportedly weak, and since the deliverables are not precisely defined, there is no effort at evaluating outcomes and tracking placements. The problem is further complicated with lack of industry–faculty interaction on course curricula and other factors.

5.17. The training system for capital-intensive sectors and hi-tech areas has always received a highly preferential treatment in contrast to those working in the informal sector. Further there is no certification system for a large chunk of workers, who do not have any formal education but have acquired proficiency on their own or through family tradition/long experience. In the absence of a proper certificate, these classes of workers in the informal sector are subjected to exploitation and they do not get any avenues for better employment in the market and their mobility is very restricted.

5.18. The private sector-run Industrial Training Centres (ITCs) do not seem to be any better than the ITIs, and the low-paying capacity of learners and consequently low fee structure and absence of quality consciousness are said to be major reasons for the current state of affairs.

5.19. The Planning Commission held extensive consultations with the industry, various Central ministries running training programmes, State Governments. The discussions have revealed that the present system of skill formation has certain critical gaps in that the curricula are inflexible and outmoded. There is an inadequate fitness-testing mechanism of the institutions with a mismatched fee structure and admission criteria. The capacities of the trainers are also not in consonance with the current requirement of various sectors due to various restrictions of the affiliating agencies.

5.20. The private sector does undertake in-house training programmes and to a very limited extent, trains ‘outsiders’. However, such programmes are limited to catering to their own felt needs, in the nature of captive skill development. Low-paying capacity of learners and reluctance of

industries to train workers for fear of losing them to competition has resulted in chronic deficiency in private investment in this area. All these deficiencies mentioned in the above five paras will need to be rectified during the Eleventh Plan.

### SKILL DEVELOPMENT AND SELF-EMPLOYMENT

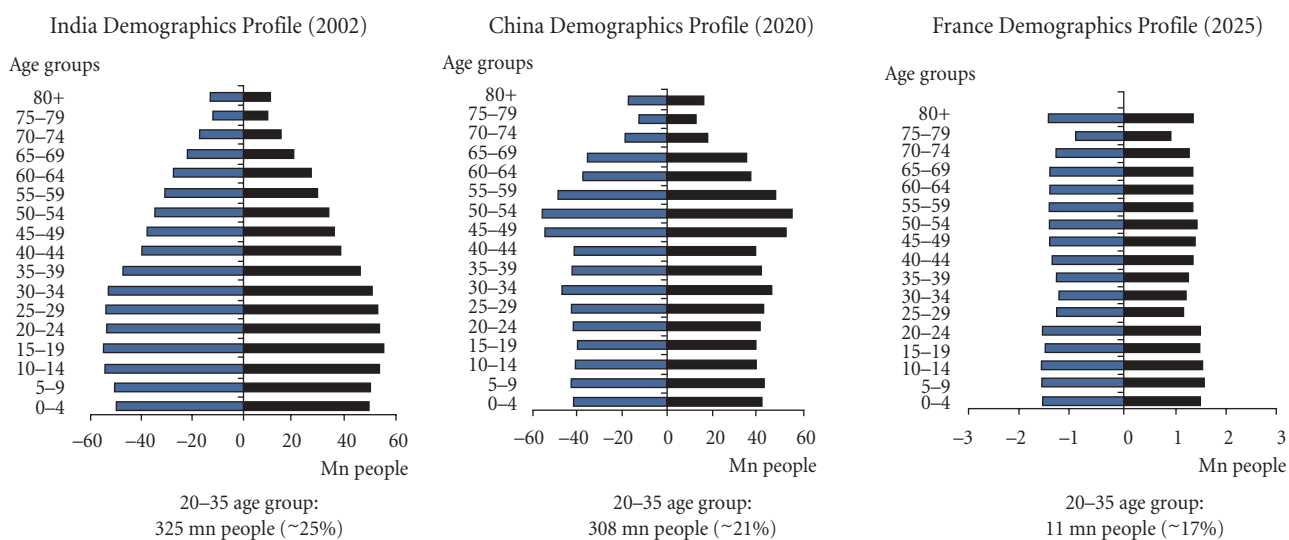
5.21. NSSO 61st Round data also reveals that the proportion of persons (15–29 years) who received formal vocational training was around 3% for the employed, 11% for the unemployed and 2% for persons not in the labour force. In order to link skills developed into actual productive use thereof including self-employment, steps will be taken in the Eleventh Five Year Plan by providing adequate incentives, not necessarily monetary but in terms of skill and entrepreneurship development and forward and backward linkages to finance, marketing and human resource management, to those who are or seek to be self-employed to enhance their productivity and value addition, making it an attractive option, rather than be an option *faute de mieux* as at present.

### DEMOGRAPHIC DIVIDEND

5.22. The decline in the rate of growth of population in the past few decades implies that in the coming years fewer people will join the labour force than in preceding years and a working person would have fewer dependents, children or parents. Modernization and new social processes have also led to more women entering the work force further lowering the dependency ratio. This decline

in the dependency ratio (ratio of dependent to working age population) from 0.8 in 1991 to 0.73 in 2001 is expected to further decline sharply to 0.59 by 2011 as per the Technical Group on Population Projections. This decline sharply contrasts with the demographic trend in the industrialized countries and also in China, where the dependency ratio is rising. Low dependency ratio gives India a comparative cost advantage and a progressively lowering dependency ratio will result in improving our competitiveness.

5.23. The unprecedented opportunity for Skill Development arises from a unique 25-year window of opportunity, called India’s demographic dividend. The Demographic dividend consists of three elements of demographic trends fortuitously coinciding at a time when the economy is growing at 9% plus: (i) a declining birth rate means fewer people will be joining the workforce in coming years, than in previous years, (ii) a very slow improvement in life-expectancy around 63/64 years of age means an ageing population surviving fewer years after superannuation than in other countries, (iii) the baby-boomers generation having now crossed the age of 20, the demographic bulge is occurring at the age bracket of 15–29. All these trends combine to result in India having world’s youngest workforce with a median age way below China and OECD countries. Figure 5.1 brings out this point very effectively. This would mean that dependency ratio, that is, the ratio of non-working population to working population will continue to be low, giving India



Source: CII Conference 2002 CSFB Report; UN Population Division; BCG.

FIGURE 5.1: Demographic Profile of Select Countries

a comparative cost advantage over others, for another 25–30 years. By that time the demographic bulge in India would be also reaching the age of superannuation, and India will also be joining the league of ageing economies.

5.24. It is expected that the ageing economy phenomenon will globally create a skilled manpower shortage of approximately 56.5 million by 2020 and if we can get our skill development act right, we could have a skilled manpower surplus of approximately 47 million (Annexure 5.2). In an increasingly connected world, where national frontiers are yielding to cross-border outsourcing, it is not inconceivable that within a decade we can become a global reservoir of skilled person power. As it is we account for 28% of graduate talent pool among 28 of the world's lowest cost economies. (Figure 5.2)

5.25. The criticality of Skill Development in our overall strategy is that if we get our skill development act right, we will be harnessing 'demographic dividend'; if we do not get there, we could be facing a 'demographic nightmare'. The Eleventh Plan takes cognizance of these and endeavours to take a slew of measures which will bring about a paradigm change in our Vocational Education System (VES).

5.26. India has the youngest population in the world; its median age in 2000 was less than 24 compared 38 for Europe and 41 for Japan. Even China had a median age of 30. It means that India has a unique opportunity to complement what an ageing rest of the world

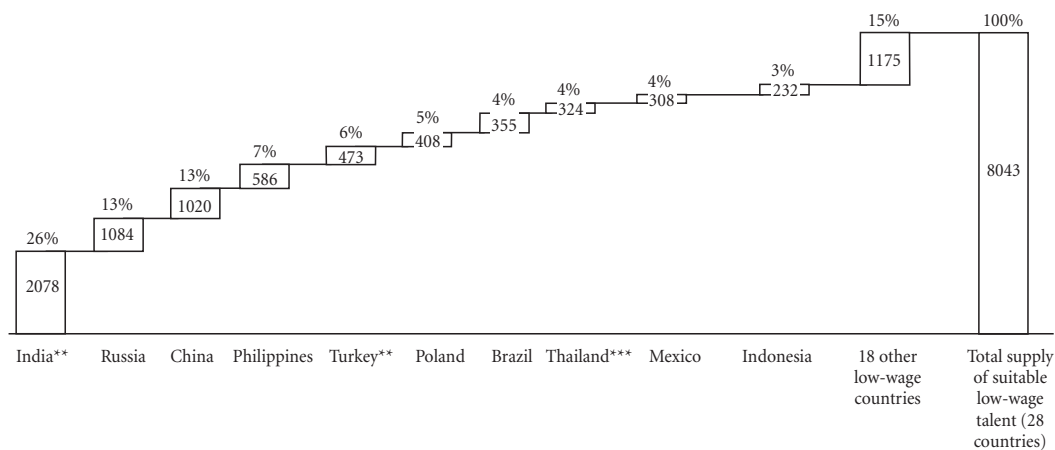
needs most. The demographic structure of India, in comparison with that of the competing nations, would work to the advantage to the extent our youth can acquire skills and seize the global employment opportunities in the future. This involves co-ordination, dialogue and discussions with the State Governments, private partners and other stakeholders, arriving at estimates of number of skilled personnel required across the sectors, aligning them with the career objectives of the youth drawing up different sector-specific modules of varying duration thereby.

### ELEVENTH PLAN STRATEGIES

5.27. In the Eleventh Five Year Plan, the thrust will be on creating a pool of skilled personnel in appropriate numbers with adequate skills, in line with the requirements of the ultimate users such as the industry, trade, and service sectors. Such an effort is necessary to support the employment expansion envisaged as a result of inclusive growth, including in particular the shift of surplus labour from agriculture to non-agriculture. This can only take place if this part of the labour force is sufficiently skilled. During the Eleventh Plan it is proposed to launch a major 'Skill Development Mission' (SDM) with an outlay of Rs 22800 crores.

### SKILL DEVELOPMENT MISSION

5.28. In order to create a pool of skilled personnel in appropriate numbers with adequate skills in line with the employment requirements across the entire economy



Note: \* Graduate with skills for direct employment (does not consider willingness and accessibility of talent); \*\* Number derived via extrapolation; \*\*\* As of 2007.

Source: McKinsey Global Institute.

FIGURE 5.2: Aggregate Suitable\* Graduate Talent Pool for Offshore IT and BPO Industries

with particular emphasis on the twenty high growth high employment sectors, the government will set up an SDM consisting of an agglomeration of programmes and appropriate structures aimed at enhancing training opportunities of new entrants to the labour force from the existing 2.5 million in the non-agricultural sector to 10 million per year.

### MISSION GOAL

5.29. To provide within a five- to eight-year timeframe, a pool of trained and skilled workforce, sufficient to meet the domestic requirements of a rapidly growing economy, with surpluses to cater to the skill deficits in other ageing economies, thereby effectively leveraging India's competitive advantage and harnessing India's demographic dividend (On demographic dividend, see Annexure 5.2).

5.30. The Skill Development Mission (SDM) will have to ensure that our supply-side responses are perpetually in sync with the demand side impulses both from domestic as well as global economies. The mission will, therefore, have to involve both public and private sectors in a symbiotic relationship, with initiatives arising from both sides with reciprocal support. Thus public sector initiatives to repurpose, reorient and expand existing infrastructure, will need involvement of private sector for management and running of Skill Development Programmes, ending with placement of candidates. Similarly Private Sector Initiatives will need to be supplemented by government by one-time capital grants to private institutions and by stipends providing fee supplementation to SC/ST/OBC/Minorities/other BPL candidates. Thus the core strategy would consist of a two-track approach, of a public arm of amplified action through ministries and State Governments and a private arm of specific and focused actions for creating skills by the market through private sector-led action.

5.31. In case of government-led initiatives the concerned Ministries will conceptualize the initiatives for either expanding and improving existing institutions and providing them enlarged budgets and improved action plans or they will set up new generation institutions with budgetary support. For industry or service sector-specific private initiatives the entire strategic thinking and plan of action will emerge from industry associations and ministries will be involved in structuring government response and providing budgetary support. The SDM will oversee and facilitate entire process of collaborative action.

### MISSION OBJECTIVES AND FUNCTIONS

5.32. Articulate a vision and framework to meet India's VET needs:

- Assess skill deficits sector wise and region wise and meet the gaps by planned action in a finite time frame.
- Orchestrate Public Sector/Private Sector Initiatives in a framework of a collaborative action.
- Realign and reposition existing public sector infrastructure ITIs, polytechnics and VET in school to get into PPP mode and to smoothen their transition into institutions managed and run by private enterprise or industry associations. Give them functional and governance autonomy.
- Establish a 'Credible accreditation system' and a 'guidance framework' for all accrediting agencies, set up by various ministries and or by industry associations. Get them to move progressively away from regulation to performance measurement and rating/ranking of institutions. Rate institutions on standardized outcomes, for example, percentage graduates placed, pre and post course wage differentials, dropout rates, etc.
- Encourage and support industry associations and other specialized bodies/councils and private enterprise to create their own sectoral skill development plans in 20 High Growth Sectors (Annexure 5.3.)
- Establish a 'National Skill Inventory' and another 'National Database for Skill Deficiency Mapping' on a national Web portal—for exchange of information between employers and employment seekers.
- Establish a Trainee Placement and Tracking System for effective evaluation and future policy planning.
- Reposition 'Employment Exchanges as Outreach points of the Mission' for storing and providing information on employment and skill development. Enable employment exchanges to function as career counseling centres.
- Enlarge the 50000 Skill Development Centres (SDCs) programme eventually into a 'Virtual Skill Development Resource Network' for Web-based learning.

### MISSION STRATEGIES

5.33. The strategies of the Mission will be to bring about a paradigm change in the architecture of the existing VET System, by doing things differently.

- Encourage Ministries to expand existing Public Sector Skill Development infrastructure and its utilization by a factor of five. This will take the VET capacity from

3.1 million to 15 million. This will be sufficient to meet the Annual workforce accretion, which is of the order of 12.8 million. In fact, the surplus capacity could be used to train those in the existing labour force as only 2% thereof are skilled. This infrastructure should be shifted to private management over the next 2–3 years. States must be guided as incentivizer to manage this transition.

- Enlarge the coverage of skill spectrum from the existing level. Skill Development programmes should be delivered in modules of 6 weeks to 12 weeks; with an end of module examination/certification. For calibrating manual skills a 4–6 level certification system must be established based on increasing order of dexterity of the craftsman.
- Make a distinction between structural, interventional and last mile unemployability and correspondingly set up programmes for 24 months, 12 months and 6 months duration. Encourage ‘Finishing Schools’ to take care of last mile unemployability.
- Establish a National Qualifications Framework, which establishes equivalence and provides for horizontal mobility between various VET, Technical and Academic streams at more than one career points. Expand VET to cover more classes and move progressively from post matric to cover 9th class dropouts and then 7th class dropouts.
- Encourage ‘Accreditation Agencies’ in different domains to move away from regulation to performance measurement and rating and ranking of institutions.
- Encourage institutional autonomy coupled with self-regulation and stake-holder accountability. Institutions must have freedom of action in governance, as also on the financial management.
- For standard setting and curriculum setting, establish or notify at least one ‘standard setting/quality audit institution’ in each vertical domain.
- Move from a system of funding training institutes to funding the candidates. Institutional funding could be limited to an upfront capital grant. Recurring funding requirement could be met by appropriate disbursement to the institute at the end of successful certification. Candidates from SC/ST/ OBC/ Minorities/ BPL, etc. could be funded in two parts—
  - (i) Stipend (monthly) to be paid to trainee
  - (ii) Fee subsidization at the end of the programme to be given to the institute after placement.

5.34. The Mission will encompass the efforts of several ministries of the Central Government, State Governments

and the activity of the private arm, supported by the following institutions: (i) Prime Minister’s National Council on Skill Development, (ii) National Skill Development Coordination Board, and (iii) National Skill Development Corporation/Trust. The Central ministries which have skill development programmes will continue to be funded as at present. However the spectrum of skill development efforts will be reviewed periodically for policy directions by the Prime Minister’s Council on Skill Development. The Council will be supported by a National Skill Development Coordination Board, which will be charged with the coordination and harmonization of the governments’ initiatives for skill development spread across the seventeen Central ministries and State Governments with the initiatives of the National Skill Development Corporation/Trust. State governments will be encouraged to set up State-level Skill Development Missions. A non-profit National Skill Development Corporation may be set up as a Company under Section 25 of the Companies Act, and/or a National Skill Development Trust under the Societies Act may be set up, to encourage private sector arm of the Mission.

#### ACTION PLAN FOR COMPONENT— GOVERNMENT INITIATIVE IN PPP MODE

5.35. Over the years some 20 odd ministries have created an infrastructure for skill development. There are 1896 ITIs (under State Governments), 1244 Polytechnics, 669 Community Polytechnics, 9583 Secondary Schools with VET Stream and 3218 ITCs (in private sector). Besides Ministries of Rural Development (RD), MSME, Health, Tourism and several others have their own establishments. All these need to be restructured and repositioned in collaboration with private enterprises. Furthermore, new capacities are being created by the ministries. These need to be brought in PPP mode.

##### (i) ACTION PLAN FOR ITIs

*Action: Ministry of Labour and Employment*

- Complete Upgradation of 500 ITIs by investing Rs 2.0–3.5 crore in each into institutions of excellence.
- Upgrade remaining 1396 ITIs in PPP mode by providing interest free loan up to Rs 2.5 crore each.
- Facilitate 1000 new ITIs in under-served regions –to be set up in PPP mode so that largely unskilled workforce of these backward areas could acquire skills and mainstream with workforce in progressive regions.

- Set up 500 new ITIs—in Industrial Clusters/SEZs on a demand-led basis—also in PPP mode.
- Quadruple ITI capacity by encouraging them to run two shifts or more. Introduce short term modules in 2nd Shift.
- Intensive Faculty Training Programme
- MoUs with States and ITIs defining outcomes and reforms and imposing obligation to transfer autonomy to the PPP.

### (ii) ACTION PLAN FOR POLYTECHNICS

*Action: Ministry of Human Resources Development (HRD)*

- Upgrade 400 government polytechnics.
- Set up 125 new polytechnics in PPP mode in hitherto unserved districts.
- Run all polytechnics in two shifts to double the capacity utilization.
- Encourage much larger initiative in private sector since the demand for junior engineers is enormous and absorption and placements are nearly guaranteed.
- State governments may be encouraged to let their engineering colleges start polytechnics in evening shift to turnout junior engineers.

### (iii) ACTION PLAN FOR VOCATIONAL EDUCATION

*Action: Ministry of HRD*

- Expand VE from 9500 senior secondary schools to 20000 schools. Intake capacity to go up from 1.0 million to 2.5 million
- All VE schools must get into partnership with employers, for providing faculty/trainers, internship, advice on curriculum setting, in skill testing and certification, etc.
- Progressively move vocational education from an unviable 2-year stream, commencing after Class 10, to a stream that captures 9th Class dropouts and later on it should commence from Class 7, capturing 7th Class dropouts. Give emphasis to last mile employability related soft skills—viz., English language skills, quantitative skills, computer literacy, spreadsheet, word processing, computer graphics, presentation skills, behavioral and interpersonal skills, etc.

### (IV) ACTION PLAN FOR RUDSETIS

*Action: Ministry of Rural Development*

- Set up 600 RUDSETIS—one in each district
  - State governments to provide land

- GoI to meet 75% of capital cost
- Banks to meet 25% of capital cost plus provide the following handholding services:-
  - i. Project consultancy and business counseling
  - ii. Incubation Assistance
  - iii. Marketing
  - iv. Sourcing of Credit and Raw Material Supply.
- Focus on Entrepreneurship Development Programmes.
- Link RUDSETIS to EDI of MSME.

### (v) ACTION PLAN FOR SETTING UP A VIRTUAL SKILL DEVELOPMENT RESOURCE NETWORK LINKING 50000 SKILL DEVELOPMENT CENTRES (SDCs)

*Action: DIT/ MSME/ MRD/ ARI/ Ministry of Textiles etc.*

- It is proposed to set up 50000 SDCs to train approximately 200 persons per centre, i.e., 10 million people per year to take skill development to the doorstep of rural populations. Location could be chosen from the following:-
  - One lakh Common Service Centres (CSCs) set up by Ministry of Telecom and IT.
  - 108000 secondary schools being given IT support.
  - Over 147000 rural post offices or Panchayat offices per 6000 Block Headquarters.
- SDC to deliver training capsules of 8–12 week duration with an end of the course certification system. Instruction material to be provided on CD ROMS with 80–120 hours of computer time, 20% of which will be online, rest offline
- Training material will be created by participating ministries/enterprises/industry associations with help of NASSCOM.
- Mentor Groups for tutorial support in online interactive mode will be provided by service-providers engaged by industry associations.
- End of the programme toolkits will be provided by industry associations/State Governments.
- Employment *Melas* at the end of programmes to help unplaced trainees to get placed.

### ACTION PLAN FOR COMPONENT II—PRIVATE SECTOR INITIATIVES

5.36. Twenty high growth sectors of industries and services have been identified which have the ability to provide expanded employment. The Mission, in its private arm, will encompass the efforts of industry associations of these sectors to identify and quantify skill deficiencies in their respective sectors and envision the sectoral plan to meet their growing skill needs. The

corporation/trust will be a PPP on skill development conceived as a non-profit entity. It will make periodic as well as an annual report of its plans and activities and put them in the public domain. The National Skill Development Corporation or the National Skill Development Trust, as the case may be, will identify areas where support and supplementation will be required from the government. In respect of each of these, the respective industry association or group of industry leaders will articulate the sectoral vision for the sectoral Skill Development Initiative. The corporation/trust will refine and validate this vision and ensure complementarity between private initiative and government action, in the light of policy directives from the Prime Minister's Council and the operational guidelines of the Coordination Board.

5.37. The Mission will engage with ten high growth sectors on manufacturing side and an equal number on services side. The Mission's dialogue with private sector industry will be focused on—(i) automobile and auto components (ii) electronics hardware (iii) textiles and garments (iv) leather and leather goods (v) chemicals and pharmaceuticals (vi) gem and jewellery (vii) building and construction (viii) food processing (ix) handlooms and handicrafts (x) building hardware and home furnishings. The Apex Industry Association in each of these sectors will evolve the Skill Development Vision & Plan for their respective sector. The following are some examples of how sector-specific initiatives might work:

- Society of Indian Automobile Manufacturers/Automobile Component Manufacturers Association of India will engage with the Mission to enable India's Automobile and Auto-components Industry to scale up by 2015–16 from current turnover of US\$ 45 billion to US\$ 145 billion and current employment of 10.5 million to target employment of 25.0 million. This industry is very skill-intensive (with 90% manpower as Skilled). They will require 6.25 million technical and managerial personnel and the training requirements of these will be in Manufacturing Management, SQC, TQM, 6-Sigma, Statistical Process Control, Kaizen practices, Lean Manufacturing & Breakthrough Management. The Skill-sets required will be at strategic and conceptual skills level and will, therefore, require retrofitting of special courses in IITs/IIMs and other Engineering and Management Institutes—courses like Infotronics/Mechatronics. For their shop-floor and other skilled personnel training modules imparting Computer Aided Design (CAD)/Computer

Aided Manufacturing (CAM)/CNC Skills, skills relating to low cost automation and process improvement will be required. It may be necessary to set up one 'National Centre for Quality Management' in Automotive sector. It may be necessary to set up a network of institutes for motor mechanics. Another useful step could be two-way sabbaticals between Industry Personnel and Personnel of Training Institutes.

- Electronics Hardware Industry is growing at the rate of 25.30% and expects to scale up by 2015–16, from current turn over of US\$ 30 bn to US\$ 320 bn, with employment increasing from 1.5 million direct and 3.0 million indirect to 7.14 million direct and 14.00 million indirect. The industry requires 5% graduate engineers, 15% diploma-holders, 50% skilled workers and 30% semi skilled. The range of skills required will vary from chip manufacturer and VLSI design, to embedded software, to mere mechanical assembly line operations.
- Similarly Textile/Apparel and Garments Industry expects to scale up by 2015–16, from current turnover of US\$ 47.0 billion to the targeted US\$ 115.0 billion, raising the employment from current workforce level of 35 million to 41.5 million. Of the 6.5 million accretion is workforce only 20% will be unskilled, 50% will be semi skilled, 20% will have ITI certificates and 10% will be Management and Technical graduates. This industry alone could over next five years take over a very large number of ITIs.

5.38. The three examples described above illustrate how individual sectors may deal their specific requirements with strategies and plan of action which will be vastly different from each other. For this reason no generic template is being suggested and the vision/strategy and plan will have to be crafted within the overall policy framework.

5.39. On the services side ten High Growth Sectors have been identified separately, viz. (i) ITs or software services sector (ii) ITES—BPO services, (iii) tourism hospitality and travel trade (iv) transportation/logistics/warehousing and packaging (v) organized retail (vi) real estate services (vii) media, entertainment, broadcasting, content creation, animation (viii) healthcare services (ix) banking/insurance & finance (x) education/skill development services. Mission will engage with each of these sectors. Industry association and workout the appropriate Sectoral Skill Development Plans, strategies and deliverables.

5.40. The National Skill Development Mission's orchestration of private sector initiatives in concert with



government action could give different results in different sectors, such as:

- Setting up of a domain-specific Apex Skill Development Institute for:
  - Domain specific Skill Development need assessment
  - Performance Rating of Institutions/Service Providers
  - Domain Standard setting and Quality benchmarking
  - Curriculum setting
  - Framework setting for end of programme testing and certification
  - Running special Skill Development Programmes in niche areas requiring superior skills
- Setting up of Regional Institutes/ Workshops/Tool-rooms and Online Mentoring Groups
- Retrofitting special courses in IITs/ IIMs/ NITs and other Engineering and Management Programmes or offering them as an elective
- Providing last mile employability training to engineering/management/ or other graduates from lesser known colleges.
- Establishing two-way Sabbatical Exchange Programme between Industry and Faculty of University/Colleges/VET schools/ ITIs, etc.
- Collaborative action for faculty development
- Collaborative action for online ‘Skill Development-content-creation’
- Private Management takeover of Public sector institutions viz. ITIs, polytechnics, vocational schools, etc.

#### **PUBLIC–PRIVATE PARTNERSHIP (PPP)**

5.41. PPP Mode will be the major vehicle for absorbing public expenditure in skill development in the Eleventh Five Year Plan. Apart from the financial contribution from the government, it is necessary to create an Enabling Environment for Private Investment in Skill Training. This requires the prescription of a National framework for domain specific standards and common principles such as (i) trainer not to be the examiner/certifier, (ii) certifier not to be the accreditation agency and (iii) a strict separation of all the three as the basic feature of the mechanism. The facilities for career tracking and placement—biometric smart card based ID, and a National database for location wise availability and shortage of skilled personnel will be established. The system should provide the options of multiple entry and exit points and total mobility between vocational, general

and technical streams. In order to take on board the vulnerable sections, provision for fee vouchers for BPL/ SC/ST/OBC/Minority would also be made available. To overcome the regional disparities due to diverse socio-economic factors, VGF approach would be adopted to address regional imbalances through PPP.

#### **MISSION STRUCTURE**

5.42. The Skill Development Mission has to be conceived in a manner which recognizes that many Ministries are involved and also many separate Industry and service sectors. The Structure consists of Prime Minister’s National Council on Skill Development for apex level policy directions, a National Skill Development Coordination Board, and a National Skill Development Corporation/Trust. The Central Ministries with Skill Development programmes will operate in a Mission mode and the State governments will gear their Departments/Agencies into a State Skill Development Mission. The private sector, especially the twenty high growth sectors will actively participate as the private arm of the Mission. The composition of the Prime Minister’s Council on Skill Development and National Skill Development Coordination Board are as described below.

5.43. **Prime Minister’s National Council on Skill Development:** The Council will comprise of Prime Minister as Chairman, Minister of Finance, HRD, Industries, Rural Development, Labour & Employment and Housing & Urban Poverty Alleviation, Deputy Chairman, Planning Commission, Chairperson, National Manufacturing Competitive Council, Chairperson of the National Skill Development Corporation, six experts in the area of Skill Development as Members and Pr. Secretary to Prime Minister as Member Secretary.

5.44. **National Skill Development Coordination Board:** This Committee will comprise of Deputy Chairman, Planning Commission as Chairman, Chairperson/Chief Executive Officer of the National Skill Development Corporation, Secretaries of Ministries of Finance, Human Resource Development, Labour and Employment, Rural Development, Housing and Employment, Rural Development, Housing & Urban Poverty Alleviation. Secretaries of Four States by rotation, for a period of two years, three Distinguished Academicians/Subject Area Specialists as Members and Secretary, Planning Commission as the Member Secretary.

### Ministries of the Central Government having Skill Development Programmes

5.45. Line ministries/departments will continue to be responsible for the implementation of the skill development programmes, appropriately modifying them in line with the policies and strategies as decided by the Apex Committee into the Mission Mode.

#### 5.46 Action by State Governments

- Transform Employment Exchanges to act as Career Counseling Centre
- Upgrade and strengthen State Council of Vocational Training
- Distance government and allow greater institutional autonomy. Maintain an arm's length relationship. Effectively delegate powers to local management of institutes
- Modernize the existing ITIs, etc. with better funding and enhancing the effectiveness of on-going programmes
- To cope with enhanced activities, existing vacancies in all training institutes must be filled
- Revamp the Institute Management Committee and ensure genuine PPP
- Draw up plan for strengthening existing infrastructure (short-term, medium-term and long-term)
- Personnel Policy to ensure accountability and outcomes.

#### State Skill Development Missions

5.47 The State Governments may establish State-level missions to gear skill development activities in the Mission mode, with appropriate structures. Departments of the State Governments having skill development programmes will be required to reorient their skill development strategies and programmes in line with the central objectives.

#### The Non-profit National Skill Development Corporation/Trust

5.48. The National Skill Development Corporation will be set up as a non-profit company under the Companies

Act with appropriate governance structure (board of directors being drawn from the outstanding professionals/experts). The head of the corporation will be a person of eminence/reputed professional in the field of Skill Development. The Chairperson may also be the Chief Executive Officer of the Corporation, in which case S/he shall be known as the Chairperson-cum-Chief Executive Officer. The National Skill Development Corporation will be set up with as Government Equity with a view to obtaining about Rs 15000 crore as capital from governments, the public and private sector, and bilateral and multilateral sources for the promotion of skill development. The Corporation will be a public private partnership on skill development conceived as a non-profit Corporation. It will make periodic as well as an annual report of its plans and activities and put them in the public domain. There may also be a National Skill Development Trust which can receive funds to be managed by the National Skill Development Corporation. The corporation/trust will be a flexible institutional arrangement to be able to deliver on jobs required by the market, related to its skill deficit, through training programmes operated or partnered by it.

#### CONCLUSION

5.49. The initiatives described above involving both the States and the Centre, often with private partnership will lead to the establishment of a credible, trustworthy and reliable training, testing and certification edifice linked to global standards and responsive to the needs of the ultimate consumers of skill. With an estimated 58.6 million new jobs in the domestic economy and about 45 million jobs in the international economy inviting skilled personnel for quality jobs beckoning the Indian youth, the government and private sector will act in a concerted manner so that these opportunities materialize and operate as an employability guarantee.

**ANNEXURE 5.1.1**  
**Current Attendance Rates in Educational Institutions per 1000 Persons of Different Age Groups during 2004–05**

Category of persons	Age groups					
	5–14	15–19	20–24	25–29	5–29	0–29
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>Rural</b>						
Male	835	471	114	16	532	450
Female	767	333	45	11	436	370
Person	803	407	79	13	485	412
<b>Urban</b>						
Male	890	593	232	40	541	484
Female	879	571	164	21	519	465
Person	885	583	200	31	530	475
<b>Rural + Urban</b>						
Male	847	504	151	23	534	459
Female	792	396	77	14	456	393
Person	821	454	114	18	497	427

Source: NSS Report 517, Table 6.

**ANNEXURE 5.1.2**  
**Labour Force Participation Rates by Age, Area, and Sex, during 2004–05 (CDS)**

Age Group	Rural Areas		Urban Areas	
	male	Female	male	female
(1)	(2)	(3)	(4)	(5)
5–9	2	2	3	2
10–14	58	52	50	28
15–19	486	231	370	116
20–24	853	295	755	216
25–29	950	365	944	221
30–34	959	413	979	256
35–39	963	467	975	288
40–44	954	457	973	266
45–49	949	459	962	229
50–54	928	405	926	225
55–59	890	376	802	190
60+	599	186	348	84
<b>All age</b>	<b>531</b>	<b>237</b>	<b>561</b>	<b>150</b>

Source: Report No. 515 (61/10/1)—NSS 61st Round (July 2004–June 2005).

**ANNEXURE 5.1.3**  
**Per 1000 Distribution of Persons in the Age Group 15–29 Years by Status of Vocational Training Received or being Received—2004–05**

category of person	receiving formal vocational training	received vocational training			all (col. 3+4+5)	Received/receiving training (col. 2+6)	no vocational training	n.r.	total
		formal	Non-formal hereditary	others					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Rural</b>									
Male	10	15	58	37	110	120	871	8	1000
Female	5	13	32	30	74	79	910	11	1000
Person	8	14	45	34	92	100	890	10	1000
<b>Urban</b>									
Male	33	52	31	61	144	178	817	5	1000
Female	19	45	17	32	12	113	881	6	1000
Person	27	49	25	48	121	148	847	6	1000
<b>Rural + Urban</b>									
Male	17	26	50	44	120	137	855	7	1000
Female	9	21	28	31	80	88	902	10	1000
Person	13	24	39	38	100	113	878	9	1000

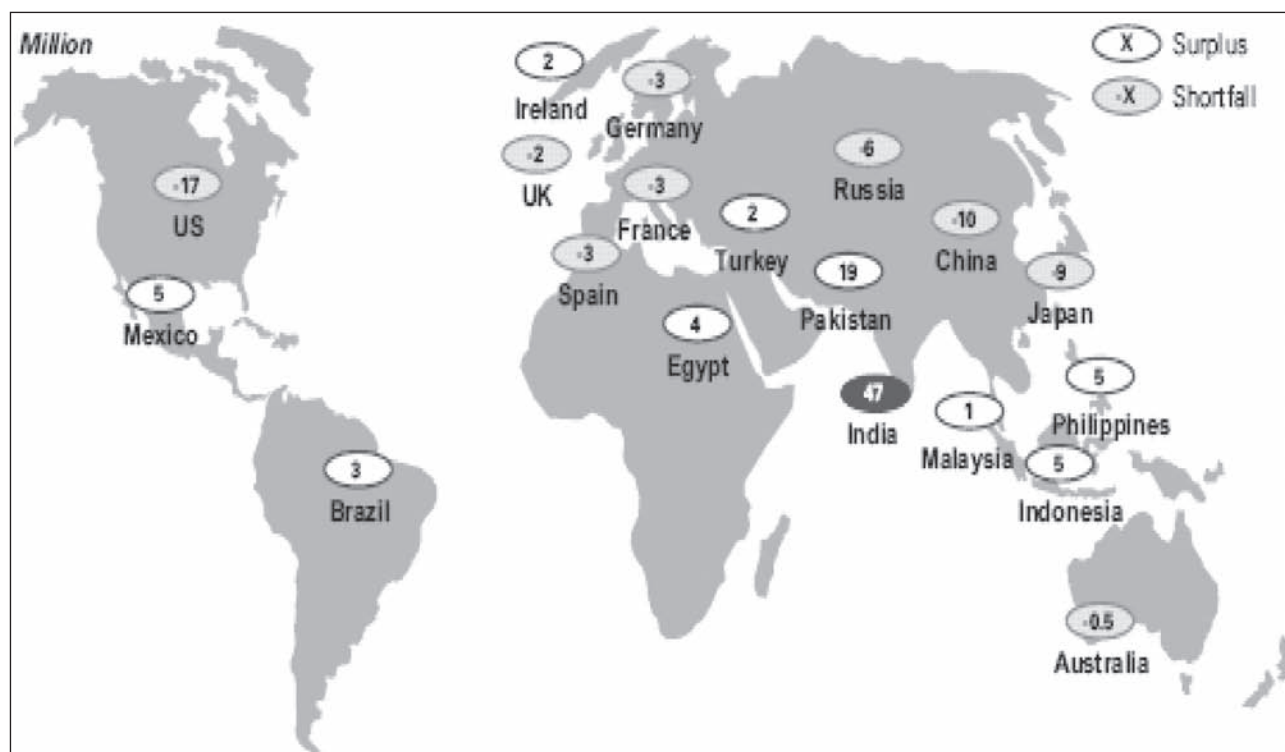
Source: NSS Report 517, Table 10

**ANNEXURE 5.1.4**  
**Number per 1000 Persons of Different Age Groups who Received Formal Vocational Training—2004–05**

Category of Persons	Age Group				
	15–19	20–24	15–24	25–29	15–29
(1)	(2)	(3)	(4)	(5)	(6)
<b>Rural</b>					
Male	5	21	12	23	15
Female	7	15	11	16	13
Persons	6	18	11	19	14
<b>Urban</b>					
Male	19	72	45	69	52
Female	18	63	40	55	45
Persons	18	67	43	63	49
<b>Rural + Urban</b>					
Male	9	36	21	37	26
Female	10	28	19	26	21
Persons	9	32	20	32	24

Source: NSS Report 517, Table 10.

**ANNEXURE 5.2**  
**Potential Labour Surplus/Shortage in Working Age Group across the World (2020)**



*Note:* Working population is defined at the 15–59 years age group. Ratio of working population to total population is assumed to be constant. Labor number are based on assumptions of no interventions by respective governments.

*Source:* US Census Bureau. BCG. 2002–2003.

**ANNEXURE 5.3**  
**List of Twenty High Growth Sectors**

- |  |  |
|--|--|
| 1. Automobile and Auto-components                | 12. ITES or BPO  |
| 2. Banking/Insurance and Finance Services        | 13. ITS or Software Services/Products                                  |
| 3. Building and Construction Industry            | 14. Leather and Leather goods  |
| 4. Chemicals and Pharmaceuticals                 | 15. Media, Entertainment, Broadcasting, Content Creation and Animation |
| 5. Construction Materials/Building Hardware etc. | 16. Organised Retail   |
| 6. Educational and Skill Development Services    | 17. Real Estate Services   |
| 7. Electronics Hardware                          | 18. Textiles, Apparel and Garments                                     |
| 8. Food Processing/Cold Chain/Refrigeration      | 19. Tourism, Hospitality and Travel Trade                              |
| 9. Furniture and Furnishings                     | 20. Transportation Logistics, Warehousing and Packaging etc.           |
| 10. Gem and Jewellery                            |  |
| 11. Health Care Services                         |  |

# 6

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## Social Justice

### Scheduled Castes, Scheduled Tribes, Other Backward Classes, Minorities, and Other Vulnerable Groups

#### INTRODUCTION

6.1. Inclusive growth demands that all social groups have equal access to the services provided by the State and equal opportunity for upward economic and social mobility. It is also necessary to ensure that there is no discrimination against any section of our society. In India, certain social groups such as the SCs, STs, OBCs and Minorities have historically been disadvantaged and vulnerable. Then there are certain other groups which may be discriminated against and which suffer from handicaps. These include persons with disabilities, older persons, street children, beggars and victims of substance abuse. Our Constitution contains various provisions for the development of such marginalized groups, for instance, Article 341 for SCs, Article 342 for STs, Article 340 for OBCs, Article 30 which provides the right to minorities to establish and administer educational institutions, and so on. Their individual and collective growth, however, cannot be ensured without improving their surroundings and providing clean drinking water, toilets and educational opportunities.

6.2. The present chapter deals with the efforts made for the socio-economic development of these groups and the new initiatives that will be taken during the Eleventh Plan.

#### SCHEDULED CASTES (SCs)

6.3. The SCs constitute 16.23% of India's population. In the past, they have been socially ostracized, economically exploited and denied human dignity and a sense of self-worth. The socio-economic development and protection

of SCs from discrimination and exploitation has been a high priority from the very start of the planning process.

6.4. People belonging to SC communities are spread all over the country, with 80% of them living in the rural areas. They constitute more than a fifth of the population of Uttar Pradesh, Punjab, Himachal Pradesh and West Bengal. Punjab has the highest proportion of SCs to the State population. More than half of the SC population is concentrated in the five States of Uttar Pradesh (35.1 million), West Bengal (18.4 million), Tamil Nadu (11.8 million), Andhra Pradesh (12.3 million) and Bihar (13.0 million).

#### CONSTITUTIONAL SAFEGUARDS

6.5. The Constitution of India guarantees protection from social injustice and all forms of exploitation (Art. 46). It guarantees equality before law (Art. 14), and enjoins upon the State not to discriminate against any citizen on grounds of caste (Art. 15 (1)). Untouchability is abolished and its practice in any form is forbidden (Art. 17). The Constitution mandates that no citizen shall, on grounds only of caste or race, be subjected to any disability and restriction (Art. 15 (2)). It empowers the State to make provisions for reservation in educational institutions (Art. 15 (4) and (5)), and in appointments for posts in favour of SCs (Art. 16 (4), 16(4A), 16(4B) and Art. 335). Reservation of seats for SCs in the Lok Sabha is provided under Article 330, in the State Assemblies under Article 332 and in the Local Self-Governments bodies under

Articles 243D and 340T. In addition to the above, the Parliament has enacted the Untouchability (Offences) Act, 1955, renamed as Protection of Civil Rights Act, in 1976. To check and deter atrocities against SCs, the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 has also been enacted.

#### SCHEDULED CASTES DEVELOPMENT: AN OVERVIEW

6.6. The Tenth Five Year Plan (2002–07) adopted a multi-pronged approach for the socio-economic development of the SCs: social empowerment through educational development; economic empowerment through income and employment enhancing avenues; protection through effective implementation of protective legislations and eradication of occupations such as manual scavenging; and holistic development through earmarking of funds proportionate to the population. [Scheduled Caste Sub-Plan (SCSP) and Tribal Sub-Plan (TSP)].

#### Educational Development

6.7. With respect to the educational development of SCs, the Central Government has introduced major scholarship programmes and these are given in the Box 6.1

6.8. The other important schemes for the educational development of SCs: are (i) providing coaching facilities to students to prepare them for various competitive examinations being conducted by Union Public Service Commission (UPSC), State Public Service Commissions, banks, and so on; and (ii) hostel facilities to both boys and girls for pursuing education from middle level onwards.

#### Economic Development

6.9. The National Scheduled Castes Finance and Development Corporation (NSFDC) established in 1989, provides financial and other support to beneficiaries for taking up various income generating activities. An amount of Rs 388.80 crore was made available to the Corporation up to 31 March 2007 as equity share contribution against the authorized share capital of Rs 1000 crore. The number of SC persons who received assistance during the Tenth Five Year Plan (up to December 2006) is 257901.

6.10. The National Safai Karamcharis Finance and Development Corporation was established in 1997 to provide financial support to the *safai karamcharis* (scavengers) to take up various income-generating activities. During the Tenth Five Year Plan, the Corporation introduced the Micro Credit Finance Scheme and the Mahila Samridhi Yojana, benefitting 102187 persons. During 2006–07, it disbursed loans to 16545 beneficiaries (up to December 2006) for various income generating activities in 23 States and two UTs.

6.11. The scheme of grant-in aid to the Scheduled Castes Development Corporations (SCDCs) was introduced in 1978–79 as a CSS for participating in the equity share of the State corporations in a Centre–State ratio of 49:51. The SCDCs finance employment oriented schemes that cover: (i) agriculture and allied activities including minor irrigation; (ii) small-scale industry; (iii) transport; and (iv) trade and service sector. They also finance projects by dovetailing the loan component from NSFDC/Banks

#### Box 6.1

##### Major Scholarship Schemes under the Ministry of Social Justice and Empowerment

**Post-Matric Scholarships (PMS)** implemented since 1944–45 to promote higher education among SCs by extending scholarships to pursue studies beyond matriculation. In the Tenth Plan, an amount of Rs 1822.25 crore was utilized to reach the coverage of 29.59 lakh students in 2006–07.

**Pre-Matric Scholarships** are being awarded since 1977–78 with an objective to encourage children of scavengers and those engaged in menial works, to pursue education. 4.72 lakh children were awarded pre-matric scholarships for which Rs 56.41 crore was utilized in the Tenth Plan.

**Upgradation of Merit for SC Students Scheme** in operation since 1987–88 to extend remedial and special coaching offered to students to remove their deficiencies in school subjects (class IX to XII) into professional and technical courses. An expenditure of Rs 14.68 crore was incurred to benefit 10625 students.

**Rajiv Gandhi National Fellowships** launched in the Tenth Plan in 2005–06 as a special incentive to extend scholarships to SC students to pursue higher studies and research degrees such as M.Phil. and Ph.D. An amount of Rs 50.20 crore was earmarked for this scheme in the Tenth Plan to benefit 2666 SC students.

with margin money out of their own funds and subsidy out of the SCA.

### Protective Measures

6.12. Two important protective legislations in operation for people belonging to SCs are the Protection of Civil Rights Act, 1955 and the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989. However, despite these Constitutional provisions, atrocities and crimes on members of SCs, especially the women, continue to occur in all parts of the country in varying degrees. As per the National Crime Records Bureau Report 2005, the crimes against SCs in the last few years were mainly atrocities followed by hurt and rape. Data for the last five years are reproduced in Table 6.1.

### Implementation of the Scheduled Caste Sub-Plan (SCSP) and Tribal Sub-Plan (TSP)

6.13. In view of the persistent and wide-spread socio-economic backwardness of SCs and STs, a distinct need was felt for innovative policy intervention to enable these groups to share the benefits of growth in a more equitable manner. The government prepared a separate Development Plan called Tribal Sub Plan for STs in 1976. It was followed by the Special Component Plan for the SCs in 1978 (recently renamed the Scheduled Caste Sub Plan [SCSP]).

6.14. The SCSP and TSP aim at facilitating convergence and pooling of resources from all the other development

sectors in proportion to the population of SCs and STs, respectively for their overall development.

6.15. At present, 27 States/UTs are implementing SCSP through different mechanisms. The State Governments generally divide their resources into 'divisible' and 'non-divisible' components and earmark funds for SCs only from the divisible pool. As a result, the actual funds flowing directly to SCSP from the total State Plan becomes much less than the proportion of SC population to the total population of the State.

6.16. The State Government of Maharashtra has pioneered a special mechanism to ensure effective operationalization of SCSP and TSP. Other States could explore replication of this mechanism.

6.17. The Prime Minister has reiterated the need for effective implementation of SCSP and TSP during the 51st and 52nd NDC meetings held on 27 June 2005 and 9 December 2006. He emphasized that the SCSP and TSP strategies should become an integral part of the Annual Plans as well as the Five Year Plans so that full inclusion of SCs and STs in socio-economic development is achieved within a period of 10 years.

6.18. All Central Ministries/Departments are also expected to formulate SCSP and ensure that the flow of funds to SCSP in their plans is at least in proportion with the SC population of the country. At present, 17 Central

**TABLE 6.1**  
**Comparative Incident of Crime against Scheduled Castes**

S. No.	Crime-Head	Years					% Variation in 2005 over 2004
		2001	2002	2003	2004	2005	
1.	Murder	763	739	581	654	669	2.3
2.	Rape	1316	1331	1089	1157	1172	1.3
3.	Kidnapping and Abduction	400	319	232	253	258	2.0
4.	Dacoity	41	29	24	26	26	0.0
5.	Robbery	133	105	70	72	80	11.1
6.	Arson	354	322	204	211	210	-0.5
7.	Hurt	4547	4491	3969	3824	3847	0.6
8.	Protection of Civil Rights Act	633	1018	634	364	291	-20.0
9.	SC/ST (Prevention of Atrocities) Act	13113	10770	8048	8891	8497	-4.4
10.	Others	12201	14383	11401	11435	11077	-3.1
	Total	33501	33507	26252	26887	26127	-2.8

Source: *Crime in India-2005*, National Crime Records Bureau, Ministry of Home Affairs.



Ministries/Departments have done so. These are the Ministries of Labour, Coal, Commerce and Industries, Textiles, Non-Conventional Energy Sources, Women and Child Development, Steel and Rural Development, and the Departments of Agriculture and Cooperation, Small-Scale Industries and Agro and Rural Industries, Biotechnology, Science and Technology, Health, Family Welfare, Elementary Education and Literacy and Secondary and Higher Education. Many Ministries/Departments maintain that they are unable to provide funds for SCSP because their funds are devoted expenditure on large projects and are not divisible.

6.19. The implementation of SCSP and TSP leaves much to be desired. This applies equally to the Central as well as State governments. Though there may be several reasons for this lacklustre implementation, lack of statutory or clear-cut administrative sanction is an important one.

6.20. To look into the issues related to TSP and SCSP, a Central Standing Tripartite Committee (CSTC) which includes representatives of the Planning Commission, National Commission for SCs and STs, the Ministries of Social Justice and Empowerment and States/UTs Ministries/Departments, was set up in May 1999. The CSTC was reconstituted in early 2006 to review the formulation, implementation and monitoring of SCSP and TSP and advise the Planning Commission and Prime Minister on measures which would serve the interests of the SCs and STs more effectively.

6.21. For effective implementation of SCSP and TSP, the Planning Commission also issued guidelines to all State Governments/UTs which have been revised from time to time, the last revision being on 31 December 2006. The main guidelines are given in Box 6.2.

#### **Box 6.2** **Main Guidelines for SCSP and TSP**

- Earmarking of funds for SCSP and TSP from the total State Plan outlay should at least be proportionate to the SC and ST population of the State/UT.
- Making the Social Welfare/Tribal Welfare Department—which are concerned with the well-being and development of SCs and STs—the nodal department for formulation and implementation of SCSP and TSP.
- Placing the funds earmarked for SCSP and TSP at the disposal of the Principal Secretary/Secretary, Social Welfare/Tribal Welfare, who will work as Planning Secretary and have exclusive authority for the reallocation of funds to other line departments for of SC and ST development schemes.
- Placing the funds earmarked for SCSP and TSP under separate budget head/sub-head for each development department.
- Backing the SCSP and TSP earmarked funds by 100% budget provision, sanctions and timely release of funds to the line departments and implementing agencies.
- Including only those schemes under SCSP and TSP that ensure direct benefits to individuals or families belonging to SCs or STs.
- Preparing a detailed SCSP and TSP document with physical and financial targets against each Scheme with the objective of bridging the gap between the rest of the population and the SCs and STs within 10 years.
- Ensuring that the other line departments cooperate in the proper implementation of the SCSP and TSP schemes allocated to them and put up the schemes to the nodal departments for sanction and release of funds.
- To circumvent the problem of non-divisible nature of funds for certain sectors like major irrigation, power, roads, and so on, SCSP and TSP funds may be accounted only to the extent of about 5% or the actual area being covered or benefited by the SCs and STs by the projects and not the population percentage. The percentage of SC and ST beneficiaries and the area being covered/benefited is always less than the population percentage of the SC and ST population in the State/UT.
- Preventing the diversion and lapse of funds allocated to SCSP and TSP in the Annual Plans. SCSP and TSP should not be allowed to be changed at revised estimate (RE) stage by the Planning Commission.
- Carrying forward the lapsed/unutilized SCSP and TSP amount to the next Annual Plan of the State/UT as an additional fund for SCSP and TSP.
- All the CSS and SCA Schemes of the Centre necessarily should have a SCSP and TSP component in them as per the proportion of SCs and STs in the States/UTs.

*(Box 6.2 contd.)*

(Box 6.2 contd.)

**Central Ministries/Departments**

- Earmarking of funds by every Central Ministry/Department towards SCSP and TSP should be as per the proportion of SC and ST population in the country. Non-earmarking of SCSP and TSP funds by the Ministry/Department will result in non-approval of their Annual plan.
- SCSP and TSP funds should be non-divertible. Creation of separate budget heads and minor heads (789 for SCSP and 796 for TSP).
- A dedicated SCSP and TSP unit should be created for the formulation and implementation of SCSP and TSP schemes and programmes.
- Only those schemes/programmes should be implemented which accrue direct benefit to SCs and STs.
- All the other guidelines issued to Central Ministries/Departments should be followed strictly.

**PRESENT STATUS OF THE SCHEDULED CASTES****Education**

6.22. Although the literacy rate of SCs has increased considerably, from 10.3% in 1961 to 54.7% in 2001, till recently the gap between literacy rates of the general and SC population had not reduced. However, the Census in 2001 showed a distinct reduction in this literacy gap (see Table 6.2).

6.23. The school dropout rate is a crucial indicator of lack of educational development. The dropout rates for SC children are still very high—32.7% in Classes I to V; 55.2% in Classes I to VIII; and 69.1% in classes I to X in 2004–05 (see Table 6.3). The gap between the SC population and the general category increases at higher levels of schooling. However, an encouraging sign is the reduction in the gap between the dropout rates of the total population vis-à-vis the SCs at all levels.

6.24. In the area of higher education, also, there is a gap between the SCs and the general population. The gross

**TABLE 6.2**  
**Literacy Rate of General Population and SC Population, 1961–2001**

Year	General			SC		
	Male	Female	Total	Male	Female	Total
1961	34.44	12.95	24.02	16.96	3.29	10.27
1971	39.45	18.70	29.45	22.36	6.44	14.67
1981	46.89	24.82	36.23	31.12	10.93	21.38
1991	64.1	39.3	52.2	49.91	23.76	37.41
2001	75.3	53.7	64.8	66.64	41.90	54.69

Source: Census of India

**TABLE 6.3**  
**Dropout Rates, 2004–05—SC (Provisional)**

Category	Classes I–V			Classes I–VIII			Classes I–X		
	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls
General	31.47	33.74	28.57	52.32	51.85	52.92	62.69	60.98	64.92
SC	32.7	36.1	34.2	55.2	60.00	57.3	69.1	74.2	71.3

Source: Selected Educational Statistics 2004–05, Ministry of Human Resource Development.

enrolment ratio for the country as a whole in 2000 was about 10%. For the SCs, however, it was significantly lower at 6.4%.

**Economic Development****OCCUPATIONAL CATEGORY**

6.25. As can be seen in Table 6.4, 45.61% of SC workers at the all-India level and 52% at the rural level were agricultural labourers, compared to 26.55 and 33.05% among all workers at the national and rural levels, respectively. The position is reversed when we come to the share of SCs among cultivators, which is 19.99% and 23.47% for rural workers compared to 31.65 and 40.24%, respectively for all workers.

**AVAILABILITY OF BASIC AMENITIES IN SC LOCALITIES**

6.26. Another important dimension of discrimination is the wide gap between the SCs and the rest of the population with respect to the availability of basic civic amenities such as electricity, banking services, *pucca* houses, water supply, toilet facilities, drainage and telephone facilities.

6.27. In 2000, about two-thirds of rural SC households were landless and near landless, compared to one-third

**TABLE 6.4**  
**Percentage of Working and Non-working Population (Total and SCs), 2001**

	Total Workers		Cultivators		Agricultural Labour		Household Industry		Other Workers		Non-Workers	
	All*	SC	All	SC	All	SC	All	SC	All	SC	All	SC
India	39.10	40.41	31.65	19.99	26.55	45.61	4.22	3.91	37.59	30.49	60.90	59.59
Rural	41.75	42.50	40.24	23.47	33.05	52.23	3.92	3.73	22.80	20.58	58.25	57.50
Urban	32.75	33.14	2.81	1.76	4.71	11.03	5.22	4.84	87.27	82.37	67.75	67.86

Note: \* includes SCs.

Source: Census 2001.

among others. Less than one-third of SC households had acquired access to capital assets, compared to 60% among the others. About 60% of SC households still have to depend on wage labour, compared to one-fourth for the others. Employment rates and wage earnings among SCs have also tended to be low. Similar disparities exist in the status of health of SCs. The incidence of anaemia among women and mortality rate among children are higher than in other groups. Studies also show evidence of discrimination in various market and non-market transactions, including access to social services like education, health and housing, and in political participation.

6.28. The cumulative impact of all these disparities, therefore, is reflected in the high levels of poverty, about 36% among SCs as compared to only 21% among others.

#### ACCESS TO INCOME EARNING ASSETS—AGRICULTURAL LAND AND CAPITAL ASSETS

6.29. About 80% of the SCs live in rural areas. In 2000, only 16.8% of them pursued cultivation as an independent self-employed occupation, whereas among the non-SC/ST this percentage was more than double (41.11%). The percentage of those employed in some kind of non-farm self-employment activities (read business) was about 12% and 15%, respectively for SCs and others. In rural areas, about 28% of SC households had acquired some access to fixed capital assets compared to 56% for other households (non SC/ST). In urban areas, also, the access to capital assets for SCs was low (27%) as compared to other households (35.5%). In rural as well as urban areas, due to inadequate access to fixed capital assets, an exceptionally high percentage of all SC households, more than 62%, was dependent on wage employment.

#### UNEMPLOYMENT SITUATION

6.30. In 2000, the CDS employment rate in rural areas was 46% for SC male workers, compared with 48.40% for other male workers. Similarly, the CDS employment rate for SC workers in urban area was 45.8%, compared to 49.9% for other households. Disparities between the SC and others are also reflected in the unemployment rate. Unemployment rate based on CDS for SCs was about 5.0% as compared to about 3.5% for other workers in rural and urban areas. The NSSO data on wage earning revealed disparities in labour wages for SCs and others. For instance, in 1999–2000, the average weekly wage earning of an SC worker (at 1993–94 price) was Rs 174.50 compared to Rs 197.05 for other workers (estimate by Dubey 2003, Department for International Development [DFID] study).

#### ECONOMIC STATUS

6.31. Available empirical evidence suggests discrimination against SCs in employment, wages, credit, and so on. These factors have acted as constraints to their occupational mobility. In urban areas, too, there is prevalence of discrimination by caste; particularly discrimination in employment, which operates at least in part through traditional mechanisms; SCs are disproportionately represented in poorly paid, dead-end jobs. Further, there is a flawed, preconceived notion that they lack merit and are unsuitable for formal employment.

6.32. Due to the lack of access to fixed sources of income and high incidence of wage labour associated with high rate of under-employment and low wages, SC households are often faced with low incomes and high incidence of poverty. In 2004–05, about 36.80% of SC persons were BPL in rural areas as compared to only 28.30% for others (non-SC/ST). In urban areas the gap was slightly larger;

**TABLE 6.5**  
**Population Living Below Poverty Line—SC**  
**(1993–94 and 2004–05)**

Category	(in %)					
	1993–94		2004–05		(% points) Decrease (1993–94 to 2004–2005)	
	Rural	Urban	Rural	Urban	Rural	Urban
All*	37.30	32.40	28.30	25.70	(-) 9.00	(-) 6.70
SCs	48.11	49.48	36.80	39.90	(-) 11.31	(-) 9.58
GAP	10.81	17.08	8.50	14.20	(-) 2.31	(-) 2.78

Note: \*Include SC population. Source: Perspective Planning Division, Planning Commission, New Delhi.

39.20% of SC households were BPL compared to 25.70% among other households. The variation in poverty ratio across household types or occupational groups is striking. In 1993–94, the incidence of poverty was about 60% among agricultural labour followed by 41.44% among non-agricultural labour. The level was relatively low for persons engaged in self-employed activities in agriculture (37.71%) and in the non-agricultural sector (38.19%). In urban areas the incidence was astonishingly high among the casual labour (69.48%). Poverty was also high among the self-employed households (54%).

#### HUMAN DEVELOPMENT INDEX (HDI) AND HUMAN POVERTY INDEX (HPI) FOR SC VIS-À-VIS NON-SC/ST

6.33. According to the UNDP India Report (2007) on Human Poverty and Socially Disadvantaged Groups in India, the HDI at all India level for SCs is estimated to be 0.303, which is lower than the HDI for non-SC/ST at 0.393 for the period 1980–2000. The variation across States is very large, ranging from 0.661 for Kerala to 0.195

for Bihar. There are ten States with HDI value higher than the all-India average for SCs and six States with HDI value lower than this average.

6.34. HPI is a measure to assess the level of deprivation among a given social group with reference to Infant Mortality Rate, Illiteracy Rate, Poverty Ratio (Head Count Ratio), Health Status and Nutritional Status. The value of HPI was estimated at 33.63% for all social groups taken together at the all-India level. The HPI for SCs was estimated to be 41.47% for all India, which was much higher compared to non-SC/STs (31.34%). The HPI revealed significant variation across the States with values ranging from 18.62 to 59.36%. The level of deprivation was greatest in Bihar (59.36%) followed by Uttar Pradesh (50.03%), Orissa (47.66%), Rajasthan (43.78%) and Madhya Pradesh (43.68%), as compared to the all-India level (41.47%). In the remaining 11 States, the rate of deprivation was lower than the all-India value. Deprivation was found to be least in Kerala (18.62%).

#### REPRESENTATION IN GOVERNMENT SERVICES

6.35. Table 6.6 shows a marginal improvement in the percentage of overall SC representation in the Group A, B and C categories of Central Government services from 1994 to 2004, while there was a substantial decline in the Group D category.

#### APPROACH IN THE ELEVENTH FIVE YEAR PLAN: THE WAY AHEAD

6.36. The efforts made in the previous Five Year Plans have brought about some empowerment of SCs. However, gaps still exist in almost all social and economic dimensions between SCs and the general population. The Eleventh Plan provides an opportunity to restructure policies for faster, more broad-based and inclusive growth.

**TABLE 6.6**  
**SC Representation in Central Government Services in 1994, 1999, and 2004 (as on I.I.2004)**

Group	1994			1999			2004		
	Total	SCs	% Total	Total	SCs	% of total	Total	SCs	% of total
A	59016	6046	10.25	93520	10558	11.29	80011	9744	12.2
B	103198	12442	12.06	104963	13306	12.68	135409	19602	14.5
C	2381613	374758	15.73	2396426	378115	15.78	2040970	344865	16.9
D	1023285	209423	20.47	949353	189761	19.99	802116	147212	18.4
Total	3567112	602670	16.9	3544262	591740	16.7	3058506	521423	17.05

Source: Annual Reports, DOP&T, GoI.

In the following paragraphs, the steps that will be taken for the socio economic development of SCs are discussed.

### Educational Development

6.37. With respect to elementary education, various incentives in the form of abolition of tuition fee, free supply of books, mid-day meals, scholarships, and so on, shall be provided to SC children. Among the SCs, children of scavengers are educationally the most backward. The existing Pre-Matric scholarship for them needs to be revised in its funding pattern from 50:50 to 100% so that more target families send their children to schools. Special attention needs to be paid to retention in schools of SC students and the quality of teaching for them.

6.38. The scheme of Post-Matric Scholarships for SCs provides scholarships to SC students for pursuing higher education in various courses beyond matriculation. Under this scheme, States are required to bear the committed liability over and above the expenditure incurred in the last year of the Five Year Plan which becomes the committed liability of the States in the first year of the next Plan. The issue of the committed liability to be borne by the states always prevents the States from coming forward to access this Central assistance. Ultimately, it is the SC students who are deprived of higher education. This needs to be addressed. In order to maximize their capabilities, SC students should have the opportunity to study in quality institutions. Today, the high cost of private education turns them away. Thus, there is need for extending financial assistance so that they can access top class educational institutions, including those in the private sector.

6.39. SC students also need to be encouraged to prepare for various competitive examinations. Reputed institutions charge very high fees for coaching students for competitive examinations. The existing scheme of coaching for SCs does not cover the fees charged by such reputed coaching institutes. There is a need to modify the scheme to ensure such coverage.

6.40. Over the last few years, higher technical and professional education is increasingly being provided by private unaided institutions. In the absence of explicit government aid, they charge high fees which SC/ST students simply cannot afford to pay. Therefore, the government may reimburse the total fee charged by such institutions.

6.41. The Rajiv Gandhi National Fellowship for SC students was introduced in 2005–06 to provide fellowship to 1333 SC students for pursuing higher studies leading to M.Phil. and Ph.D. degrees. The response under this scheme has been very encouraging in the last two years and this will necessitate increasing the number of fellowships. Those who cannot continue their education after schooling, or who wish to diversify, should be provided with vocational training/skill training programmes in ITIs, polytechnics, or other institutes. These institutes should have adequate seats on population basis and should be located closer to the SC dominated communities. The stress should be not merely on subject learning but also on personality development and entrepreneurship skills.

### Economic Development

6.42. In the Eleventh Plan, a Commission on Land Reforms will be set up which will specifically look into issues of: (i) continued possession and effective uses of land distributed earlier to SCs under various programmes/legislative interventions; and (ii) availability of land for distribution to SCs/STs/landless families. In all these, care will be taken to ensure preferential/joint ownership by women.

6.43. The unemployment rate of SCs in rural and urban areas is about 5.5% as against 3.5% for others. Special programmes of employment are necessary to reduce this by increasing employment among SCs. Priority needs to be given to SCs in the Employment Guarantee Scheme with proper monitoring of coverage.

6.44. The National Sample Survey Organization (NSSO) on Employment and Unemployment Situation among Social Groups in India in its report (61st Round, July 2004–June 2005) brought out that the proportion of persons in the labour force was the highest among STs followed by SCs, OBCs and others. The labour force participation rate for these groups were 51%, 44% and 40%, respectively. Those belonging to the SC communities suffer from very high incidence of poverty and need to be provided with job-oriented training to enable them to have better opportunities. Such training will be provided under the Apprentice Act the (details of which can be read in the Chapter on Labour and Employment).

6.45. Large numbers of SCs and STs depend on agricultural wages to sustain themselves and the State

Governments thus needs to revise agricultural wages every five years.

6.46. Various financial institutions such as Public Sector Banks and National Finance and Development Corporations for SCs and safai karmcharis and State-level SCDCs providing credit to SCs have been facing the problem of low recovery rate of loans from the beneficiaries through SCAs. This puts a question mark on the economics of the schemes as well as on the capability of the loanees. There is a need to restructure the schemes so that they become more 'sustainable'. The corporations need to be thoroughly professionalized so that programmes financed by them help develop entrepreneurial skills of the loanees. Based upon the effective performance of the Finance and Development Corporations, the capital available at their disposal may be increased substantially to provide support to SC/ST businesses.

6.47. Among the SCs, persons engaged as manual scavengers need special attention to put an end to the degraded practice of manual scavenging. In the Eighth Five Year Plan, the National Scheme for Liberation of Scavengers was launched with the aim to train manual scavengers and rehabilitate them in alternative occupations. Despite commitments made to the eradication of the obnoxious and dehumanizing practice of handling night soil manually, it still continues. Only 19 States and all UTs have adopted the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition Act, 1993). Nine States are yet to adopt the Act. A new scheme, namely the, Self Employment Scheme for Rehabilitation of Manual Scavengers, has been formulated to rehabilitate the remaining 3.42 lakh of 7.73 lakh scavengers in a time-bound manner by March 2009 through training, and extension of loans and subsidies. This has to be done in a missionary mode with commitment and zeal.

#### PROTECTIVE MEASURES

6.48. There is a need to complement protective legislations, that is, the Protection of Civil Rights Act, 1955 and Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 with a promotive legislation which should cover the rights of SCs with respect to education, vocational training, higher education and employment. Such a legislation may be drafted along the lines of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation)

Act, 1995 which clearly spells out what is to be done, and who should do it. The implementation of the PCR Act, 1955 and SC and ST (POA) Act, 1989 has to be enforced in letter and spirit to bring about speedy justice to the aggrieved.

6.49. The Department of Justice in the GoI may establish a Special Law facility to deal with the legal issues of educating judicial officers, public prosecutors and police officials to carry out the necessary research for effective implementation of these two Acts. The Department should also review the judicial aspects and take appropriate steps towards sensitizing the Judiciary, especially at the level of lower courts, to ensure more and speedier convictions. It should also be ensured that Revenue, Health and other concerned Departments in the States become more sensitized on the issue so that procedural delays in the investigation of offences under the Act are reduced.

6.50. Elimination of caste-based discrimination and harassment in educational institutions should be ensured by institutions by establishing 'Equal Opportunity Offices'.

#### Reservation for SCs

6.51. The government is committed to providing reservations for SCs in education and employment. Action needs to be taken to clear the backlog in filling up SC reserved posts of various categories in the government. However, the government alone cannot accomplish the task of providing job opportunities to SCs. The private corporate sector will have to play a proactive role in providing sufficient job opportunities to the especially marginalized and discriminated sections of Indian society. The government shall explore all possibilities of introducing, in one form or the other, affirmative action including reservations, in the private sector.

6.52. Towards ensuring effective and meaningful implementation of SCSP and TSP and accomplishing SC- and ST-specific targets, efforts will be made to adopt the measures mentioned in Box 6.3 during the Eleventh Five Year Plan.

6.53. There is a need to monitor implementation of the programmes under the SCSP and Tribal Sub Plan. A Committee meant for this purpose will be set up which will ensure that each Ministry's allocation of SCSP is indicated well in advance. Further, if any particular Ministry is not able to utilize the earmarked allocation,

### Box 6.3 SCSP and TSP—The Way Ahead

- Adoption and implementation of the Maharashtra Model of SCSP and TSP by all the States/UTs.
- Designing proper and appropriate developmental programmes/schemes/activities specifically relevant/useful for the overall development of SCs and STs both within the existing general programmes across sectors, and also conceiving new avenues/programmes for this purpose, if not there so far.
- Designing a special mechanism and making the same as the special agency responsible and accountable for formulation and implementation of SCSP and TSP effectively and meaningfully.
- Making actual budgetary provisions through allocation of funds under a special head designated for SCSP and TSP to avoid arbitrariness and ad hoc-ism.
- Ensuring timely release of SCSP and TSP funds for the purpose(s) they are meant for.
- The SCSP strategy needs to be evaluated at the end of the year in terms of financial allocations made and the expenditure incurred, and assessment of their impact through gauging physical achievements and ultimate outcomes.

action should be initiated to transfer the unused fund available to those Ministries/Departments which have implemented the SCSP/TSP more effectively.

## THE SCHEDULED TRIBES

### POPULATION PROFILE

6.54. The population of STs in India stood at 84.33 million as per the Census of 2001. STs constitute 8.2% of the total population of the country with 91.7% of them living in rural areas and 8.3% in urban areas. The sex-ratio of ST population in 2001 was 978, which was much higher than the national average of 933. The proportion of ST population to the total population had also increased from 6.9% in 1971 to 8.2% in 2001.

6.55. The proportion of STs to the total population in States/UT was highest in Mizoram (94.5%) and Lakshadweep (94.5%) followed by Nagaland (89.1%) and Meghalaya (85.9%). Within major States, Chhattisgarh (31.8%) had the highest percentage followed by Jharkhand (26.3%) and Orissa (22.1%). Of the total ST population in the country, Madhya Pradesh accounted for the highest proportion of ST population (14.5%) followed by Maharashtra (10.2%), Orissa (9.7%), Gujarat (8.9%), Rajasthan (8.4%), Jharkhand (8.4%) and Chhattisgarh (7.8%). In fact, 68% of the country's ST population lives in these seven States only.

### CONSTITUTIONAL SAFEGUARDS

6.56. The Constitution of India has made several provisions to safeguard the interests of the STs in Articles 15(4), 16(4), 46, 243M, 243 ZC, 244, the first and second

provisos to 275(1), Articles 334, 335, 338A, 339(1), and the Fifth and the Sixth Schedules. Besides these, several laws have been enacted by the Central Government like the Protection of Civil Rights Act, 1955; the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989; the Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996; the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 as well as by the State Governments (relating to the prevention of alienation and restoration of tribal land, money-lending, reservations, and so on). The Centre has been given the authority of giving directions to the State Governments (cf. Article 339(2), Para 3 of the Fifth Schedule) in the interest of tribal people. Further, a National Tribal Policy is on the Central anvil.

### DEVELOPMENT OF SCHEDULED TRIBES: AN OVERVIEW

6.57. The Tenth Five Year Plan continued with the schemes and programmes directed at the socio-economic development of the tribal population through an area based approach. Initiatives to arrest the incidence of land alienation through legislative mechanisms were also explored during the Tenth Plan.

### Educational Development

6.58. The Departments of Elementary Education and Literacy and of Higher Education in States have provided special incentives to ST students which include textbooks, uniform, abolition of tuition fee, and so on. Special focus is also accorded to ST students under the District Primary Education Programme, Kasturba Gandhi Balika Vidyalaya, Mid-day Meal Programme,

Navodaya Vidyalaya, National Talent Search Scheme, and the like.

6.59. The Post-Matric Scholarship scheme is in operation since 1944–45, and open to all ST students whose parents' annual income is up to Rs 1 lakh, to facilitate students to pursue professional courses. An amount of Rs 58.9 crore was utilized to benefit seven lakh ST students in the Tenth Plan. The scheme of establishing Ashram schools in TSP areas provides funds for construction of school buildings as well as hostels and staff quarters. Seventy-eight Ashram schools with a capacity of 9610 seats were supported at a cost of Rs 22.34 crore. The scheme of construction of hostels for ST boys and girls provides for the construction of new hostel buildings as well as extension of the existing hostel buildings. An amount of Rs 57.84 crore was utilized for the construction of 120 hostels for 9884 students. The scheme of setting up educational complexes is being implemented for promotion of education among tribal girls in 136 identified low literacy districts of the country. In the Tenth Plan, an amount of Rs 62 crore was allotted under the scheme to set up 76 complexes. A scheme for vocational training in tribal areas for developing the skills of tribal youth for a variety of jobs as well as self-employment, is also in operation.

6.60. However, the problem of adequacy of the school buildings, both in number and in facilities, still remains. The lack of education in the mother language or dialect in primary classes, ignorance of non-tribal teachers about tribal languages and ethos, delay in distribution of scholarships, textbooks and uniforms, continue to be sources of worry.

### Economic Development

6.61. The National Scheduled Tribes Finance and Development Corporation (NSTFDC) was set up in 2001 with an authorized share capital of Rs 500 crore. The Corporation supports various income and employment generating activities through loans, marketing support, training, and so on. Special focus is accorded to ST women beneficiaries under programmes such as the Adivasi Mahila Shashaktikaran Yojana, which facilitate income generating activities through women's self-help groups (SHGs). Under NSTFDC, 14.53 lakh STs were benefited during the Tenth Plan. The State ST Development Corporations (STDCs) which function as channelling agencies in identifying eligible beneficiaries and extending

financial and other assistance to them, are also supported by NSTFDC. The STDCs were provided with funds to the tune of Rs 48.76 crore in the Tenth Plan. The Tribal Cooperative Marketing Development Federation of India Ltd (TRIFED) provides marketing assistance and remunerative prices to STs for collection of minor forest produce (MFP), and surplus agricultural produce to protect them from exploitative private traders and middlemen. In the Tenth Plan, States were provided SCA of Rs 2518.07 crore to strengthen their Tribal Sub Plans.

6.62. Though the majority of the tribals are settled cultivators, their farming activity is generally uneconomical and non-viable due to the lack of access to necessary agricultural inputs, specially assured irrigation. Therefore, a special provision of funds under grant-in-aid under Article 275 (1) of the Constitution has been made for financing minor irrigation works.

### Restoration of Traditional Rights

6.63. The government took a major initiative in enacting the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 which was notified in the Gazette of India, extraordinarily, dated 2 January 2007. The Ministry has also framed the draft Rules for implementation of the provisions of the Act. The major rights that are granted under the Act inter alia are the right to cultivate forest land to the extent under occupation, (subject to a ceiling of 4 hectares); the right to own, collect, use and dispose of MFP; rights inside forests which are traditional and customary, for example, grazing.

### Self Governance

6.64. Despite some protective measures and developmental efforts, the emerging tribal scenario characteristically continues to manifest:

- increasing tribal alienation on account of slipping economic resources like land, forest, common property resources;
- displacement and dispossession of life-support systems;
- general apathy of official machinery;
- escalating atrocities, at times related to assertion of rights;
- growing clout of market forces; and,
- meagre advancement through planned development efforts.



6.65. The scenario calls for a major shift towards entrusting, enabling and empowering the tribal people to look after their own welfare and address issues of development through their own initiative. The extant constitutional-cum-legal-cum-policy framework has been enormously strengthened by the enactment of the Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA), a charter of autonomous tribal governance, embodying rights in favour of tribal communities coupled with respect for their ethos.

### Protective Measures

6.66. Despite protective legislation, incidents of atrocities on members of STs, including gang rape and murder, continue to take place in almost all parts of the country. During the period 2001 to 2005, the total recorded incidents of atrocities against STs were 30128.

6.67. Five States—Madhya Pradesh, Orissa, Rajasthan, Andhra Pradesh, and Chhattisgarh—contributed 72% of the total incidents of crimes against STs.

### Primitive Tribal Groups (PTGs)

6.68. There are 75 identified Primitive Tribal Groups (PTGs) spread across 17 States/UTs living in utmost destitute conditions. Some of them, in dire straits, also face the threat of extinction. In order to provide focused attention to the survival, protection and development of these PTGs, a special scheme launched in 1998–99 was implemented during the Tenth Plan to provide tribe-specific services and support including, inter-alia, housing, land, agricultural inputs, cattle rearing, health, nutritional services and income generating programmes.

### Tribal Sub Plan (TSP) and Special Central Assistance (SCA) to TSP

6.69. The TSP has been dealt with earlier in this chapter.

### Displacement, Rehabilitation, and Resettlement

6.70. Ancestral land, villages, habitations and environs belonging to the tribal people have been made available for various development projects as tribal areas possess 60–70% of the natural resources of the country. In such cases, though primary displacement appears small due to low population density, secondary displacement has been extensive, encompassing common property resources that provided supplemental livelihoods, particularly to those with low or no dependence on farming. Estimates

of STs displaced on account of acquisition over the past six decades vary between 8.5 and 10 million (roughly about 40% of all oustees). The widespread secondary displacement in the zone of influence has neither been measured nor was provided for, calling for an accurate verification of actual displacement both in terms of persons and resource loss. Cash compensation for land having been the practice as per the provisions of the Land Acquisition Act, 1894, oustees owning little land, such as wage-labour artisans, have hardly figured in the relief and rehabilitation packages. As a result, some groups have continued to suffer successive, multiple displacement.

6.71. Land (both owned by community and individuals) is the most important source of livelihood for the tribal people for agriculture (settled and shifting cultivation), horticulture, floriculture, forestry and animal husbandry. Several laws and regulations have been in place to prevent the alienation of tribal land and private grabbing of such land. A Report of the Ministry of Rural Development reveals in March 2005:

- 3.75 lakh cases of tribal land alienation have been registered covering 8.55 lakh acres of land;
- Out of the above, 1.62 lakh cases have been disposed of in favour of tribals covering a total area of 4.47 lakh acres;
- 1.55 lakh cases covering an area of 3.63 lakh acres have been rejected by the courts on various grounds; and
- 57521 cases involving 0.44 lakh acres of land are pending in various courts of the country.

6.72. Despite the fair rate of disposal, the other related issues are: (i) the time taken in disposal, (ii) the number of alienations for which STs found access to courts difficult, if not impossible and (iii) the physical possession of the land needs to be addressed comprehensively.

## PRESENT STATUS OF SCHEDULED TRIBES (STs)

### Educational Status of STs

6.73. Between 1961 and 2001, the literacy rate of STs increased 5.32 times, while that of total population increased 2.69 times. However, the gap between the literacy rates of STs and of the general population continued during the three decades between 1971 and 2001 almost at the same level of 17.70% and above, but with marginal variations (see Table 6.7).

**TABLE 6.7**  
**Literacy Rate of General Population and ST Population during 1961–2001**

Year	General			ST		
	Male	Female	Total	Male	Female	Total
1961	34.44	12.95	24.02	13.83	3.16	8.53
1971	39.45	18.70	29.45	17.63	4.85	11.30
1981	46.89	24.82	36.23	24.52	8.04	16.35
1991	64.1	39.3	52.2	40.65	18.19	29.60
2001	75.3	53.7	64.8	59.17	34.76	47.10

Source: Selected Educational Statistics 2004–05, Ministry of Human Resource Development.

**TABLE 6.8**  
**Dropout Rates, 2004–05—ST (Provisional)**

Year	Sex	Classes I to V			Classes I to VIII			Classes I to X		
		All	ST	Gap	All	ST	Gap	All	ST	Gap
2004–05	Boys	31.8	42.6	(–)10.7	50.4	65.0	(–)14.6	60.4	77.8	(–)17.4
	Girls	25.4	42.0	(–)16.6	51.3	67.1	(–)15.8	63.9	80.7	(–)16.8
	Total	29.0	42.3	(–)13.3	50.8	65.9	(–)15.1	61.9	79.0	(–)17.1

Source: Selected Educational Statistics 2004–05 of India, Ministry of Human Resource Development.

**TABLE 6.9**  
**Percentage of Working and Non-working Population (Total and STs)**

	Total Workers		Cultivators		Agricultural Labour		Household Industry		Other Workers		Non-Workers	
	All	ST	All	ST	All	ST	All	ST	All	ST	All	ST
India	39.10	49.06	31.65	44.71	26.55	36.85	4.22	2.13	37.59	16.31	60.90	50.94
Rural	41.75	50.37	40.24	47.07	33.05	38.37	3.92	2.08	22.80	12.48	58.25	49.63
Urban	32.75	34.56	2.81	6.55	4.71	12.38	5.22	2.87	87.27	78.20	67.75	65.44

Source: Census 2001, Registrar General of India.

6.74. The dropout rate is a critical indicator reflecting lack of educational development and inability of a given social group to complete a specific level of education. In the case of tribals, dropout rates are still very high –42.3% in Classes I to V; 65.9% in Classes I to VIII; and 79.0% in Classes I to X in 2004–05 (see Table 6.8).

6.75. About 4.34 lakh ST students were studying at different levels of higher education as on 30 September 2004.

## Economic Status

### OCCUPATIONAL CATEGORY

6.76. 81.56% of the total ST workers, both rural and urban taken together, are engaged in the primary sector,

of whom 44.71% are cultivators and 36.85% are agricultural labourers. The corresponding figures for all workers are 31.65% (cultivators) and 26.55% (agricultural labourers). This indicates that STs are essentially dependent on agriculture. (Table 6.9).

### AVAILABILITY OF BASIC AMENITIES AND INFRASTRUCTURE

6.77. Since most of the tribal habitations are located in isolated villages and hamlets in undulating plateau lands coinciding with forest areas, they have limited access to critical infrastructure facilities such as roads, communication, health, education, electricity, drinking water, and so on. This widens the gap between the quality of their life and the people in the country.

### ACCESS TO INCOME EARNING ASSETS—AGRICULTURAL LAND AND CAPITAL ASSETS

6.78. The STs are mainly landless poor forest dwellers and shifting cultivators, small farmers and pastoral and nomadic herders. The livelihood strategy would thus have to take into account the land structure, level of skills, socio-economic conditions, low level of HDI along with the physical infrastructure and natural resource base in the tribal areas.

### EXTENT OF POVERTY

6.79. The incidence of poverty amongst STs still continues to be very high at 47.30% in rural areas and 33.30% in urban areas, compared to 28.30% and 25.70%, respectively in respect of total population in 2004–05 (Table 6.10). A large number of STs who are living below the poverty line are landless, with no productive assets and with no access to sustainable employment and minimum wages. The women belonging to these groups suffer even more

because of the added disadvantage of being denied equal and minimum wages.

### HUMAN DEVELOPMENT INDEX (HDI) AND HUMAN POVERTY INDEX (HPI) FOR STS VIS-À-VIS NON-STs

6.80. As per the UNDP India Report 2007 on Human Poverty and Socially Disadvantaged Groups in India the HDI for STs at the all-India level is estimated at 0.270, which is lower than the HDI of SCs and non-SC/ST for the period 1980–2000. The HPI (explained earlier in this Chapter in the section on SCs) for STs is estimated at 47.79, which was higher than SCs and non-SC/ST for the period 1990–2000.

### REPRESENTATION IN GENERAL SERVICES

6.81. Table 6.11 shows a marked improvement in the representation of STs in various categories of services during 1994 and 2004, though they are yet not adequately represented in any of the four categories. The situation

**TABLE 6.10**  
**Population Living Below Poverty Line—ST (1993–94 and 2004–05)**

Category	1993–94		2004–05		Percentage Decrease (1993–94 to 2004–05)	
	Rural	Urban	Rural	Urban	Rural	Urban
	All*	37.30	32.40	28.30	25.70	(–) 9.00
STs	51.94	41.14	47.30	33.30	(–) 4.64	(–) 7.84
GAP	14.64	9.76	19.00	7.60	(+) 4.36	(–) 2.16

Note: \* includes ST population.

Source: Perspective Planning Division, Planning Commission, New Delhi.

**TABLE 6.11**  
**Percentage of ST Representation in Central Government Services in 1994, 1999, and 2004 (as on I.I.2004)**

Group	1994			1999			2004		
	All	STs	% All	All	STs	% of All	All	STs	% of All
A	59016	1727	2.92	93520	3172	3.39	80011	3311	4.1
B	103198	2902	2.81	104963	3512	2.35	135409	6,274	4.6
C	2381613	128228	5.38	2396426	145482	6.07	2040970	136630	6.7
D	1023285	62945	6.15	949353	66487	7.00	802116	53776	6.7
Total	3567112	195802	5.49	3544262	218653	6.17	3058506	199991	6.54

Source: Annual Reports, DoP&T, GoI.

is especially unsatisfactory with respect to the A and B categories.

### APPROACH IN ELEVENTH PLAN: A PARADIGM SHIFT

6.82. The Eleventh Plan will attempt a paradigm shift with respect to the overall empowerment of the tribal people, keeping the issues related to governance at the Centre. The operational imperatives of the Fifth Schedule, TSP 1976, PESA 1996, RFRA 2006; the desirability of a tribal-centric, tribal-participative and tribal-managed development process; and the need for a conscious departure from dependence on a largely under-effective official delivery system will be kept in view during this shift.

### Self Governance

6.83. Article 243G of the constitution and PESA Act make it incumbent that State legislations endow power and authority on Panchayats in Scheduled Areas enabling them to function as institutions of self-governance, preparing and implementing schemes of economic development and social justice. The Act confers abundant powers on the four tiers—Gram Sabha, Gram Panchayat (extant since decades), Intermediate Panchayat (development block tier) and Zilla Panchayat (ZP, district tier)—which need to be given effect in real operational terms. The vision of self-governance should be made functional forthwith in keeping with the spirit of PESA.

6.84. The Gram Sabha and the three other hierarchical Panchayats would require infrastructure, personnel, and financial resources to carry out their tasks. Apart from other sources, the State Finance Commissions need to provide the necessary devolutions for Scheduled and Tribal Areas, as per Article 243(I) of the Constitution. The Ministry of Tribal Affairs should ensure direct flow of funds to the ZPs of the districts in these areas, which should apportion them on an equitable basis to the three lower Panchayat bodies for various programmes.

6.85. The Fifth Schedule needs to be urgently operationalized. The Tribes Advisory Council (TAC) needs to be made proactive, functioning as an advisory body to the State Government in matters relating to STs. Second, it should function as a tier in between the ZPs in Scheduled Areas and the State Government. Its jurisdiction should be expanded to cover all matters relating to tribes people, and not limited, as of now, to

those which are referred to it by the Governor. The Ministry of Tribal Affairs is required to ensure regular and meaningful annual reports for the Governor as per para 3 of the Schedule. The Ministry should also examine the feasibility of insertion in the Fifth Schedule of a suitable provision to the effect that discretionary power may be exercised by the Governor on the advice of TAC. Lastly, the Scheduled Areas and Tribal Sub Plan areas should be made co-terminus, enabling protective and legal measures to be available in all TSP areas. To the extent possible, demarcation of Scheduled Areas should be notified down to the village level and other settlements.

### Educational Development

6.86. The following measures should be taken to accelerate the educational progress among the tribal population during the Eleventh Plan:

- In the deficit areas, the requisite number of primary schools needs to be established. Specific norms for middle schools and high schools for tribal areas will be evolved and deficiencies made up. All schools should have proper school buildings, hostels, water, toilet facilities (particularly for the girls' schools).
- Residential high schools for ST boys and girls will be set up at suitable places. At the Gram Panchayat level, ensuring girls' hostels will be attached to the existing primary/elementary schools that do not have hostels, wherever it is feasible to do so.
- Textbooks in tribal languages, especially at the primary level, will be produced to enable better comprehension by ST students in classes up to III. Side by side, adequate attention will be paid to the regional language so that children do not feel handicapped in higher classes.
- Efforts will be made to set up Industrial Training Institutes (ITIs) in the TSP areas. Other training centres will include community polytechnics, and undertaking rural/community development activities in their proximity, through application of science and technology.
- Timely distribution of fellowships, scholarships, textbooks, uniforms and school bags to students.
- The ICDS/Anganwadi schemes for tribal areas will be evaluated and shortcomings eliminated.
- A larger number of special coaching classes will be organized and the concerned institutions will be

suitably aided to enable ST students to compete in entry-level competitive examinations for professional courses.

- Adult education will be paid adequate attention.
- Steps will be taken to promote tribal languages, culture and heritage through adaptation of pedagogical methods, community participation in school management, and so on.
- There is a need to constitute a special committee composed of eminent sociologists, anthropologists, educationists, administrators, representatives of ST communities, and so on, to comprehensively assess the problems of ST education and make recommendations for implementation.

### Health

6.87. Efforts will be made to make available affordable and accountable primary health care facilities to STs and bridge the yawning gap in rural health care services through a cadre of ASHA and sectoral convergence of all the related sectors. Periodic reviews will be conducted on the delivery system and functioning of the health care institutions under three broad heads to optimize service in the tribal areas: (i) health infrastructure, (ii) manpower and (iii) facilities like medicines and equipment. Action will be taken to make up the shortfall in the different categories of health institutions, liberalization of norms, addressing infrastructural deficiencies, application of quality standards and revitalization of Health Care Systems, PHCs and CHCs (details are given in the chapter on Health).

### Economic Sectors and Livelihood Opportunities

6.88. An overwhelming proportion of STs depend on MFP, cottage and small industries, and horticulture for their livelihood.

6.89. Towards making the existing tribal livelihoods more productive, intensive efforts will be mounted to reconstitute, vitalize and expand the agricultural sector. Use of irrigation in agriculture with a preference for organic farming, will be a major step. Training centres will be opened to impart skills for diverse occupations to the tribals. Efforts will be made to promote horticulture, animal husbandry, dairy farming, sericulture, silviculture and cottage and small industry by extending the necessary technology and credit, marketing and entrepreneurial information, and training. TRIFED has to shoulder

the task of marketing to ensure remunerative prices to STs.

6.90. Lending by agencies like the State Governments, NSTDFC and TRIFED will be streamlined by better coordination at higher levels and efficient delivery at the field level. Large-Scale Multi Purpose Corporate Societies and such like cooperative institutions in tribal areas will be revived to make them representative, autonomous and professional.

### Tribal-Forest Interface

6.91. To enable the tribal primary producers, collectors and consumers to enter into transactions with primary cooperatives, the monopoly of corporations in certain items procured by them through contractors and middlemen will be replaced by alternative market mechanisms like minimum price support with institutional backing. It will be incumbent on the national-level organizations like TRIFED and NAFED to play their due role in marketing of the tribal MFP. Technological support for value addition will be extended to the corporations as well as other institutional and private processors. Skills like culling, barking, tapping of gums, storage of sal seeds and preparation of tamarind extracts, need to be upgraded through ITIs, TRIFED, NSTDFC and other training organizations.

6.92. As visualized under the National Forest Policy (NFP) Resolution (1988), tribal association with forestry will be maximized through tribal cooperatives and SHGs of tribal women. Specific schemes for quality improvement, higher productivity and regeneration of MFP species will be implemented to facilitate sustainability of this source of tribal livelihood. No outside labour will be engaged where tribal labour is available. Inter-disciplinary scientific studies to develop feasible agronomic strategies to make shifting cultivation ecologically compatible and economically viable will be undertaken. Special protection will be extended to Jhumias.

6.93. Rules under the Forest Rights Act, 2006 and PESA need to be framed expeditiously.

6.94. ST women will be recruited to the posts of forest guards, foresters and forest rangers, by suitably lowering the educational qualifications, if required. Such forest

guards and foresters will ensure safety of the women venturing in the forest areas for their livelihood needs.

### Tribal Sub-Plan and Tribal Policy

6.95. As has been explained in the earlier section on SCs, the TSP will be reformed to restore its dynamic character and make it an effective instrument for tribal development.

6.96. Once the National Tribal Policy is finalized, action will be taken to follow up on it.

### Tribal Unrest and Socio-Political Movements

6.97. Lack of socio-economic development, physical and economic exploitation, land alienation and other problems have led to a situation in which 75 predominantly tribal districts are affected by violence. The situation could be remedied by taking the following steps.

- Prevention of exploitation of tribals through strict penal action against errant moneylenders, businessmen, traders, middlemen, government servants and other exploiters. Effective implementation of the SC and ST (Prevention of Atrocities) Act, 1989.
- The practice of employment of contractors and middlemen by public sector organizations should be replaced by tribes-benefitting procedures.
- Amendment of instruments like Land Acquisition Act, 1894; Forest Act, 1927; Forest (Conservation) Act, 1980; Coal Bearing Areas (Acquisition and Development) Act, 1957; and National Mineral Policy, 1993 to eliminate iniquitous provisions ensuring protection of the interest of tribals.
- Displacement should be avoided in the first place. If inescapable, it should be the minimum possible; land for land will be the general rule. All those displaced need to be identified and rehabilitated suitably.
- Land reforms should be implemented stringently.
- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be implemented by the States in letter and spirit.
- Rigorous implementation of the provisions of laws combating land alienation and simultaneous stringent steps to restore the alienated land back to the people.

### Prevention of Land Alienation

6.98. Apart from rigorous implementation of laws for preventing alienation of tribal land and plugging loopholes in such laws, the following measures also need to be taken.

- Updating and computerization of land records in tribal areas
- Separate fast-track courts in the Scheduled Areas to deal with cases of tribal land alienation.
- Translation of anti-alienation laws into regional languages and, possibly, in tribal languages, for wide dissemination in tribal areas.
- A law for urban agglomerates in Scheduled Areas on the analogy of PESA Act, 1996 needs to be considered for enactment.

### Rehabilitation and Resettlement

6.99. The government has recently approved the National Rehabilitation and Resettlement Policy 2007, with the following objectives:

- Minimize displacement and promote non-displacing or least-displacement alternatives
- Ensure adequate and expeditious rehabilitation with participation of the Project Affected Families (PAFs)—through an independent authority
- Create obligations on the State to protect the rights of weaker sections, particularly SCs and STs
- Provide a better standard of living with sustainable income
- Integrate rehabilitation concerns into development planning and implementation.

Effective follow-up action will be taken to operationalize the policy.

### Infrastructure

6.100. Both the Fifth and Sixth Schedule Areas are considered backward, with poor infrastructure being a major handicap in improving the quality of life. The first proviso to Article 275(1) of the Constitution directs building infrastructure in such areas on par with that of the rest of the areas in the country by providing monies from the Consolidated Fund of India. Focused strategies for infrastructure development in sectors like education, drinking water, PDS, health, minor irrigation, roads, housing, tele-communications and electrification will be pursued.

### Primitive Tribal Groups (PTGs)

6.101. The strategy will be different for the two distinct groups of PTGs. The approach for heritage groups will place emphasis on conservation of the eco-system, lifestyle

and traditional skills along with an economic component. In the case of peripheral communities, the approach will be conservation of the eco-system, along with stress on economic programmes. For the purpose, the unique attributes of each group will determine specific treatment in planning and implementation.

6.102. A National Plan of Action for tribe-specific comprehensive conservation-cum-development needs to be formulated and executed.

6.103. Periodic reviews need to be conducted on the functioning of health care institutions in the tribal areas under three broad heads: (i) health infrastructure, (ii) manpower and (iii) facilities like medicines and equipment. The NRHM seeks to strengthen the public health delivery system at all levels.

6.104. The Department of Drinking Water Supply needs to cover all uncovered tribal areas before the end of the Plan period.

6.105. Urban tribal pockets and other tribal habitations need to be covered with sanitary latrines equipped with minimum basic facilities.

6.106. Many tribal areas receive adequate rainfall. Rain-water harvesting structures will be installed appropriately, particularly in schools and colleges.

6.107. TPDS will be revamped to ensure its outreach actually extends to tribal areas. The system should convey to them foodstuffs of their choice like coarse cereals, pulses, edible oils, and so on.

6.108. There is a need to ensure that the tribal villages are automatically electrified, taking recourse also to non-conventional sources of energy. Universal telecom voice coverage will be ensured in the tribal areas during the Plan period.

6.109. In 1975, guidelines to States/UTs were issued by the Centre for taking steps for discontinuation of commercial vending of liquor in tribal areas in pursuance of the Excise Policy, 1974. Although the States/UTs have accepted the guidelines, commercial vending of intoxicants continues in tribal areas and stringent measures are needed for its prevention.

### Data-based Planning

6.110. The issues in tribal development are complex and often not understood very well. Each of the nearly 300 main tribal groups differ from each other in customs, practices, traditions, faith, and language. As such, uniformity in socio-economic development plans for all tribal groups and programmes is not appropriate. Vast quantities of data, generated at various geographical sites across the country, lie scattered, unanalysed and unused. They need to be processed and stored meaningfully in a tribal data bank. The programmes and schedules of the 18 State Tribal Research Institutes (TRIs) in the country demand coordination and synergy. The issues of scheduling and de-scheduling of communities have assumed national importance and need to be appraised rationally and dispassionately. All these point to the need at the Central level for a National Institute of Tribal Affairs (NITA) to deliberate on these matters as also on a whole range of other issues. NITA will serve as a think tank to the Ministry of Tribal Affairs. Expeditious steps will be taken to set up NITA.

### OTHER BACKWARD CLASSES (OBCs)

#### POPULATION PROFILE

6.111. The Second Backward Classes Commission headed by B.P. Mandal (1980), basing its calculation on the Census of 1931, estimated that OBCs constituted 52% of the population. Recently, the NSSO 61st Round (July 2004 to June 2005) report on 'Employment and Unemployment Situation among Social Groups in India' gave an estimate of OBCs constituting 41% of the population. State-wise, OBC-wise data on population as well as vital and demographic variables are not available, which is the main hurdle in the formulation of policies and programmes for the development of the Other Backward Classes.

#### CONSTITUTIONAL SAFEGUARDS

6.112. Though the Constitution does not make specific provisions for OBCs, it empowers the State to make provisions for reservation in appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the Services under the State [Article 16(4)]. It also empowers the State to appoint a commission to investigate into the conditions of socially and educationally backward classes (Article 340). In pursuance of the Supreme

Court judgment, *Indira Sawhney and Others vs Union of India* (1992), the National Commission for Backward Classes was set up on 14 August 1993 under the National Commission for Backward Classes Act, 1993. Thus, after 46 years of independence of the country, the backward classes or OBCs got recognition as a separate group of people for the purpose of 27% reservation in services in the GoI and public sector undertakings. The States/UTs were free to decide the quantum of reservation based on the OBC population in their State/UT. All State Governments/UT Administrations were also directed by the Supreme Court of India in the same case to set up a permanent body and to draw up their own list and decide the quantum of reservation as per their demography.

#### DEVELOPMENT OF OTHER BACKWARD CLASSES: AN OVERVIEW

6.113. Specific programmes for the development of OBCs were initiated from the Eighth Plan. The National Backward Classes Finance and Development Corporation (NBCFDC) was set up in 1992 with an authorized share capital of Rs 200 crore. This was augmented to Rs 700 crore in the Ninth Plan. The objective of NBCFDC is to promote self-employment projects among the OBCs living below the poverty line.

6.114. During the Ninth Five Year Plan period, programmes such as Pre-Matric and Post-Matric scholarship schemes, construction of hostels and pre-examination coaching centres for OBCs were introduced. The Pre-examination Coaching Scheme for OBCs was merged with the umbrella Coaching and Allied Scheme for Weaker Sections including SCs, OBCs, and minorities from September 2001.

## TENTH PLAN ACHIEVEMENTS

### Educational Development

6.115. The salient features of schemes for educational development of OBCs being implemented through State Governments/UT Administrations and voluntary organizations (VOs) are given in the Table 6.12

### Economic Development

6.116. The NBCFDC provides financial assistance through SCAs nominated by the State Governments/UTs. NBCFDC assists a wide range of income generating activities which include agricultural and allied activities, artisan and traditional occupations, technical trades, small-scale and tiny industry, small business, transport services. Entrepreneurs with annual income less than double the poverty line are eligible for concessional finance. The GoI has made available Rs 448.35 crore to the Corporation as paid-up capital towards the authorized share capital of Rs 700.00 crore. The Corporation has disbursed Rs 1150.89 crore, covering 750432 beneficiaries (up to December 2006).

### Oversight Committee on Reservation in Higher Educational Institutions

6.117. In the last year of the Tenth Plan, the GoI decided on another way to introduce reservation for OBC students in institutes imparting higher education. The Oversight Committee under the Chairmanship of Veerapa Moily was constituted in 2006 to prepare a policy roadmap for implementation of reservation for OBCs in higher educational institutions. The matter, however, is sub-judice.

**TABLE 6.12**  
**Salient Features of Schemes for Other Backward Classes (OBCs)**

S. No.	Name of the Scheme	Class	Parents annual income does not exceed (in Rs)	Funding pattern (%)	Tenth Plan	
					Financial achievement (Rs in crore)	Physical achievement
1.	Pre-Matric Scholarships	I to X	44500	50:50	96.60	56.53 lakh
2.	Post-Matric Scholarships	XI onwards	44500	100	126.76	26.97 lakh
3.	Construction of hostels for Boys and Girls	—	—	50:50 to States, 100% to UTs	70.05	94606
4.	Assistance to VOs	—	—	90:10	25.35	760 NGOs

Source: Ministry of Social Justice and Empowerment.



## Present Status of Target Groups

### RESERVATION IN SERVICES

6.118. Despite 27% posts being reserved for OBCs from 1993, Table 6.13 shows that the overall representation of OBCs in government service is abysmally low, just 4.53%. Only 3.9, 2.3 and 5.2%, respectively of Group A, B, and C posts are occupied by OBC persons. This is indeed a matter of concern.

**TABLE 6.13**  
Percentage of OBC Representation in Central Government Services (as on 1.1.2004)

Group	Total	OBCs	% of total
A	80011	3090	3.9
B	135409	3123	2.3
C	2040970	106309	5.2
D	802116	26158	3.3
Total	3058506	138680	4.53

Source: Annual Report, DoP&T, GoI, 2006–07.

### ELEVENTH PLAN APPROACH: THE WAY AHEAD

6.119. The Eleventh Plan will address the issues for development of OBCs through a three-pronged strategy: of (i) educational development, (ii) economic development and (iii) social development.

### EDUCATIONAL DEVELOPMENT

6.120. While the universalization of primary education through the SSA (dealt with in greater detail in the chapter on Education) is poised to take care of OBC children, their continued education through the secondary and higher education stages must be ensured. The Eleventh Five Year Plan shall give priority to designing and implementing of schemes to provide the necessary facilities to OBC students to get better education at all levels. Reservation for OBC students in all the Central and Centrally aided schools/colleges/professional institutes needs to be ensured.

6.121. Both Pre-Matric and Post-Matric Scholarship schemes should be revised by enhancing the income ceiling for eligibility and rate of scholarship and maintenance allowance, as these have not been revised since 1998.

6.122. The performance of the existing coaching scheme for SCs and OBCs is not good and the scheme needs to be revised to attract good, professionally reputed coaching institutions.

6.123. Hostels for OBC boys and girls are constructed by the State Governments and UT Administrations. However, where hostel facilities are not available for them, they should be provided facilities in general hostels by earmarking a certain percentage of seats for them.

6.124. National Overseas Scholarship Scheme for OBCs should also be formulated similar to those for SCs and STs so that OBC students can also go abroad for better educational and professional courses which are generally not available in the country

### Economic Development

6.125. In economic and occupational terms, the backward classes comprise of peasants, landless labourers, artisanal communities such as handloom weavers, carpenters, metal workers, stone cutters and fishermen, and those who provide various traditional services. The plight of these categories of the backward classes has worsened in recent years due to extensive mechanization and market competition. There is a need to ensure upgradation of skills of such categories so that they can compete better in the market. Credit flow must be unhampered and easy to access, especially in occupations which have been the traditional forte of OBCs, for example, weaving, pottery, quarrying, cultivation of fruits and vegetable, and so on.

6.126. A suitable marketing strategy needs to be worked out on the lines of TRIFED to market the products manufactured by small artisans.

6.127. The strength and capability of NBCFDC should be augmented.

### Social Development

6.128. Like SCs, STs, Minorities, and Persons with Disabilities, there is an imperative need to carry out a census of OBCs now or in the next census in 2011. In the absence of exact assessment of their population size; literacy rate; employment status in government, private and unorganized sectors; basic civic amenities; health status; poverty status; and human development and HPIs; it is very difficult to formulate realistic policies and programmes for the development of OBCs.

6.129. Since some backward class people are also working in occupations which are hazardous, the government should identify occupational diseases prevalent among

them and take steps to prevent and treat such diseases. The *Report on Conditions of Work and Promotion of Livelihood in the Unorganized Sector* by Arjun K. Sengupta et al., National Commission of Enterprises in the Unorganized Sectors, New Delhi (August 2007) deals with the issue of workers in the unorganized sector. (This aspect has been discussed in detail in the chapter on Labour and Employment).

6.130. The income ceiling of Rs 2.5 lakh per annum for purposes of obtaining OBC certificates may be periodically reviewed to make it more realistic.

### DE-NOTIFIED, NOMADIC, AND SEMI-NOMADIC TRIBES

6.131. De-notified, Nomadic and Semi-Nomadic Tribes and Banjara communities constitute the most vulnerable and disadvantaged sections of the Indian society. Some of these communities were identified as 'Criminal Tribes' (which included both castes as well as tribes) in pre-Independence India. Although the Criminal Tribes Act, 1871 was repealed soon after Independence, persons belonging to these communities are still viewed by society as habitual criminals.

6.132. After the repeal of the Criminal Tribes Act, 1924 in 1952, the government was keen to undertake schemes that would accelerate the process of integration of the de-notified tribes into mainstream society. A small beginning was made in the First Five Year Plan in this direction. In the Fifth Five Year Plan, all welfare schemes for de-notified tribes were transferred to the State Plans. Unfortunately, these groups still continued to be marginalized and their specific needs even today are neither adequately understood nor catered to. In order to acquire a comprehensive picture of the situation of these communities and to suggest action for their socio-economic development, a National Commission for De-notified Tribes, Nomadic Tribes and Semi-Nomadic Tribes was set up in 2005. In the Eleventh Plan, special attention will be accorded to the well-being of these groups through steps in pursuance of the recommendations of the Commission.

6.133. One particular area where attention must be paid is towards elementary education of the children of Nomadic, and Semi-Nomadic and De-notified tribes. Due to their family's mobility from one place to another, children in such tribes remain deprived educationally.

Mobile schools of high quality should be set up to meet their specific needs.

6.134. Nomadic, Semi-Nomadic and De-notified tribes reside in secluded places. Arrangement should be made to extend the benefit of the flagship programmes to these areas on a priority basis.

### MINORITIES

6.135. In pursuance of the Constitutional provisions, the government is committed to the well being of the minorities. Such measures are not limited to protecting and promoting their language, religion and culture, but also in making special efforts for their socio-economic development and mainstreaming. As per the provisions under the National Commission of Minorities Act, 1992, five religious communities including Muslims, Christians, Sikhs, Buddhists, and Zoroastrians (Parsis) have been notified as minorities. Among the minorities, Muslims, especially Muslim women, need special attention since relative to other communities they have remained socially, educationally and economically backward.

6.136. According to the Census of 2001, 18.4% of our population belongs to Minority communities. Muslims constitute 13.4%, Christians 2.3%, Sikhs 1.9%, Buddhists 0.8% and Parsis 0.07% of the country's total population. In absolute numbers, Muslims (nearly 140 million) account for 72.8% of the total minority population of 189.5 million.

6.137. The distribution of minority population indicates that Muslims are in majority in the Union Territory of Lakshadweep and in the State of Jammu and Kashmir. In six States the proportion of Muslims to total population is above the national percentage of 13.4%—Assam (30.9%), West Bengal (25.2%), Kerala (24.6%), Uttar Pradesh (18.55%), Bihar (16.5%) and Jharkhand (13.8%). In absolute numbers, Uttar Pradesh (30.7 million), West Bengal (20.2 million), Bihar (13.7 million), and Maharashtra (10.70 million) have the largest Muslim population. The highest percentages of Christians to total population are in Nagaland (90%), Mizoram (87%), and Meghalaya (70.03%). There are also substantial numbers of Christians in Kerala, Tamil Nadu, Andhra Pradesh, Jharkhand, Orissa, Maharashtra, and Karnataka. Sikhs constitute 60% of the population of Punjab. Buddhists are categorized into traditional and neo-Buddhists.

Traditional Buddhists are, by and large, from tribal communities inhabiting the hilly areas of Ladakh, Himachal Pradesh, West Bengal, Sikkim, Assam and the North Eastern States. The highest percentage of Buddhists is in Sikkim (28.1%) followed by Arunachal Pradesh (13%). In absolute numbers, Maharashtra reported 58.38 lakh Buddhists, the highest in the country. Parsis number just 69000, and reside mostly in Maharashtra.

### CONSTITUTIONAL SAFEGUARDS

6.138. Following are some of the special constitutional safeguards for minorities:

6.140. Till the Seventh Five Year Plan, however, minorities continued to get the developmental benefits along with OBCs. In 1989, an autonomous, non-political, non-profit organization—the Maulana Azad Education Foundation (MAEF)—was set up to promote education among educationally backward Muslims in general, and Muslim girls in particular. With a corpus of Rs 100 crore, it undertook activities like establishing and expanding schools/residential schools/ colleges/hostels; purchasing laboratory equipment and furniture; setting up/strengthening vocational/technical training centre/institutes; providing scholarships to meritorious girl

#### Box 6.4

##### Important Constitutional Provisions for Minorities

Article 15	Prohibition of discrimination on grounds of religion
Article 16	Equality of opportunity in matters of public employment
Article 25	Freedom of conscience and free profession, practice and propagation of religion.
Article 26	Freedom to manage religious affairs
Articles 29	Right to conserve language, script, and culture
Article 30	Right to establish and administer educational institutions
Article 347	Recognition of language
Article 350	Redressal of grievances to any authority in the government in any of the languages used in the States/ Union Territories
Article 350(A)	Instruction through mother tongue at the primary stage of education
Article 350(B)	Investigate all matters relating to linguistic minorities

### DEVELOPMENT OF MINORITIES: AN OVERVIEW

6.139. As the well-being of minorities has been a deep concern of the government, a HLC to study their conditions was set up in 1980 under the chairmanship of Gopal Singh. The Committee, in its report, concluded that the poor among the Muslims could not avail opportunities in education, employment, and economic activities because of isolation and various historical factors. In view of this, in 1983, the Prime Minister's 15-Point Programme was launched to provide a sense of security to minority communities and ensure their rapid socio-economic development. This Programme was based on a three-pronged approach: (i) to tackle the situation arising out of communal riots; (ii) to ensure adequate representation of the minority communities in employment under the Central and State Governments as well as PSUs; and (iii) other measures, such as ensuring flow of benefits to the minority communities under various development programmes, maintenance and development of religious places, Wakf properties and redressal of grievances of the minorities.

students; opening Maulana Azad Sadbhawana Kendras; (since discontinued) and announcing Maulana Abul Kalam Azad Literacy Awards. In the final year of the Tenth Plan the corpus of Rs 100 crore with the Foundation was doubled. The interest accrued on the corpus was used for implementation of its educational schemes. It sanctioned a total grant-in-aid of Rs 91.81 crore to 702 NGOs/local bodies located in 20 States and two UTs for construction/expansion of schools/colleges/girls hostels/polytechnics/ and purchase of equipments/machinery/furniture up to December 2006. The Foundation also distributed scholarships amounting to Rs 6.98 crore to 6986 girl students in 29 States/UTs between 2003–04 and 2005–06.

6.141. During the Eighth Plan (1992–97), two exclusive schemes were introduced for their educational and economic development. In 1994, the National Minorities Development and Finance Corporation (NMDFC) was set up with an authorized share capital of Rs 500 crore. The Ninth Plan (1997–2002) saw a new Central Sector

Scheme for Pre-examination Coaching for Weaker Sections based on economic criteria. It assisted voluntary organizations to run coaching centres to prepare minorities for various competitive and professional examinations. As few organizations came forward, this scheme, along with the Pre-examination Coaching Scheme for OBCs, was merged with the existing Centrally Sponsored Coaching Scheme for Scheduled Castes in 2001. It was renamed Coaching and Allied Scheme for Weaker Sections including SCs, OBCs, and minorities. During the Tenth Five Year Plan, the authorized share capital for NMDFC was raised to Rs 650 crore. Of this, the share of the GoI is Rs 422.50 crore (65%) and that of the State Governments is Rs 169 crore (26%). The remaining Rs 58.50 crore (9%) is to be contributed by institutions/individuals interested in the well being and empowerment of minorities. The task of NMDFC is to extend loans at concessional rates to enable economically weak minorities to take up income generating activities. Since its inception, NMDFC has given financial assistance of Rs 827 crore to 2.16 lakh beneficiaries spread over 25 States and three UTs.

6.142. Despite these schemes, till the end of 2005–06, the Ministry of Social Justice and Empowerment continued to be the implementing agency for programmes for educational development and economic empowerment

of minorities. Then, on 29 January 2006, a separate Ministry of Minority Affairs (MMA) was created. Meanwhile, the GoI also constituted a HLC under the Chairmanship of Justice (Retd.) Rajinder Sachar to prepare a report on the social, economic and educational status of the Muslim community. In its comprehensive Report, the Committee observed that Muslims have been left behind the growth and development process. It recommended setting up of an autonomous Assessment Monitoring Authority, creation of a National Data Bank and constitution of an Equal Opportunity Commission (EOC). It also suggested provision of hostel facilities at reasonable cost, inclusion of minority aspects in the general curriculum for teacher training, setting up and strengthening of State-run Urdu medium schools, linkage of madarasas to Higher Secondary Boards, recognition of degrees of madarasas for eligibility in competitive examinations, and provision of financial and other support to madarasas.

#### PRIME MINISTER'S NEW 15-POINT PROGRAMME

6.143. The Prime Minister's New 15-Point Programme was launched in 2006 aimed at ensuring the well being, protection and development of minorities. While the 15-Point Programme of the 1983 centred on communal riots, representation of minorities in services and ensuring flow of benefits to individual beneficiaries, the

#### Box 6.5

#### Condition of Muslims as Reflected by the Sachar Committee Report

- Muslims have the highest rate of stunting and second-highest rate of underweight children.
- 25% Muslim children in the 6–14 years age group have either never attended school or have dropped out.
- Only one out of every 25 undergraduate and 50 postgraduate students in premier colleges is a Muslim.
- NCAER figures show that only about 4% of all Muslim students are enrolled in madarasas.
- Workforce participation rate among Muslim women is only 25%. In rural areas, 29% of Muslim women participate in the workforce as compared to 70% of Hindu women.
- 61% of the total Muslim workers are self-employed as against 55% of Hindu workers. 73% of Muslim women are self-employed as compared to 60% for Hindus.
- Only about 27% of the Muslim workers in urban areas are engaged in regular work as compared to 40% SC/ST, 36% OBC and 49% Hindu upper caste workers.
- Less than 24% of Muslim regular workers are employed in the public sector or in government jobs as compared to 39% regular SC/ST workers, 37% Hindu upper caste and 30% OBC workers.
- The share of Muslim male workers engaged in street vending (especially without any fixed location) is 12% as against the national average of less than 8%.
- The share of Muslims in Public Order and Safety Activities at the Central Government level is only about 6%. Hindu upper caste workers have a share of 42% and both SCs/STs and OBCs have 23% share each.
- The share of Muslims among defence workers is only 4%.
- Compared to other regular workers, a much larger proportion of Muslim regular workers have no written contract (73%, against 52% for Hindu upper caste and 63% each for Hindu-OBCs and SCs/STs) and no social security benefit (71% against the national average of 55%).

focus of the new Programme is to make certain that benefits of various schemes/programmes flow equitably to the minorities. For this, it quantifies a certain portion of development projects to be established in areas with a concentration of minorities. It stipulates that wherever possible, 15% of targets and outlays under various schemes will be earmarked for the minorities. All Central ministries/departments, State Governments/UT Administrations have been advised to implement this new Programme. Five Central Ministries—HRD, Labour and Employment, Housing and Poverty Alleviation, RD and Women and Child Development—have been given responsibilities in their respective areas. The procedure for monitoring the outcomes of these multiple initiatives is clearly laid out. It will be done on a half-yearly basis by the Committee of Secretaries (COS) and the Cabinet. MMA is the nodal Ministry for coordinating and monitoring the implementation. The key elements of the monitoring will be: (i) focus on meeting financial targets; (ii) target oriented monitoring based on a plan of achievable outcomes under each programme and Ministry; (iii) outcome targets to be staggered and time-bound, and monitored accordingly; (iv) regular evaluation studies conducted by both MMA and by external expert evaluators; (v) space for concurrent evaluation through existing, identified institutions in key target States; (vi) focus on regular and accurate information flow from District to State to Centre; (vii) focus on smooth fiscal flow and regular identification of bottlenecks; and (viii) flexibility for review and revision of programme designs.

## PRESENT STATUS OF MINORITIES

### Education

6.144. Table 6.14 shows that literacy rates among Muslims, both men and women, have been the lowest among all the religious minorities.

**TABLE 6.14**  
Literacy Rate among all Religious Communities in 2001

Communities	Male	Female	Total
All religious communities	75.38	53.7	64.8
Muslims	67.6	50.1	59.1
Christians	84.4	76.2	80.3
Sikhs	75.2	63.1	69.4
Buddhists	83.1	61.7	72.7

Source: The First Report on Religion data 'Census of India 2001', p.p. XXI, XIII.

6.145. The Sachar Committee Report found that enrolment of children aged 6–14 years at the all-India level was 85.3% for all communities. The enrolment figures for Muslims was lower (81.8%) than the national average as well as relative to 'All others' (89.9%), but higher than SCs/STs (79.3%). The gap between Muslims and other SRCs increases as the level of education advances.

6.146. The literacy rate for Muslim girls is particularly low. This can be attributed to a number of reasons. Many parents do not send their girls to school as they feel unsafe, especially in view of the growing communalism. Further, as the dependency ratio for the young is high among Muslims, older siblings often have to stay home and provide care. Given the high levels of poverty and self-employment, children also provide much needed labour.

6.147. While it is a misconception that most Muslim children go to madaras, a large proportion of parents do want their children to receive some form of religious education in addition to the general curriculum. For this, it is vital to ensure that the school timings do not clash with those of madaras and *maktabs*. Kerala has successfully managed to do this and hence has a high literacy rate among Muslims.

6.148. Finally, many Muslim girls and boys are first-generation learners. Like the children belonging to SC/ST communities, they need support and grooming. This, combined with the presence of women teachers who are non-partisan, will go a long way in checking dropout rates among Muslims.

**TABLE 6.15**  
Children Currently Studying—Proportion of Population by Age Group, 2004–05

Age groups In Years	Hindus			Muslims	Other Minorities
	General	OBCs	SCs/STs		
6–13	19.1 (17.3)	36.1 (35.5)	25.7 (27.4)	14.00 (15.1)	5.1 (4.8)
14–15	24.3 (19.9)	36.1 (35.2)	21.4 (25.2)	12.20 (14.5)	6.0 (5.3)
16–17	28.9 (21.1)	33.7 (35.0)	20.2 (24.7)	10.70 (14.0)	6.3 (5.1)
18–22	34.0 (20.8)	30.5 (34.4)	17.7 (25.5)	10.29 (13.9)	7.6 (5.5)
23 & above	35.6 (23.9)	29.2 (35.1)	18.3 (24.1)	7.40 (10.9)	9.5 (5.9)

Note: 1. Figures in parenthesis report the share of each socio-religious group in the total population of that age group.

Source: Estimated from NSSO (2004–05) 61st Round, Schedule 10.

**Box 6.6****Prime Minister's New 15-Point Programme for the Welfare of Minorities****(A) Enhancing Opportunities for Education**

- **Equitable availability of ICDS services:** A certain percentage of ICDS projects and Anganwadi Centres to be located in blocks/villages with a substantial population of minority communities; equitable availability of benefits to be ensured.
- **Improving access to school education:** A certain percentage of all schools under the Sarva Shiksha Abhiyan, the Kasturba Gandhi Balika Vidyalaya Scheme, and other similar government schemes will be located in villages/localities having a substantial minority population.
- **Greater resources for teaching Urdu:** Recruitment and posting of Urdu language teachers in primary and upper primary schools.
- **Modernizing Madarsa Education:** Strengthening the Central Plan Scheme of Area-Intensive and Madarsa Modernization Programme to provide basic educational infrastructure in areas of concentration of educationally backward minorities.
- **Scholarships for meritorious students from minority communities:** Formulation of schemes for pre-matric and post-matric scholarships for students from minority communities.
- **Improving educational infrastructure through the Maulana Azad Education Foundation (MAEF):** To expand the activities of MAEF more effectively.

**(B) Equitable Share in Economic Activities and Employment**

- **Self-employment and wage employment for the poor:** A certain percentage of the physical and financial targets under some schemes, for example, the SGSY, SJSRY, Sampurna Grameen Rozgar Yojana (SGRY), will be earmarked for beneficiaries belonging to the minority communities and living below the poverty line in rural areas. Simultaneously, a certain percentage of the allocation will be earmarked for the creation of infrastructure in such villages which have a substantial population of minorities.
- **Upgradation of skills through technical training:** A certain proportion of all new ITIs will be located in areas predominantly inhabited by minority communities and a proportion of existing ITIs for upgradation to 'Centres of Excellence' will be selected on the same basis.
- **Enhanced credit support for economic activities:** To strengthen the National Minorities Development and Finance Corporation (NMDFC) by providing it greater equity support to enable it to fully achieve its objectives. An appropriate percentage of the priority sector lending in all categories to be targeted for the minority communities.
- **Recruitment to State and Central services:** In the recruitment of police personnel, Central and State Governments will be advised to give special consideration to minorities. The composition of selection should have Minorities' representation. Employment opportunities to be provided in the Railways, nationalized banks and PSEs. An exclusive scheme is to be launched to provide coaching to minority candidates.

**(C) Improving the Conditions of Living of Minorities**

- **Equitable share in rural housing scheme:** This is sought to be achieved through the Indira Awaas Yojana (IAY) for poor beneficiaries from minority communities in rural areas.
- **Improvement in condition of slums inhabited by minority communities:** Ensuring provision of physical amenities and basic services to be equitably extended under the schemes of the Integrated Housing and Slum Development Programme and JNNURM to the minority communities and to cities/slums with minority concentrations.

**(D) Prevention and Control of Communal Riots**

- Prevention of communal incidents
- Prosecution for communal offences
- Rehabilitation of victims of communal riots

## Economic Development

### WORK PARTICIPATION RATE (WPR)

6.149. The WPR for all religious communities was 39.1% in the Census of 2001. Buddhists had 40.6% WPR, Christians 39.7% and Muslims 31.3% (being the lowest) (Table 6.16).

**TABLE 6.16**  
Work Participation Rate by Male and Female  
Population in Minority Communities

Communities	Male	Female	Total
All religious communities	51.7	25.6	39.1
Muslims	47.5	14.1	31.3
Christians	50.7	28.7	39.7
Sikhs	53.3	20.2	37.7
Buddhists	49.2	31.7	40.6

Sources: *Census of India 2001: The First Report on Religion Data.*

### OCCUPATIONAL CATEGORY

6.150. Table 6.17 shows that Muslims and Buddhists both comprise 20% each of the cultivator category; Sikhs were highest at 32.4% followed by the Christians with 29.2%.

6.151. The Sachar Committee Report clearly shows that due to limited land ownership, most Muslims are engaged in non-agricultural occupations. They are usually merchants, shopkeepers, sales persons, shop assistants, tailors, dress makers, transport equipment operators, tobacco preparers, tobacco product makers, spinners, weavers, knitters, dyers, machinery fitters, assemblers and precision instrument makers. Being self-employed and often in the unorganized sector, they lack any kind of

social security. Further, Muslims have traditionally been engaged in skilled occupations like weaving, spinning, artisanship and tailoring. A large proportion of them are also street vendors. As these are professions which have suffered maximum reversals due to globalization, more and more Muslim families are being left without a source of livelihood. The self-employed, especially entrepreneurs, are unable to get credit to expand and run their micro and small enterprises. This is leading to increasing frustration and discontent.

### HEALTH

6.152. Census data indicates that Muslims have the highest sex-ratio of any social group in the country (950/1000).<sup>1</sup> However, among other minorities like the Sikhs and Jains, who incidentally have better female literacy figures, the sex-ratio is alarming (786 and 870 for Sikhs and Jains, respectively).

6.153. Muslims have the second lowest infant and under-5 mortality rate of any SRC in India. Infant mortality is lower for Muslims than Hindus—59 against 77 for every 1,000 births in 1998–99 (NFHS-2). Muslims are, however, worse off than most other groups in terms of child under-nutrition; for instance, Muslim children suffer from the highest rate of stunting and the second highest rate of under-weight children among all social groups.<sup>2</sup> This can be primarily attributed to lack of access to PHCs and ICDS centres.

6.154. Violence against minority communities is on the rise worldwide. India too has seen various instances of communal violence which has led to trauma and growing fear and suspicion in the minds of people. This—combined

**TABLE 6.17**  
Distribution of Category of Workers

Category	All religious Communities	Muslims	Christians	Sikhs	Buddhists
Total	100.0	100.0	100.0	100.0	100.0
Cultivators	31.7	20.7	29.2	32.4	20.4
Agricultural labourers	26.5	22.0	15.3	16.8	37.6
Households Industry Workers	4.2	8.1	2.7	3.4	2.9
Other Workers	37.6	49.1	52.8	47.3	39.2

Sources: *Census of India 2001: The First Report on Religion Data.*

<sup>1</sup>*Census of India 2001: The First Report on Religion Data.*

<sup>2</sup>Sachar Committee, 2006

with economic and social backwardness—has resulted in the alienation of large segments of the population, many of whom belong to the minority communities. Provision of adequate social and physical infrastructure, economic opportunities, justice and counselling services are thus vital.

### ELEVENTH FIVE YEAR PLAN: A WAY AHEAD

6.155. Though previous Five Year Plans have attempted to focus on weaker sections of the society, they have failed to include many groups, especially Muslims, into the development net. The Eleventh Plan will therefore accord highest priority to the development of innovative programmes, expansion of existing schemes, implementation and monitoring of all initiatives for the minorities by making adequate budgetary allocations at every level of governance. The Eleventh Plan agenda for empowerment of the minorities will focus on:

- Access, retention and achievement in primary, elementary and higher education, with particular emphasis on the education of the minority, especially Muslim, girl child.
- Enhanced access to credit and subsidy for self-employment, export promotion of traditional crafts, upgradation of technical skills and provision of vocational training with forward linkages in terms of employment, that is, equal opportunity in public and private sector employment.
- Access to government schemes and programmes, including schemes aimed at poverty alleviation; provision of physical infrastructure such as housing; provision of civic amenities and health infrastructure in Muslim-dominated village clusters and urban neighbourhoods as envisaged under the PM's New 15-Point Programme Multi-sectoral Plan for Minority Concentration Districts and 338 towns with substantial Minority population.
- Create a national data bank to collect data on various aspects of socio-religious communities through comprehensive surveys on education, health, access to government, access to justice, situation of girls and women; conduct qualitative studies to understand the persisting bottlenecks in access to a wide range of government services and programmes, to understand patterns of discrimination and its socio-economic implications; to suggest long- and short-term remedies; and to understand regional variations in the

condition of the minorities from the perspective of plan interventions.

- In-depth evaluation and performance reviews of a host of institutional mechanisms including the NMDFC and the MAEF to improve their efficacy and suggest other institutional innovations.
- Establish measurable, monitorable outcomes and set up national-level monitoring mechanisms for all aspects of plans, programmes and schemes intended to benefit the minorities, particularly poor Muslims.

6.156. In implementing this agenda, the Plan will recognize the heterogeneous nature of different minority groups and the need for common, as well as targeted, interventions based on differential situations.

### Education and Social Security

6.157. The government is committed to mainstreaming minorities in the process of economic growth. The SSA will ensure universal coverage for the children of educationally backward sections, with special focus on Muslim girls. Specific SSA components like the centrally funded KBGVs will be set up for minority communities. At the same time, all State plans to access SSA funds will be reviewed to ensure that Minority children have equal space to participate in the State's school system. As SSA only covers children up to the elementary (Class VIII) level, measures will be undertaken to ensure that minority children have equal access to education up to senior secondary level (Class XII). The Eleventh Plan will also look at issues like recruitment of female teachers, provision of amenities and transportation to reach schools, and setting up of girls' hostels and girls' schools.

6.158. In pursuance of the guidelines issued under the Prime Minister's New 15-Point Programme, scholarship schemes, namely the Pre-Matric, Post-Matric, and Merit- and Means-based schemes for minority students will be formulated and implemented in the Eleventh Plan. The objective of Pre-Matric Scholarships will be to provide encouragement to students of the minority communities from Classes I to X for general and/or technical and vocational courses. Similarly, the Post-Matric Scholarship scheme will cover minority students studying in Classes XI and XII for general as well as technical and vocational courses. The major thrust will be on education of girls. Merit- and Means-based scholarship scheme will provide scholarships to meritorious students from poor families



to pursue technical and professional courses. In order to ensure effective implementation of the New 15-Point Programme in letter and spirit, rigorous and continuous monitoring will be ensured. All State Governments will be required to submit half-yearly reports on their plans and achievements in reaching minority populations for elementary, secondary and senior secondary education. These reports will be made available in the public domain. Besides, periodic reviews will also be undertaken by the CoS and the Cabinet.

6.159. Concerted efforts will be made to ensure that universally available services under ICDS, NHRM, and so on, reach the localities where the minority communities live. Minority leaders will be roped in to communicate public health messages and dispel existing myths. As Muslims are mostly self-employed and work in professions such as weaving, spinning and dyeing, which lead to occupational ailments, appropriate health services will be made available. State governments will be required to report their achievements in terms of minority access to these services to the Planning Commission.

### Employment and Skill Development

6.160. A majority of the Muslim workforce is self-employed and engages in artisanal work. These occupations have been under stress due to the radical changes in the economy. Developmental projects have also led to loss of livelihoods for street vendors, most of whom are Muslims. As a result, deskilling is taking place and artisans and vendors are being forced to move to unskilled, informal work. The Eleventh Plan recognizes the need to provide support to these artisanal groups not just for ensuring inclusive growth and development of the minorities, but for promotion of exports, employment and GDP as well. Consequently, schemes of the Ministries of Textiles; Micro, Small and Medium Enterprises; Agro and Rural Industries; and Food Processing Industries, among others, will be revised to accommodate the interests of minority community workers who are in distress. Provision of inputs including credit, design and marketing support will be undertaken. At the same time social security measures like health and life insurance will be provided.

6.161. Priority sector lending: Access of Muslims to bank credit, including priority sector advances, is low and inadequate. To empower Muslims economically it is necessary to support self-employed persons by ensuring

smooth flow of credit to them. During the Eleventh Plan period, all public sector banks shall have targets for priority sector advances to members of the minorities, particularly Muslims. Steps shall be introduced to create awareness about various credit schemes, organize entrepreneurial development programmes, and bring transparency in reporting on credit availability.

### New Scheme for Development of Minority Concentrated Areas

6.162. As many pockets with substantial minority populations continue to lack adequate physical and social infrastructure, the Eleventh Plan will adopt an area-based approach. According to the Census of 2001, 1228 community development blocks (out of a total of 6406 in the country), 338 Class I towns and 156 districts have minority populations of 25% and above. Both infrastructure development (physical, electricity, roads, that is, development of amenities) and beneficiary-oriented programmes will be launched in these areas.

6.163. To ensure comprehensive development through a multi-sectoral approach, 90 Minority Concentration Districts (MCDs) covering 34% of the minority population in the country, have been identified on the basis of either human development indicators or basic amenities indicators. The human indicators include: (i) literacy rate of minorities; (ii) female literacy rate; (iii) WPR; and (iv) female work participation. The basic amenities indicators include: (i) percentage of households with pucca walls; (ii) percentage of households with safe drinking water facilities; (iii) percentage of households with electricity; and (iv) percentage of households with W/C latrines. The identification of the MCDs was also based upon certain population norms:

- Districts where the minority population is at least 25% of the total population were identified in 29 States/UTs.
- Districts having a minority population exceeding five lakh where the percentage of minority population is between 20 and 25% were identified in 29 States/UTs.
- Six minority-concentrated States/UTs (Jammu and Kashmir, Meghalaya, Mizoram, Nagaland, Punjab, and Lakshadweep), and districts having 15% minority population other than the minorities (for example, other than Muslims in Jammu and Kashmir; other than Christians in Meghalaya, Mizoram, and Nagaland, Punjab, and Lakshadweep).

6.164. The preparation and implementation of area/problem-specific special developmental plans for these MCDs are already in progress. The effort is to improve the socio-economic conditions through provision of better infrastructure for education, health, sanitation, pucca housing, safe drinking water, promotion of income generating opportunities, skill development and marketing support.

6.165. Furthermore, about 35.7% Muslims live in urban areas and 36.92% of them are below the poverty line. During the Tenth Plan, an Inter-Ministerial Task Force was constituted under the chairmanship of Bhalachandra Mungekar to identify towns/cities that have substantial concentration of the minority population and require special attention, and to formulate the approach for a multi-sectoral plan for provision of basic civic amenities within those areas. The Task Force was also asked to suggest special schemes for funding specific projects which were not covered under existing schemes and programmes.

6.166. The Task Force reiterated the uneven distribution of minorities in the country and revealed that in six States/UTs—Jammu and Kashmir, Meghalaya, Mizoram, Nagaland, Punjab, and Lakshadweep—at least one of the minorities is in majority. Using socio-economic indicators similar to those used for MCDs, 338 towns/cities in which the minority communities constituted more than 25% of the population or more, were identified. Of these 338 towns/cities, 251 have emerged as being relatively backward and in need of urgent attention. Programmes for the provision and development of amenities and infrastructure should immediately be taken up in these towns and cities.

6.167. The endeavour in the Eleventh Plan will be to ensure the availability of all essential amenities in not just the identified MCDs and towns/cities, but in all the other minority localities as well. The area-based approach is not an attempt at ghettoization; it is a response to the existing ghettoization and location of the minorities. It is an attempt to provide each and every citizen of the country access to all amenities, irrespective of their religion or location.

### Security and Freedom from Suspicion

6.168. In keeping with the Common Minimum Programme's (CMP) commitment of security and justice for minorities, efforts will be made to carry out interventions

which ensure prevention of communal violence. A comprehensive communal violence legislation will be enacted and justice and reparations will be ensured for survivors of communal crimes. Minorities, especially Muslims, are under-represented in Public Security and Defence institutions. This will be remedied. Workshops will be carried out to sensitize law enforcers and ensure that youth are not harassed simply because they profess a certain faith. The government will partner with CSOs to spread the message of communal harmony and dispel suspicions, fears and biases. The government will, through the Ministry of Information and Broadcasting, ensure that no community is depicted in a manner that creates, propagates or nurtures biases and suspicions.

### LINGUISTIC MINORITIES

6.169. Linguistic minorities living in relative social and economic backwardness and in need of preservation of their culture and language will be paid special attention. Protective and promotive measures will be undertaken to ensure their overall protection, well being and development in the Eleventh Plan.

### MONITORING MECHANISMS

6.170. If the Eleventh Plan agenda for inclusive growth has to succeed, then monitoring of all existing and new interventions is imperative. One important activity of the MMA in the Eleventh Plan will be to ensure that the minorities get their due share in the developmental schemes of various ministries and departments at the Central as well as State level. The Ministry will have to advise other concerned Ministries and Departments and monitor the implementation of the PM's 15-Point Programme. This will entail collection of information at regular intervals, its analysis, preparation of various reports and providing suitable directions. To assist the Ministry, the government will examine the feasibility of a separate committee comprising of government as well as civil society representatives, to undertake a six-monthly review of all programmes deemed to be targeting the minorities. The idea of setting up a National Resource Group for Minority Affairs to strengthen specific components of the Plan based upon responses from the field and design special inputs, programmes or projects for particular social sub-groups will also be considered. Finally, efforts will be made to establish a Grievance Redressal Cell in the MMA as part of monitoring efforts to allow complaints of non-compliance, interference and non-implementation to be addressed.

## OTHER VULNERABLE GROUPS

6.171. This section deals with certain other groups that suffer social and economic handicaps which must be addressed to ensure to them equality of economic opportunity and equal access to services by the State. Steps are also needed to prevent social discrimination against them. These groups include persons with disabilities (orthopaedic, visual, hearing, speech and mental disabilities), older persons, victims of substance and alcohol abuse, and so on.

## EMPOWERING PERSONS WITH DISABILITIES

### Statistics

6.172. The Census 2001 and NSSO 2002 figures for persons with disabilities are 2.13 and 1.8%, respectively but these figures could be an underestimation. According to the United Nations, the proportion of disabled people among the total population in the Asia-Pacific region varies from 0.7% (Cook Islands) to 20% (Australia and New Zealand). In our immediate neighbourhood, Bangladesh reports 5.6%; China 6.3%, whereas Sri Lanka reports 7%. The percentage of disabled people among the total population of any country would depend on the definition of 'disability' in that particular country as well as the enumeration methodology and its accuracy. In India, the definition of disability used in the Census is very different from that in the Persons with Disabilities Act, 1995. There is an urgent need for both a credible definition and a system of data collection relating to persons with disabilities. It can be reasonably assumed that persons with disabilities constitute anywhere between 5 to 6% of our total population.

### Legal And Policy Framework

6.173. Article 14 of the Constitution guarantees that no person will be denied equality before the law. The State is directed to provide relief and help to the disabled and the unemployable, vide Entry 9 in List II of the Seventh Schedule. Article 41 states that the State shall, within the limits of its economic capacity and development, make effective provisions for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement. Additionally, there are four legislations specifically directed towards the protection, welfare, rehabilitation and development of people with disabilities—the Mental Health Act, 1987; Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation)

Act, 1995; the National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability Act, 1999 and the Rehabilitation Council of India Act, 1992. In addition to the legal framework, a comprehensive National Policy for Persons with Disabilities has been announced in February 2006.

### Review of Policies and Programmes

6.174. From the Ninth Plan there was a slight shift from a welfare-based approach for the disabled to a rights-based approach. A comprehensive legislation, the Persons with Disabilities Act, was enacted in 1995. The government passed another landmark legislation in 1999, the National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability Act. Both these enabling legislations cover a wide range of activities, which include issuance of disability certificates and prevention and early detection of disabilities; promoting the integration of disabled students in mainstream schools and removal of architectural barriers from schools, colleges, and universities; providing incentives to private sector employers to ensure that persons with disabilities constitute at least 5% of their workforce; and framing a scheme for payment of an unemployment allowance to those disabled people who have been registered with a Special Employment Exchange for over two years but could not be placed in any gainful employment.

6.175. The Tenth Plan took serious note of the slow pace of implementation of the enabling legislations and advocated a multi-sectoral and multi-collaborative approach to make the provisions of the Persons with Disabilities Act more effective. This would be possible only through clear-cut delineation of responsibilities to the concerned Ministries/Departments. It was however recognized that the Ministry of Social Justice and Empowerment, being the nodal Ministry, should play a lead role in ensuring the objectives of the Act. The concerned Ministries/Departments were expected to formulate detailed rules and guidelines for effective implementation of the Act, besides monitoring/reporting the progress on a regular basis. To ensure adequate financial support to efforts to support the disabled, the Tenth Plan advocated the introduction of a 'Component Plan for the Disabled' in the budget of various Ministries/Departments.

6.176. As per the provisions of the Persons with Disabilities Act, 1995, 3% reservation in employment is being provided to the disabled people. For vocational training,

852 government-run and 105 privately run Industrial Training Institutes (ITIs) provide 3% reservation in seats for persons with disabilities. The SGSY, Indira Awaas Yojana (IAY), National Rural Employment Guarantee Act (NREGA) and Sampoorna Grameen Rozgar Yojana (SGRY) provide for 3% reservation/benefits to disabled people. The National Handicapped and Finance Development Corporation provide loans on concessional terms to self-employed persons with disabilities. Aids and appliances are provided to the disabled under the Scheme of Assistance to Disabled Persons for Purchase/Fitting of Aids/Appliances (ADIP). To enhance the economic potential of disabled people, by the end of the Tenth Plan, 128 District Disability Centres have been made operational. The National Trust for Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability has, so far, registered 731 NGOs. Under the scheme to promote voluntary action for persons with disabilities during 2005–2006, 1533 VOs were supported financially for providing services to 1.8 lakh disabled persons. The government has been encouraging education among persons with disabilities. Five hundred scholarships were provided every year during the Tenth Plan for higher and professional courses. The Ministry of Health and Family Welfare has initiated a number of programmes for the prevention and reduction of the incidence of various disabilities.

6.177. The National Policy for Persons with Disabilities was adopted in 2006. It recognizes that disabled people are valuable human resources for the country. The policy focuses primarily on prevention of disability, early detection and appropriate interventions, physical and economic rehabilitation measures, inclusive education, employment in the public as well as private sector and self employment, creation of a barrier-free environment and development of rehabilitation professionals.

6.178. The United Nations Convention on the Rights of People with Disabilities (UNCRPD) was ratified by India in October 2007. It enjoins upon India to ensure that all the rights enshrined in the Constitution, the current legislations, as well as UNCRPD, are speedily and effectively operationalized.

#### INITIATIVES DURING THE ELEVENTH FIVE YEAR PLAN

6.179. India being a signatory of UNCRPD, it is now obligatory upon us to incorporate the essence of the convention in our planning, implementation, monitoring,

and review processes. The eight basic principles of the Convention are: (i) respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons with disabilities; (ii) non-discrimination; (iii) full and effective participation and inclusion in society; (iv) respect for difference and acceptance of disabled people as part of human diversity and humanity; (v) equality of opportunity; (vi) accessibility; (vii) equality between men and women; and (viii) respect for the evolving capacities of children with disabilities and respect for their right to preserve their identities. There is an urgent need to review all the four disability legislations and to amend them suitably to bring them in consonance with UNCRPD.

6.180. In the Eleventh Plan, a firm four-pronged approach is necessary to: (i) delineate clear-cut responsibilities between the concerned ministries/departments; (ii) concerned ministries/departments to formulate detailed rules and guidelines within six months of approval of the Eleventh Plan; (iii) ensure that each concerned ministry/department shall reserve not less than 3% of their annual outlay for the benefit of disabled persons as enjoined in the Persons with Disabilities Act, 1995; (iv) set up monitoring mechanisms at various levels and develop a review system so that its progress can be monitored on a regular and continuing basis.

6.181. The 'Disability Division' of the Ministry of Social Justice and Empowerment will be strengthened by converting it into a separate department, so that it can liaise effectively with all the other concerned Ministries/Departments and fulfil its responsibilities towards the disabled.

6.182. Chapter XII of the Persons with Disabilities Act, 1995 mandates the appointment of a Chief Commissioner for Persons with Disabilities (CCPD) at the Central level and Commissioners at the State level to look into complaints of deprivation of rights of persons with disabilities and non-implementation of laws, rules, regulations and executive orders. The CCPD is also expected to coordinate the work of the Commissioners and monitor the utilization of funds. Thus, for the functioning of the CCPD and of the Commissioners leaves much to be desired. During the first year of the Eleventh Plan, steps will be taken to strengthen these offices with professional and budgetary support so that they can function meaningfully. The CCPD, as well as the Commissioners at the State level,

will be granted more autonomy. Their recommendations should be made binding on the Centre as well as on State and local level authorities. They should ensure that various Ministries/Departments effectively perform their functions in relation to people with disabilities.

6.183. Since the National Institutes play a pivotal role in the empowerment of people with disabilities, it is essential that these Institutes be strengthened as Centres of Excellence on par with international standards for undertaking the following tasks: (i) training of professionals, (ii) capacity building and (iii) technology transfer and research. The director of the National Institute for the Hearing Handicapped (NIHH) should be well versed in sign language or should acquire this skill upon his posting so as to be able to make direct contact with deaf persons and establish rapport with them. To promote greater accessibility and a barrier-free environment to the disabled, a new National Institute of Universal Design will be set up in the Eleventh Plan. All National Institutes should undertake activities of community outreach to meet the needs of the neglected and disabled people in slums, tribal belts, semi-urban and rural areas.

6.184. To enhance the economic potential of persons with disabilities, 199 DDRCs for comprehensive service in community setting have been sanctioned, but only 128 were made operational by the end of the Tenth Plan. The Eleventh Plan will ensure that the remaining 71 centres are also operationalized. Also, a concerted effort will be made to extend the scheme to another 101 districts so that at least 300 districts are covered by the end of the Plan period. In the selection of the additional 101 districts, special care will be taken to cover backward areas where the prevalence of disability is higher and where services as well as facilities for them are inferior to those in other parts of the country.

6.185. The Scheme of ADIP, launched in 1981, was supposed to provide durable, sophisticated and scientifically manufactured, modern, standard aids and appliances to people with disabilities in order to promote their physical, social and psychological rehabilitation. However, due to the lack of awareness, very few disabled people are able to benefit from this Scheme. The Eleventh Plan will endeavour to create awareness about ADIP and other such schemes. This is one scheme which must be universalized. Any disabled person should be able to approach

the district magistrate and derive benefit from her/him. The income ceiling for availing assistance will be raised to Rs 10000 per month. Moreover, the ceiling for purchase/fitting of aids and appliances should also be enhanced to Rs 25000 per month. For manufacturing these aids and appliances, there is need to enhance the production capacity and ALIMCO should not be a monopoly supplier. The approach should be to provide the best possible assistive devices by encouraging multiple manufacturers, and even through imports. The Eleventh Plan shall allocate adequate funds for strengthening ADIP.

6.186. The efforts of the Eleventh Plan will be to ensure that all Commercial Banks, Regional Rural Banks (RRBs) and Cooperatives should provide loans to disabled people on concessional terms for undertaking self-employment ventures. Such credit should be included in the Priority Sector and NABARD should ensure appropriate re-financing mechanisms.

6.187. The following innovative steps will also be taken during the Eleventh Plan:

- The Health Ministry will ensure that before the end of the Eleventh Plan, every disabled person possesses a disability certificate. This would help such a person to prove her/his identity as a person with disability for the purpose of availing the benefits for which he/she is eligible. A disabled person should be able to get his/her disability certificate within 30 days of making an application. The responsibility to ensure this will rest with the concerned district magistrate.
- The Eleventh Plan shall support the vigorous implementation of the Comprehensive Action Plan for the Inclusive Education of Children and Youth with Disabilities, as announced by the HRD Minister in 2005. A commitment has been given in Parliament that education would be made disabled friendly by 2020. If this commitment is to be fulfilled, certain urgent steps are necessary, including the setting up of disability units in the University Grants Commission (UGC), All India Council For Technical Education (AICTE), National Council of Educational Research and Training (NCERT), Kendriya Vidyalaya Sangathan (KVS), and all other apex education bodies. The scholarships provided by the Central Government and stipends for pre-matric education, mostly provided by the States, should be made equivalent to similar scholarships and

stipends given to students belonging to the SCs and STs. The scheme for postgraduate and professional education initiated in the Tenth Plan should be strengthened and expanded in the Eleventh Plan. Further, deserving persons with disabilities should be supported for training/education abroad, especially in studies relating to disability.

- Persons with disability can and should become productive contributors in the development process of the country. At present, the identification of jobs appropriate for them is done in an ad hoc and arbitrary manner. There is a need to have this task performed by a professional group with the involvement of Disabled Peoples' Organizations. The backlog of vacancies for persons with disability continues to be large, both at the Centre and in the States. This backlog should be cleared in a time-bound manner and in a campaign mode. Similarly, a suitable scheme to provide incentives to promote employment for disabled people in the private sector should be put in place as enjoined in Section 41 of The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.
- In the Eleventh Plan, a concerted effort should be made to make all public buildings and facilities such as schools, hospitals, public transport, and so on, compliant with the requirements of a barrier-free built environment. Towards this end, the building bye-laws, municipal and civic regulations, relevant codes for construction and design should incorporate the requirements of a barrier-free environment. Similarly, all shops/malls and similar places open to public, should be insisted upon to provide the facilities required for the disabled. In the Eleventh Plan, a National Centre to facilitate and support the development of universal design and barrier-free built environment will be established.
- Detection of mental disabilities and disorders is critical to addressing mental well being through both preventive and curative measures. It is vital to recognize that physical disabilities usually coexist with, and lead to, mental disturbance and ill health. The Eleventh Plan will emphasize and adopt a multi-pronged, cross-sectoral approach to identifying, preventing, managing, treating and rehabilitating persons with mental disabilities. There will be a focus on awareness drives, defining the various kinds of disabilities, generating valid census data, inclusion in all areas of development, and community based treatment and rehabilitation

approaches. Efforts will be made to strengthen and develop trained human resource to address the growing magnitude of mental disabilities. There will be emphasis on research to generate relevant data and culturally valid rehabilitative measures.

- The needs of persons with hearing and/or speech impairment have been relatively neglected so far. In the Eleventh Plan, a determined effort will be made on mainstreaming this segment. The interventions planned will provide access to information in all its forms. A large number of sign language interpreters need to be developed for hearing impaired people to access health, employment and legal services. Subtitling and captioning of all recorded information and similar support services is also essential. Therefore, during the Eleventh Plan period a Sign Language Research and Training Centre will be established which will be devoted to the development and promotion of sign language and training of teachers and interpreters. A National Captioning Centre will also be set up to provide sub-titling and captioning services. At least one residential special school up to Class XII and one Degree college for the deaf in every zone should be established to promote their educational development.

## OLDER PERSONS AND OTHER SOCIAL DEFENCE GROUPS

### OLDER PERSONS

6.188. India has the second largest population of older (60+) persons in the world. The number of older persons in the population is expected to increase from 71 million in 2001 to 173 million in 2026. A majority (80%) of the elderly population in India is in the rural areas, thus making service delivery to them a challenge, and there is a large number of 80+ persons in the country.

### Initiatives for Older Persons during the Tenth Plan

6.189. As contemplated in the National Policy on Older Persons (NPOP), a National Council for Older Persons (reconstituted in 2005) has been set up to advise and aid the government on policies and programmes for older persons and to provide a feedback to the government on the implementation of NPOP.

6.190. The Maintenance and Welfare of Parents and Senior Citizens Bill, 2007 which has been presented to the Parliament, stipulates construction of at least one old

age home in each district of the country to accommodate deserving and destitute senior citizens.

6.191. This intended Act will make the process for claiming maintenance simpler, speedier and less expensive. Further, the legislation would also ensure adequate medical facilities to older persons and protection of their life and property.

6.192. The programmes/schemes/incentives for older persons include income tax rebate, higher rates of interest in saving schemes, 30% concessions in all railway travel and 50% discount on basic fare for all domestic flights in the economy class in Indian Airlines, Jet Airways and others.

**TABLE 6.18**  
**Percentage of Elderly Persons to Total Population**

Year	Total population (in million)	% of elderly persons
2001	70.69	6.90
2006	83.58	7.50
2011	98.47	8.30
2016	118.10	9.30
2021	143.24	10.70
2026	84.62	12.40

6.193. The Ministry of Social Justice and Empowerment implements an Integrated Programme for Older Persons through VOs. Under this scheme, VOs are given 90% grant for running old age homes, day care centres and mobile medical care units. Another scheme for construction of old age homes is being implemented through local SHGs, PRIs and VOs.

### The Way Ahead

6.194. The Eleventh Plan proposes to further the right-based approach and also focus on bridging the gap between rural and urban areas.

6.195. A National Association for older persons, as per NPOP, will be set up. Protection of life and property by utilizing the services of Panchayats/Senior Citizens' Associations and other community-based groups and sensitizing and reorienting the law enforcement machinery to the vulnerability and special protection needs of older persons will be taken up in the Eleventh Plan.

6.196. The National Old Age Pension schemes will now be extended to all BPL persons above the age of 60 years.

A pension of Rs 200 per month will be provided and States will be requested to add another Rs 200 to this scheme.

### OTHER SOCIAL DEFENCE GROUPS

6.197. The problems of substance (drug) and alcohol abuse have existed for a long time, although their nature and extent varies according to the prevailing social and economic conditions. There is, however, a dearth of reliable information to establish the exact magnitude of the problem and the size of the affected group. The National Survey on the Extent, Trends and Pattern of Drug Abuse in the Country, undertaken in collaboration with the United Nations Office on Drug and Crime (UNODC) and International Labour Organization (ILO), indicated that there are 732 lakh drug users and dependent users in the country. Going by estimation in India, there are approximately 625 lakh alcohol users, 87 lakh cannabis users and 20 lakh opiate users. In some parts, especially the north-east, drug addiction and incidence of HIV/AIDS have assumed alarming proportions.

6.198. A number of schemes for prevention, treatment and rehabilitation in respect of alcohol and drug abuse are being implemented in partnership with voluntary organizations. Eight Regional Resource and Training Centres have been established for training NGOs working for drug abuse prevention and also to undertake advocacy, research and monitoring of drug abuse programmes. Initiatives have been taken up jointly by the Ministry of Social Justice and Empowerment and National Aids Control Organization for the integration of HIV/AIDS prevention programmes with substance abuse prevention. Programmes are also being implemented through the UNODC prevention of spread of HIV.

### The Way Ahead

6.199. In the Eleventh Plan, thrust will be given to the prevention of drug abuse by ensuring effective involvement of parents, community, schools and colleges. Efforts will also be made to involve the corporate sector, civil society and other institutions like religious and elected bodies, to prevent drug abuse.

6.200. Keeping in view the large number of drug users estimated (130 lakh) in the country, the available number of treatment centres is evidently inadequate. There is a need to have a National Policy on Drug Abuse Prevention and Rehabilitation, which will provide the basic framework

for reduction of demand and supply of alcohol and drugs and prevention, treatment and rehabilitation of the addicts by involving all concerned agencies.

6.201. The National Institute of Social Defence (NISD) is the nodal training and research institute in the field of social defence. The ongoing programmes of the Institute such as collection of statistics, documentation research and programmes for training pertaining to prevention of drug abuse and care of older persons, will continue in the Eleventh Plan. The training programme should be organized both in-house as well as in collaboration with other organizations working in related areas.

### BEGGARS

6.202. Beggars are found everywhere in the country, especially in urban centres, at religious places, traffic signals, and other places. They include several categories of persons such as homeless, abandoned, displaced, children, disabled, destitutes and eunuchs. Begging is a complex social problem and needs legislative, reformatory and rehabilitative interventions. It is often organized and institutionalized as an economic activity. The States are responsible for taking the necessary preventive and rehabilitative steps. Neither is there any Central Act on prevention of begging and rehabilitation of beggars, nor a clear policy on how the problem is to be tackled. There is, therefore, a need to address the problem in a holistic manner at the national level.

6.203. The issues relating to juvenile and youth delinquents continue to be a matter of concern for the government. These groups need to be carefully reformed and mainstreamed through proper social rehabilitation. Similarly, certain categories of women such as Dalit women, widows and *devdasis* are especially disadvantaged and vulnerable, and require focused attention. They have been appropriately discussed in the chapter on Women's Agency and Child's Rights.

### ROLE OF VOLUNTARY ORGANIZATIONS (VOs)

6.204. Recognizing the complementary and supplementary role played by VOs, the government has been extending financial and other support to them, especially to organizations which have an all-India base, to undertake activities aimed at socio-economic development and empowerment of the disadvantaged and the under-privileged sections such as SCs, STs, OBCs, minorities,

disabled, older people and other social defence groups. Such VOs, especially those managed by the target group itself, will continue particularly in areas/regions which have not yet been covered.

6.205. Non-governmental organizations of repute should be invited to play the role of designated agents/informants and identify cases of untouchability, atrocities and other forms of discrimination based on caste, creed, religion, and so on. They need to be encouraged to assist the implementing agency in investigation and trial and also safeguarding against various pressures aimed at nullifying the impact of legal proceedings.

6.206. Voluntary action acquires greater significance in the tribal context in view of the virtual absence of tribes peoples' own VOs, that is, VOs as we understand the term, though they have their own traditional organizations. Their inability to negotiate with the formal administrative system, limited worldview and low level of awareness and literacy add to the need for bridges with the other worlds. Voluntary groups will be encouraged to train tribal peoples' own organizations to make them capable of articulating their own needs and advocating their rights.

6.207. While encouraging voluntary action, a system of accountability would have to be established for the NGOs so as to ensure effective delivery of services. The corporate sector and public sector undertakings could be encouraged for productive interventions for social welfare problems in their own industries.

### RESEARCH, MONITORING, AND EVALUATION

6.208. Development programmes for the welfare of socially disadvantaged groups and marginalized sections of society have been in operation from the First Five Year Plan onwards. Whether the benefits of these programmes reach the targeted persons, needs to be monitored on a periodical basis at the district, State and national levels. Continuous monitoring and evaluation would justify the continuation of programmes. The Ministries of Social Justice and Empowerment, Tribal Affairs and Minorities have developed mechanisms of monitoring and evaluating their programmes. These Ministries also sponsor research studies by independent agencies such as university departments/reputed research bodies/VOs. Based on the findings of such studies, efforts are made to improve upon the strategy for implementation of schemes. During the



Eleventh Five Year Plan, particular stress will be laid on ensuring that such evaluation does not become routine, and results in actual improvements in the schemes.

### NEED FOR DATABASE

6.209. The Census of India and NSSO are the two agencies which make available data on various aspects of social groups. Data on SCs, STs, Minorities and Persons with Disabilities have been made available by these agencies. Census data are not available for OBCs and persons who are victims of drug addiction and alcoholism. The Eleventh Plan will address the need for survey of such category of persons for proper formulation of policies and programmes towards their welfare and rehabilitation. The Eleventh Plan will also address the issue for adopting a uniform definition for identification of disabled persons by both the agencies.

### AFFIRMATIVE LEGISLATION ACTION

6.210. The prevailing gaps in socio-economic status between SCs, STs and other disadvantaged groups vis-à-vis the rest of the population need to be speedily bridged by taking innovative measures. As a first step, there is a need to assess the gaps between SCs and other social groups with respect to various parameters of growth and development and construct an index of development/vulnerability/deprivation on the basis of which policy and programme interventions can be formulated and administered. State governments, Central ministries/departments and public authorities are to be made

accountable for purposeful and affirmative action within their jurisdiction to bring about overall development of the people belonging to SCs/STs and to bridge the gaps between their and other social groups. The proposed legislation should cover assessing the gaps between SCs/STs and other social groups, constructing suitable indices and providing appropriate intervention in the areas of education, higher education including vocational training and employment for bridging the gaps on a lifetime capacity building basis. The legislation should also provide for appropriate penalty for non-performance of the obligations created by it. It should be adopted by all the States to implement it in its letter and spirit. Action may be taken on the lines of the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995

### PLAN OUTLAY

6.211. In the Eleventh Plan, a tentative outlay of Rs 13043 crore has been earmarked for the Ministry of Social Justice and Empowerment for the development of SCs, OBCs and other vulnerable groups. Similarly, tentative allocation of Rs 3709 crore and Rs 7000 crore have been made to the Ministry of Tribal Affairs and MMA, respectively for the welfare and development of STs and minorities. The allocation indicated for the Ministry of Tribal Affairs does not include SCA to TSP and grant-in-aid under Article 275(1) of the Constitution. In addition to this, social welfare programmes receive Plan financial support from the State sector also.

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## Spatial Development and Regional Imbalances

### 7.1 REGIONAL IMBALANCES

#### INTRODUCTION

7.1.1. As the Eleventh Plan commences, a widespread perception all over the country is that disparities among States, and regions within States, between urban and rural areas, and between various sections of the community, have been steadily increasing in the past few years and that the gains of the rapid growth witnessed in this period have not reached all parts of the country and all sections of the people in an equitable manner. That this perception is well founded is borne by available statistics on a number of indicators. Though there is some evidence to indicate a movement towards convergence on human development indicators across States, one of the reasons for this convergence could also be that most human development indicators have a value cap. However, widening income differentials between more developed and relatively poorer States is a matter of serious concern. The objective of the Eleventh Plan is 'faster and more inclusive growth' and each chapter has dealt with what the Plan proposes to do to achieve this objective, insofar as the sector dealt with by that chapter is concerned. In this chapter, the attempt is to look at broad aggregates in order to understand the dimensions of the issue and to highlight some of the methods by which the problem is being redressed.

#### STATE-WISE GROWTH RATES

7.1.2. The Tenth Plan was the first Plan that specified targets for the growth rate for each State, in consultation with the State Governments. Through the Eighth and Ninth Plan periods, the rate of growth in the better-off States (that is, States with per capita income above the national average) had been generally higher than those of the States with a lower than average per capita income. This had led to gradually increasing differences in per capita income among the States. The Tenth Five Year Plan targeted a growth rate of 8% per annum for the country as a whole; however, the Gross State Domestic Product (GSDP) growth rate targets for different States adopted by the Tenth Plan were both higher and lower than this average.

7.1.3. The latest available figures show the following growth rates as having been achieved by various States during the Tenth Plan period as compared to the targets. For obtaining a longer term perspective, growth rates achieved in the Eighth and Ninth Plans are also given in Table 7.1.1.

7.1.4. The Eleventh Plan has continued the Tenth Plan initiative of working out GSDP growth targets for States. Consistent with the country's overall GDP growth target

**TABLE 7.1.1**  
**Growth Rates in State Domestic Product in Different States**

S.No.	State/UT	Eighth Plan	Ninth Plan	(% per annum)	
				Tenth Plan Target	Actuals #
Non Special Category States					
1	Andhra Pradesh	5.4	4.6	6.8	6.7
2	Bihar	2.2	4.0	6.2	4.7
3	Goa	8.9	5.5	9.2	7.8
4	Gujarat	12.4	4.0	10.2	10.6
5	Haryana	5.2	4.1	7.9	7.6
6	Karnataka	6.2	7.2	10.1	7.0
7	Kerala	6.5	5.7	6.5	7.2
8	Madhya Pradesh	6.3	4.0	7.0	4.3
9	Maharashtra	8.9	4.7	7.4	7.9
10	Orissa	2.1	5.1	6.2	9.1
11	Punjab	4.7	4.4	6.4	4.5
12	Rajasthan	7.5	3.5	8.3	5.0
13	Tamil Nadu	7.0	6.3	8.0	6.6
14	Uttar Pradesh	4.9	4.0	7.6	4.6
15	West Bengal	6.3	6.9	8.8	6.1
16	Chhattisgarh	NA	NA	6.1	9.2
17	Jharkhand	NA	NA	6.9	11.1
Special Category States					
1	Arunachal Pradesh	5.1	4.4	8.0	5.8
2	Assam	2.8	2.1	6.2	6.1
3	Himachal Pradesh	6.5	5.9	8.9	7.3
4	Jammu & Kashmir	5.0	5.2	6.3	5.2
5	Manipur	4.6	6.4	6.5	11.6
6	Meghalaya	3.8	6.2	6.3	5.6
7	Mizoram	NA	NA	5.3	5.9
8	Nagaland	8.9	2.6	5.6	8.3
9	Sikkim	5.3	8.3	7.9	7.7
10	Tripura	6.6	7.4	7.3	8.7
11	Uttaranchal (now Uttarakhand)	NA	NA	6.8	8.8
<b>All India</b>					

*Note:* # Average of 2002–03 to 2005–06 for all States except J&K, Mizoram, Nagaland (2002–03 to 2004–05) and Tripura (2002–03 to 2003–04).

*Source:* CSO (base 1999–2000 constant price) as on 31.8.2007.

of 9% per annum for the Eleventh Plan, the following growth targets for each State, broken up into targets for each sector, have been worked out (Table 7.1.2). For the agricultural sector, the State-wise projection has been made on the basis of a rigorous panel data regression model. The growth target for Industry and Services sectors has been made by linearly projecting the past contribution of each State to the overall growth performance of these two sectors at the national level.

7.1.5. The Eleventh Five Year Plan has attempted in a similar manner to break down the monitorable targets at the

national level into State-level targets. These targets will help to focus attention on the extent to which progress has been achieved in the relatively backward States and districts.

7.1.6. Table 7.1.3 presents summary indicators of disparity in per capita income across States in India. This does not consider the intra-State distribution of income. The ratio of minimum to maximum per capita GSDP increased for three years from 21.56% in 2001–02 to 22.71% in 2003–04 and then decreased in 2004–05 to 20.11%. The weighted coefficient of variation also shows an increase over the years. The Gini Coefficient indicated in column

**TABLE 7.1.2**  
**State-wise Growth Target for the Eleventh Five Year Plan**

		(Annual Average in %)			
States/UTs	State-wise Growth Target			GSDP Growth	
	Agriculture	Industry	Services		
Non Special Category States					
1	Andhra Pradesh	4.0	12.0	10.4	9.5
2	Bihar	7.0	8.0	8.0	7.6
3	Chhattisgarh	1.7	12.0	8.0	8.6
4	Goa	7.7	15.7	9.0	12.1
5	Gujarat	5.5	14.0	10.5	11.2
6	Haryana	5.3	14.0	12.0	11.0
7	Jharkhand	6.3	12.0	8.0	9.8
8	Karnataka	5.4	12.5	12.0	11.2
9	Kerala	0.3	9.0	11.0	9.5
10	Madhya Pradesh	4.4	8.0	7.0	6.7
11	Maharashtra	4.4	8.0	10.2	9.1
12	Orissa	3.0	12.0	9.6	8.8
13	Punjab	2.4	8.0	7.4	5.9
14	Rajasthan	3.5	8.0	8.9	7.4
15	Tamil Nadu	4.7	8.0	9.4	8.5
16	Uttar Pradesh	3.0	8.0	7.1	6.1
17	West Bengal	4.0	11.0	11.0	9.7
Special Category States					
1	Arunachal Pradesh	2.8	8.0	7.2	6.4
2	Assam	2.0	8.0	8.0	6.5
3	Himachal Pradesh	3.0	14.5	7.5	9.5
4	Jammu and Kashmir	4.3	9.8	6.4	6.4
5	Manipur	1.2	8.0	7.0	5.9
6	Meghalaya	4.7	8.0	7.9	7.3
7	Mizoram	1.6	8.0	8.0	7.1
8	Nagaland	8.4	8.0	10.0	9.3
9	Sikkim	3.3	8.0	7.2	6.7
10	Tripura	1.4	8.0	8.0	6.9
11	Uttarakhand	3.0	12.0	11.0	9.9

Source: Planning Commission.

(6) of Table 7.1.3 reflects the income inequality across the States, which increases from 0.2078 in 2001–02 to 0.2409 in 2004–05. In other words, the income inequality across States is worsening.

7.1.7. However, we also need to reckon with the fact that the slower growing States cannot catch up with the faster growing States within a short time period of five years. What this Plan seeks to do is to target the slower growing States, and the backward areas within these States, for higher levels of public investment that will enable the backlog in physical and social infrastructure to be addressed. This would, in turn, provide a platform for much more rapid growth in the Twelfth Plan period.

7.1.8. While differences in GSDP growth rates, and absolute levels of per capita GSDP, are summary economic indicators of disparities, there are wide variations between the States even on other health, education and infrastructure indicators. In the current scenario where high growth rates have led to a spiral of commercial and service sector activity in the already developed regions, the backward areas continue to lack even basic amenities such as education, health, housing, rural roads, drinking water and electricity. Livelihood options are also limited as agriculture does not give adequate returns and industry is virtually absent, leading to limited trade and services. People seeking employment in low skill, low paying jobs is a common

**TABLE 7.1.3**  
**Disparity in per capita GSDP**

Year	State with lowest per capita GSDP	State with highest * per capita GSDP	Ratio of Minimum to Maximum per capita GSDP	Coefficient of variation	Gini Coefficient \$
(1)	(2)	(3)	(4)	(5)	(6)
			(in %)	Weighted	
1993–94	Bihar	Punjab	30.527	34.549	0.1917
1996–97	Bihar	Maharashtra	27.586	36.781	0.2071
1999–2000	Bihar	Maharashtra	28.899	37.417	0.2173
2001–02	Bihar	Punjab	21.556	35.610	0.2078
2002–03	Bihar	Punjab	21.608	36.686	0.2771
2003–04	Bihar	Punjab	22.705	36.230	0.2290
2004–05	Bihar	Maharashtra	20.105	38.440	0.2409

*Note:* 1993–94, 1996–97 and 1999–2000 as per the TFC Report based on 1993–94 series; 2001–02 onwards. Comparable GSDP 1999–2000 Series: Current Prices; \*excluding Goa; \$ weighted by population; 1993–94, 1996–97 and 1999–2000 relates to 14 States (Assam and general category States excluding Goa) as per TwFC; and 2001–02 to 2004–05 relates to 27 States (excluding Goa).

*Source:* (i) TFC Report for the year 1993–94, 1996–97 and 1999–2000.

(ii) Central Statistical Organization for years 2001–02, 2002–03, 2003–04 and 2004–05.

manifestation of these constraints in many rural areas. Compounding these problems is the lack of manpower to man essential services such as educational institutions and health centres. A large part of the disparities are probably due to historical reasons, differences in initial conditions and natural resource endowments. However, there is no clear pattern that seems to be applicable to all cases.

7.1.9. While the above is the situation as between States, very much the same picture is seen among the different districts and regions within States. Even in highly developed States, there are regions and districts whose indicators are comparable to those of the poorest districts in the most backward States. While some level of intra-State and inter-State disparity is bound to exist even in the best possible situation, the effort of the planning process must be to enable backward regions to substantially overcome the disadvantages they labour under and to provide at least a certain minimum standard of services for their citizens.

#### INTER-STATE DISPARITIES AND THE ROLE OF THE CENTRE

7.1.10. Redressing regional imbalances has indeed been a vital objective of the planning process. However, despite the efforts made, regional disparities have continued to grow and the gaps have been accentuated as the benefits

of economic growth have been largely confined to the better developed areas. Paradoxically, it is the natural resource-rich areas which continue to lag behind. This has in turn tightened the stranglehold of the Naxalite movement and demands for division of States in these areas. With the removal of controls and the opening up of the economy to external forces, the pressure of market forces may tend to exacerbate inter- and intra-State disparities. The role of the Centre in promoting equity among States and regions, therefore, has assumed added importance in the post liberalization era.

7.1.11. Redressing regional disparities is not only a goal in itself but is essential for maintaining the integrated social and economic fabric of the country without which the country may be faced with a situation of discontent, anarchy and breakdown of law and order.

7.1.12. There is probably no easy answer to the question of what really drives the growth process in the States. In the early years of planning, attempts were made to control a large part of the key drivers of growth and to make them fit into an overall consistency framework. This covered not only fiscal variables, but also other areas such as credit and financial markets, physical investments, locational decisions, and the like. However, this approach has now long since been given up for reasons that are not required to be discussed here. Over the past several years,

the share of public investment in the overall investment made in the country has been steadily declining. In recent years, public investment has been a little over 20% in the aggregate. There is, therefore, a very great limitation on the influence that fiscal quantities, allocations and strategy can directly exert on growth rates, especially at the State level. States have, therefore, to focus on providing the necessary policy framework and supporting environment that makes economic activity possible and attractive enough for private sector investment. This would include the entire gamut of services provided by the State Governments, right from maintaining law and order, providing quick and effective dispute resolution through an efficient adjudication system, avoiding an extortionate and distortionary tax system to enabling and empowering the general mass of the population to take advantage of economic activity. Many of these factors are covered under the broad rubric of governance and have been discussed elsewhere in the Plan document. Here, we attempt to analyse the patterns of resource flows from the Centre to the States, and of government spending, in order to understand its implications for balanced development.

### General Purpose Resource Transfers

7.1.13. In the system of division of powers between the Union and the States, the most productive sources of revenue have been assigned to the Union from the point of view of administrative convenience, uniformity and efficiency. At the same time, the major responsibility for the delivery of social services to the population has been vested with the States, and has now been devolved further downward to the PRIs. Given this situation, therefore, a very substantial responsibility falls on the Central Government to ensure that the overall flows of resources from the Centre to the States is such that the relatively backward States are enabled to achieve a level of service delivery at par with the more advanced States. This involves issues of the fiscal capacity available to States to raise revenues, the extent to which such capacity is actually being utilized and the specific difficulties that the States face which result in increased unit costs of service delivery.

7.1.14. Part of the Centre's responsibility in this regard is fulfilled through transfers under the Plan process. At the same time, an equally, if not more, significant volume of transfers takes place through the mechanism of the Finance Commissions. For a proper appreciation of the

extent to which Central transfers help in mitigating inter-State disparities, it is necessary to look at transfers by the Finance Commissions also.

7.1.15. The TFC has used the following criteria and weights for transfers of Central taxes to the States. These have been applied uniformly across all States, both in the Special Category as well as others.

7.1.16. It is seen from Table 7.1.4 that the Income Distance criterion (which measures the extent to which the per capita income of a State is below that of the State with the highest per capita income) is given a weight of 50%. This has had the effect of making transfers of the share of Central taxes steeply progressive. The formula for inter se distribution of share of Central taxes is now generally more progressive than the formula used for the distribution of NCA among the States (Gadgil Mukherjee Formula). Under the NCA Gadgil Mukherjee Formula, the following criteria and weights are used.

7.1.17. The Gadgil Mukherjee formula applies only to States that are not in the Special Category. In the case of the Special Category States, 30% of the total NCA is

**TABLE 7.1.4**  
**Criteria and Weights**

Criterion	Weight (%)
Population	25.0
Income Distance	50.0
Area	10.0
Tax Effort	7.5
Fiscal Discipline	7.5

Source: Report of the TFC.

**TABLE 7.1.5**  
**Criteria and Weights under Gadgil Mukherjee Formula**

Criterion	Weight (%)
1 Population (1971)	60
2 Per capita income	
(i) For States with lower than National average	20
(ii) For all States	5
3 Performance (Tax effort, fiscal management, national objectives)	7.5
4 Special Problems	7.5

Source: Planning Commission.

earmarked, and this amount has been apportioned among them in a constant ratio over the years.

7.1.18. Table 7.1.6 shows the share of each State as per the TFC in the share of Central taxes, share in NCA, the per capita income, and population share of a State in total population of the country. Since there is a difference in the manner in which NCA is provided to the Special Category States and the other States, these two groupings are taken separately.

7.1.19. While there could be different points of view about whether relative backwardness should be assigned as much weight as it has been under the TFC's award, or otherwise, it would also appear that there does not seem to be any reason any more for continuing with two different formulae for apportionment of share of Central taxes and NCA among the States. Elsewhere in the Plan, the need to do away with the distinction between Plan and non-Plan in expenditure has been emphasized. This would logically imply that the need for two different

**TABLE 7.1.6**  
**Inter-se Shares**

S. No.	States	Per Capita GSDP 2004-05 (in Rupees)	Population (2001- census)	Share in NCA# (2007-08: BE)	Share % as per Twelfth Finance Commission
Within Group (%)					
Non-Special Category States					
1	Andhra Pradesh	26655	8.03	6.345	8.011
2	Bihar	7486	8.75	11.062	12.009
3	Chhattisgarh	20336	2.20	2.877	2.890
4	Goa	80392	0.14	0.495	0.282
5	Gujarat	34223	5.35	3.926	3.887
6	Haryana	35893	2.23	1.768	1.171
7	Jharkhand	19908	2.84	3.544	3.660
8	Karnataka	28774	5.57	4.417	4.856
9	Kerala	32818	3.36	3.259	2.902
10	Madhya Pradesh	16597	6.36	6.922	7.308
11	Maharashtra	37235	10.21	6.913	5.442
12	Orissa	18440	3.88	6.257	5.620
13	Punjab	36376	2.57	2.113	1.415
14	Rajasthan	18909	5.95	5.864	6.108
15	Tamil Nadu	31603	6.58	5.943	5.777
16	Uttar Pradesh	13842	17.52	19.481	20.978
17	West Bengal	23145	8.45	8.814	7.685
			(100.00)	(100.000)	(100.000)
Special Category States					
1	Arunachal Pradesh	23326	1.75	7.928	3.525
2	Assam	18172	41.88	19.532	39.591
3	Himachal Pradesh	36785	9.55	9.656	6.388
4	Jammu and Kashmir	22430	15.92	19.148	15.873
5	Manipur	22457	3.34	5.840	4.430
6	Meghalaya	24978	3.66	4.849	4.540
7	Mizoram	27663	1.43	5.590	2.925
8	Nagaland	22021	3.18	5.908	3.219
9	Sikkim	28332	0.80	3.771	2.778
10	Tripura	26693	5.10	8.243	5.238
11	Uttaranchal (now Uttarakhand)	25276	13.38	9.535	11.492
			(100.00)	(100.000)	(100.000)

Note: # Calculated including a notional loan component.

Source: Planning Commission.

formulae for resource transfers would not exist any more. Two components of resource flows being distributed to the States on the basis of the same formula could continue. One portion, namely, the share of Central taxes, would be entirely untied; while the second could be earmarked for being spent on specific development sectors, with considerable flexibility to States about how exactly to spend the amounts. It needs to be remembered that, in fact, the significance of the NCA amount has got substantially reduced since 2005–06, the year from which the Central Government ceased to provide the loan component of NCA. This revised procedure would have the added advantage of providing for a fresh examination of the formula, criteria and weights by an impartial, professional body once every five years, unlike in the case of the Gadgil formula and its variants, where the process of adapting to change is very time consuming.

### Transfers under Centrally Sponsored Schemes (CSSs) and Additional Central Assistance

7.1.20. Apart from the above, the Central Government also transfers substantial resources to the States in the form of CSS and ACA for State Plan schemes. These transfers have an in-built mechanism for progressiveness since they are directed at filling gaps in the provision of basic services in the most backward areas. The instruments being used by the Central Government to channelize funds into sectors and areas which need special attention include the Flagship Programmes, particularly Bharat Nirman, BRGF, and the NREGP.

7.1.21. Most of the schemes for rural development and poverty alleviation use poverty as a criterion for distribution of funds and therefore people and areas with low income benefit automatically. The NREGP is self targeting as it is expected that only the unemployed with no other source of income for that period would opt for a programme of wage employment. Also, NREGP provides an opportunity to States and districts to plan and execute programmes that provide employment and create rural assets that would support further economic activity. The availability of funds on demand distinguishes NREGP from other schemes. The SGSY is targeted at BPL families and has in-built safeguards for the weaker sections with 50% benefits reserved for SCs/STs.

7.1.22. Most of the flagship programmes also address backwardness in terms of the particular sector. Table 7.1.7

gives the State-wise allocation of funds under some of the major programmes in the budget estimates for 2007–08. The overwhelming shares of the relatively backward States clearly show that the flagship programmes are a major instrument to direct funds to areas which lack infrastructure.

7.1.23. Under the IAY, 75% weightage is given to housing shortage and 25% to poverty ratios. For district-level allocations, 75% weightage is given again to housing shortage and 25% to the SC/ST component of the population. In the Annual Plan 2007–08, Bihar has been allocated 26% of the total funds while Uttar Pradesh will get 12%.

7.1.24. Under the NRHM, 18 focus States which have weak public health indicators and/or weak infrastructure have been identified. These 18 States are Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttarakhand, and Uttar Pradesh. 30% of the funds in 2007–08 will flow to three States, namely, Uttar Pradesh (16%), Bihar, and Assam (7% each).

7.1.25. The SSA tackles backwardness in primary education through the formulation of district plans based on habitation level plans which are to be prepared on the basis of gaps in infrastructure for which norms have been laid down.

7.1.26. In the case of SSA, Uttar Pradesh alone receives nearly 17% of the allocation of the programme, while Bihar has been allocated 11%. In fact, seven States account for 64% of the total outlay.

7.1.27. The allocation under the PMGSY to the States is based on, inter-alia, a weightage of 75% for need (share of unconnected habitations in the total unconnected habitations of the country) and 25% on coverage (share of connected habitations in the total unconnected habitations in the country). Keeping the original inter-State allocations intact, the additional allocations on account of cess accruals are distributed to various States based on the target of road length to be connected under Bharat Nirman in each State. Madhya Pradesh, Chhattisgarh and Uttar Pradesh have been allocated one-third of the allocation under PMGSY in 2007–08.



**TABLE 7.1.7**  
**Allocation of Funds to States/UTs during 2007–08 under various Centrally Funded Schemes**

(Rs in crore)

State	Population (2001) % share	PMGSY		NRHM		SSA		IAY		Supplementary Nutrition	
		Allocation	%age	Allocation (Central Share)	%age	Allocation (Central Share)	%age	Allocation (Central Share)	%age	Allocation (Central Share)	%age
Andhra Pradesh	7.41	105.00	1.62	597.84	6.67	625.00	6.03	360.28	8.93	101.51	5.01
Arunachal Pradesh	0.11	77.00	1.18	43.39	0.48	57.04	0.55	13.95	0.35	5.32	0.26
Assam	2.59	456.00	7.02	642.28	7.16	498.34	4.81	308.54	7.65	76.71	3.78
Bihar	8.07	457.00	7.03	680.70	7.59	1154.46	11.13	1063.44	26.37	185.15	9.13
Chhattisgarh	2.03	690.00	10.62	225.23	2.51	390.25	3.76	55.71	1.38	59.02	2.91
Goa	0.13	5.00	0.08	13.38	0.15	10.18	0.10	2.22	0.05	1.54	0.08
Gujarat	4.93	65.00	1.00	380.58	4.24	190.97	1.84	176.69	4.38	58.69	2.89
Haryana	2.06	30.00	0.46	137.60	1.53	174.56	1.68	24.81	0.62	40.86	2.01
Himachal Pradesh	0.59	287.00	4.42	67.70	0.75	61.03	0.59	8.75	0.22	13.19	0.65
J & K	0.99	115.00	1.77	86.77	0.97	169.55	1.64	27.18	0.67	13.96	0.69
Jharkhand	2.62	225.00	3.46	262.92	2.93	668.99	6.45	94.85	2.35	59.58	2.94
Karnataka	5.14	110.00	1.69	395.95	4.41	348.62	3.36	138.80	3.44	108.63	5.36
Kerala	3.10	30.00	0.46	218.57	2.44	81.50	0.79	77.19	1.91	30.19	1.49
Madhya Pradesh	5.87	890.00	13.69	544.04	6.07	894.21	8.62	110.80	2.75	130.57	6.44
Maharashtra	9.42	145.00	2.23	671.14	7.48	509.11	4.91	217.27	5.39	145.29	7.17
Manipur	0.21	33.00	0.51	66.68	0.74	29.83	0.29	12.11	0.30	9.14	0.45
Meghalaya	0.23	45.00	0.69	62.27	0.69	43.77	0.42	21.09	0.52	8.02	0.39
Mizoram	0.09	52.00	0.80	36.70	0.41	22.03	0.21	4.50	0.11	4.89	0.24
Nagaland	0.19	30.00	0.46	56.19	0.63	29.67	0.29	13.96	0.35	11.69	0.58
Orissa	3.58	543.00	8.35	345.20	3.85	449.34	4.33	208.93	5.18	96.07	4.74
Punjab	2.37	35.00	0.54	161.97	1.81	111.32	1.07	30.68	0.76	36.02	1.78
Rajasthan	5.49	434.00	6.68	548.18	6.11	800.00	7.71	88.79	2.20	97.87	4.83
Sikkim	0.05	30.00	0.46	23.25	0.26	11.66	0.11	2.67	0.07	0.92	0.05
Tamil Nadu	6.07	90.00	1.38	433.16	4.83	345.50	3.33	144.25	3.58	36.59	1.80
Tripura	0.31	40.00	0.62	81.28	0.91	43.45	0.42	27.18	0.67	10.77	0.53
Uttar Pradesh	16.16	675.00	10.38	1459.42	16.27	1759.14	16.96	477.66	11.84	508.84	25.10
Uttarakhand	0.83	130.00	2.00	84.44	0.94	126.36	1.22	23.95	0.59	15.15	0.75
West Bengal	7.79	376.00	5.79	540.20	6.02	700.53	6.75	288.21	7.15	140.88	6.94
UTs	1.61	10.00	0.15	102.63	1.15	64.16	0.62	8.24	0.20	20.38	1.01
Others	–	290.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>100.00</b>	<b>6500.00</b>	<b>100.00</b>	<b>8969.68</b>	<b>100.00</b>	<b>10370.57</b>	<b>100.00</b>	<b>4032.70</b>	<b>100.00</b>	<b>2027.44</b>	<b>100.00</b>

Source: GoI Budget Estimates 2007–08.

### BACKWARD REGIONS GRANT FUND (BRGF)

7.1.28. The development of backward regions has been a major concern of planners in India. However, prior to the Tenth Plan, the issue of development of backward areas was approached as primarily one of development of States through the formula for distribution of Central Assistance which was weighted in favour of less developed States and through Special Area Programmes such as Hill Area Development Programme, Border Area Development Programme, Drought Prone Area Programme, Tribal

Sub-Plan, and so on. The emphasis was on backwardness in terms of economic performance, though the impact of historical and social factors in economic matters was also recognized. It was also observed that special development schemes should not be mere palliatives but the potential for growth present in most backward areas needs to be tapped if these schemes are to have an impact.

7.1.29. The Mid-Term Appraisal of the Ninth Plan showed that despite these efforts, one of the most serious problems

facing the country was the wide disparity and regional imbalances between States, and within a State between districts. It was these pockets of high poverty, low growth and poor governance that were slowing down the growth and development of the country. In the Tenth Plan, it was decided to have a new approach to target these areas through a specific programme for Backward Areas, and the Rashtriya Sam Vikas Yojana (RSVY) was introduced in 2003–04.

7.1.30. The Rashtriya Sam Vikas Yojana covered 147 districts. Each district was to receive Rs 45 crore for schemes that would address the problems of low agricultural productivity, unemployment and fill critical gaps in infrastructure. Each district prepared a three-year Action Plan which showed the flow of funds from various schemes into the sector which was considered for additionality. An amount of Rs 4673 crore was released under RSVY during the Tenth Plan period. Thirty-three districts received the full allocation of Rs 45 crore during the Tenth Plan while others are in various stages of completion of the programme. Keeping in view the experience of the operation of the Programme in the first two years, it was decided that the process of implementation needed to be changed to provide a more participative and holistic approach and to involve PRIs. Thus, BRGF was initiated with two major changes, namely, the involvement of PRIs not only in the choice of schemes but also in their implementation and supervision, and the preparation of district plans which would ensure convergence and prevent duplication

7.1.31. The BRGF aims to help converge and add value to other programmes, like Bharat Nirman and NREGP, which are explicitly designed to meet rural infrastructural needs but which need supplementation to address critical gaps. It aims at catalysing development in backward areas by: (i) providing infrastructure; (ii) promoting good governance and agrarian reforms; (iii) converging, through supplementary infrastructure and capacity building, the substantial existing development inflows into these districts.

7.1.32. The Fund will accordingly provide financial resources for supplementing and converging existing development inflows into identified districts, so as to:

- Bridge critical gaps in local infrastructure and other development requirements that are not being adequately met through existing inflows;

- To this end strengthen Panchayat and Municipality level governance with more appropriate capacity building to facilitate participatory planning, decision making, implementation and monitoring and to reflect local felt needs;
- Provide professional support to local bodies for planning, implementation and monitoring their plans;
- Improve the performance and delivery of critical functions assigned to Panchayats, and counter possible efficiency and equity losses on account of inadequate local capacity.

7.1.33. A series of exercises have been undertaken to identify backward areas. Districts identified for coverage under RSVY used the criteria recommended by the ‘Task Force on Identification of Districts for Wage and Self-Employment Programmes’ (Planning Commission, 2003). The three criteria used were agricultural wage rate, value of output per agricultural worker and SC/ST population. However, the number of districts to be covered in a non-Special Category State was based on the proportion of poor in the State while in the case of Special Category States, population was the basis. The districts under BRGF include all the 200 districts covered under the first phase of NREGP which also used the same three criteria. Fifty districts (that were not covered under the list of 200 NREGP districts but were left out of the 170 districts identified by the Inter Ministry Task Group on Redressing Growing Regional Imbalances) were added to make a total of 250 districts for coverage under BRGF.

7.1.34. The BRGF will be anchored in a well conceived, participatory district plan by implementation of programmes selected through peoples’ participation for which PRIs from the village up to the district level will be the authorities for planning and implementation. The dominant features include: (i) consolidation of sub-district plans by the District Planning Committees (DPC); (ii) convergence of all on-going Central Sector, Centrally Sponsored and State Plan Schemes operating at the sub district level; (iii) flexibility in the form of untied grants which may be used by Panchayats and Urban Local Bodies (ULBs) guided by transparent norms for filling critical gaps vital for development; (iv) capacity building grants for all stakeholders including professional support for preparation and consolidation of district plans; (v) empowerment of district-level local government institutions with adequate investments for social

development such as education, health, food security, and so on; (vi) provision for specific social assistance programmes designed to deliver infrastructure and other financial support needed by them; (vii) concentration on pro-poor infrastructure with transparent norms for distribution of funds among various levels of rural and ULBs with focus on backward areas and disadvantaged people; and (viii) stress on development of assets and livelihood of the economically and socially weaker sections.

7.1.35. The scheme has two components, namely, (i) Districts Component covering 250 districts and (ii) Special Plans for Bihar and the Kalahandi–Bolangir–Koraput (KBK) districts of Orissa.

7.1.36. The Districts Component of BRGF covers 250 districts and has two funding windows, namely, (i) Capability Building Fund, and (ii) a substantially untied grant. The guidelines for BRGF already issued by the Ministry of Panchayati Raj in consultation with the Planning Commission contain detailed provisions for the processes of planning, capacity building, approvals and implementation of the district component.

7.1.37. In addition to the funding of the Districts Component of the programme, the Special Plans for Bihar and the KBK districts of Orissa, which were being funded under the erstwhile RSVY during the Tenth Plan, will also be funded under the BRGF during the Eleventh Five Year Plan.

7.1.38. The Special Plan for Bihar had been formulated, in consultation with the State Government of Bihar, to bring about improvement in sectors such as power, road connectivity, irrigation, forestry and watershed development. The prime emphasis has been laid on improvement of roads and power projects in the State under the Special Plan. An allocation of Rs 1000 crore per annum was being made for the Special Plan during the Tenth Five Year Plan period. The same allocation, that is, Rs 1000 crore per annum, will continue to be made during the Eleventh Five Year Plan period.

7.1.39. The KBK region comprises the undivided Kalahandi–Bolangir–Koraput districts situated in the southern and western parts of Orissa which have since been divided into eight districts, namely, Kalahandi, Nuapada, Bolangir, Sonapur, Koraput, Nabrangpur, Malkangiri, and

Rayagada. A Revised Long-Term Action Plan was drawn up for these districts and the Planning Commission has been providing ACA to this region since 1998–99. To make the planning and implementation process more effective, the Central Government has been funding a Special Plan for these districts since 2002–03 using a project based approach and an innovative delivery and monitoring system. The Special Plan focus is on tackling the main problems of drought proofing, livelihood support, connectivity, health and education as per local priorities. In the Eleventh Plan, the total allocation for the KBK districts will be protected at Rs 250 crore per annum. These districts will be funded as per the BRGF district norms and the balance will be provided under the Special Plan.

7.1.40. It has been decided to provide Rs 5820 crore per annum during the Eleventh Five Year Plan for the two components, that is, the Districts Component and the Special Plans for Bihar and the KBK districts of Orissa. The total provision for BRGF during the Eleventh Five Year Plan would be Rs 29100 crore.

#### HILL AREA DEVELOPMENT PROGRAMME (HADP)/ WESTERN GHATS DEVELOPMENT PROGRAMME (WGDP)

7.1.41. The HADP/WGDP have been in operation since the Fifth Five Year Plan in designated hill areas. Under these programmes, SCA is given to designated hill areas in order to supplement the efforts of the State Governments in the development of these ecologically fragile areas.

7.1.42. Areas under HADP were identified in 1965 by a Committee of the NDC and areas to be covered by WGDP were recommended in 1972 by the HLC set up for the purpose. After the formation of Uttaranchal (now Uttarakhand) in 2001, the designated areas covered under HADP/WGDP include:

- Two hill districts of Assam—North Cachar and Karbi Anglong
- Major part of Darjeeling district of West Bengal
- Nilgiris district of Tamil Nadu
- 171 talukas of WGDP comprising the Western Ghats in Maharashtra (63 talukas), Karnataka (40 talukas), Kerala (32 talukas), Tamil Nadu (33 talukas), and Goa (3 talukas).

7.1.43. The main objectives of the programme have been eco-preservation and eco-restoration with emphasis on

preservation of biodiversity and rejuvenation of the hill ecology. For the hill areas covered under HADP, the sub-plan approach has been adopted. The State Governments concerned prepare their total plan comprising of flow of funds from the State Plan, SCA made available under HADP and other sources. In the case of WGDP, the schematic approach was followed since the flow of funds from the State Plan to the taluka, which is the unit of demarcation, is difficult to quantify. Under WGDP, the States were advised to prepare their plans on watershed basis. Watershed-based development continued to be the basic thrust area of the programme. Allocation for the programme has remained almost static during the Tenth Plan period at Rs 160 crore. It was only during 2006–07 that the allocation was stepped up to Rs 250 crore.

7.1.44. Evaluation studies which have been carried out to assess the efficacy of these programmes have shown that while it is not possible to isolate the impact of the programme, the outcome of these programmes are visible in the form of increase in the level of the water table, preservation of forest area, increase in irrigated area, decrease in fallow land, increase in income, and so on.

7.1.45. The HADP and the WGDP will be continued in the Eleventh Plan with renewed vigour so that the natural resources of these fragile areas can be used in a sustainable manner based on environment-friendly technologies. These programmes need to be continued for the following reasons: first, most of the hill areas lack infrastructure facilities particularly roads, power, education and health facilities. Second, most of the hill areas lack political power and consequently adequate funding. Third, many of the programmes are not suitable to hill areas. For example, wages are often higher in the hill areas than the wages under wage employment programmes, and normally machines are required for earthwork as the rocky terrain is not suitable for manual labour. This also holds true for the norms set for some programmes as settlements are often small hamlets which do not qualify for coverage or are too expensive to cover. Hence, local solutions have to be found and encouraged.

7.1.46. The objectives would be two-fold—ecological balance and preservation as well as creation of sustainable livelihood opportunities.

7.1.47. Keeping in view the existing administrative and fund requirements of HADP areas, it could perhaps be more appropriate to have a different approach for HADP areas compared to WGDP areas. In the case of HADP areas, the district planning guidelines should be followed. District Plans should be prepared based on the vision for the district through a participative process starting from the grass roots level. This would involve articulation of a vision in each Planning unit right down to the village level. This vision would address the three basic aspects of development, namely, human development, infrastructure development and development of the productive sector. The Bill proposed to be introduced in Parliament to include the Darjeeling Gorkha Hill Council Area in the Sixth Schedule should be expeditiously considered.

7.1.48. In the case of the WGDP areas, the plan for these areas should be prepared as part of the district plan. While preparing the district plan, it should be ensured that WGDP areas receive priority and are brought at par with the best developed areas of the State. The ecological and biodiversity issues are to be dealt with on high priority. These areas should be given priority under other schemes, particularly the flagship schemes including Bharat Nirman, SSA, NRHM, and so on.

7.1.49. The State Governments need to allocate funds to the more fragile and backward pockets of the Western Ghats talukas. Keeping in view the increasing fragility of the hill areas, the allocation for the programme should be Rs 2500 crore for the Eleventh Plan.

#### BORDER AREA DEVELOPMENT PROGRAMME (BADP)

7.1.50. The BADP introduced during the Seventh Plan, aims at making special efforts for socio-economic development of the border areas and to promote a sense of security among the people living in these areas. The programme was revamped in the Eighth Plan and extended to the States adjoining the international border with Bangladesh and it was further extended during the Ninth Plan to the States which have borders with Myanmar, China, Bhutan, and Nepal.

7.1.51. The programme is a major intervention of the Central Government and is a part of the comprehensive approach to Border Management. The main aim has been to meet the special needs of people living in remote and inaccessible areas situated near international land borders.

7.1.52. On the basis of the report of the Task Force on BADP, it has been decided that the strategy for its implementation during the Eleventh Plan would be as follows:

- To accord high priority to the border areas (villages/blocks) in all the schemes of Bharat Nirman and other flagship programmes of the GoI and to saturate the border areas with full coverage of these schemes/programmes during the Eleventh Five Year Plan period, or earlier. To this end, appropriate modifications will be made in the relevant guidelines. The Planning Commission has comprehensively identified the border areas (villages/blocks/districts) and this data will be made available to all the ministries to facilitate early action.
- Ministries/Departments which do have programmes, schemes and projects focused on border areas, would initiate suitable programmes and activities.
- The Ministries of Power, Civil Aviation, IT, Telecom, Railways and Road Transport and Highways would prepare comprehensive proposals for infrastructure development in the border areas. These proposals, which would form part of the existing programmes and activities of the ministries, will then be collated with the overall infrastructure Plan for Border Areas. All incomplete large projects in border areas will receive priority for completion.
- Particular emphasis will be given to skill development and vocational education in the border areas. To this end, the Ministry of Labour and Employment and the Ministry of Human Resource Development would suitably re-orient their existing programmes, in consultation with the Planning Commission. Priority will be given to the border districts in the establishment of government sector polytechnics/ITIs/Skill Facilitation Centres.
- While modifying the guidelines, the relevant ministries will also revise the cost norms for border areas (villages/blocks/districts) and provide for necessary flexibility in order to accommodate accessibility issues.
- The Ministry of Finance will ensure by 31 March 2008 that all border blocks have at least one channel of Banking, be it a commercial bank, a cooperative institution or an RRB. The Ministry of Finance would also ensure that appropriate linkages with the overall plan for border development are developed in consultation with the National Bank for Agriculture

and Rural Development (NABARD) and the Planning Commission.

- The planning process for the preparation of comprehensive perspective and annual plans for Gram Panchayats and Blocks on participatory basis should be significantly strengthened on the basis of guidelines issued by the Planning Commission and contained in the report of the Expert Group on the Planning at the Grassroot Level (Ministry of Panchayati Raj, 2006). These plans must show the convergence of the flow of funds for all ongoing Central and States programmes/schemes and identify the gaps in physical and social infrastructure and the livelihood options which should then be filled through funds available from BADP. Preparation of these plans and their use for all development activities, including BADP, should be insisted upon and arrangements for professional support and capacity development of PRIs, District Autonomous Councils, Traditional Village Bodies and DPC should be initiated.
- The Ministry of Home Affairs would augment the funds given to Para Military Forces guarding the border areas (namely, BSF, ITBP, Assam Rifles, and SSB) so that they too can undertake some civilian welfare activities in order to enhance their rapport with the civilian population in these areas.
- Since most of the border areas are remote and inaccessible, flexible financing through untied grants for attracting trained staff and participation of NGOs should be provided to strengthen the institutions and the personnel working in these areas.
- The Home Ministry would also undertake a special review of the infrastructure available at International Check Posts and Land Customs Stations. If required, additional funds would be earmarked under BADP for this purpose.

7.1.53. It is clear, therefore, that backward States and districts are being allocated a large proportion of the funds available under the flagship programmes. The effectiveness of these programmes will depend on the absorptive capacity of these States and regions. As administration in these areas tends to be weak and thin, this is an area which will require special attention. BRGF provides for strengthening of administrative machinery to deliver programmes more extensively. Similar provisions are also made in NREGP and other flagship programmes.

Local recruitment by PRIs can go a long way in ensuring attendance and availability of staff in remote areas. The State Governments also find it easier to invest in better developed areas as implementing agencies are available there. Backward areas also lack the voice and vote as they are often hilly, desert, forested, border or otherwise thinly populated areas. The other issue is the withdrawal of State Plan funds from these areas once Central funds become available. To circumvent this and ensure attention to these areas, district plans must be drawn up showing the availability of funds from all sources.

## INTRA-STATE DISPARITIES AND DISTRICT PLANNING

### Statistical Database

#### DISTRICT DOMESTIC PRODUCT (DDP) AND DISTRICT POVERTY ESTIMATES

7.1.54. That severe disparities exist between the districts and regions within States is well known, but statistics generated on the basis of a uniform methodology have yet to become easily available. Many States have been preparing estimates of the GDP of districts for quite some time now. However, these estimates are not comparable across States. It is only recently that the Central Statistical Organization (CSO) has come out with a uniform methodology for computation of DDP that will now be used throughout the country for these estimates. During the Eleventh Plan Period, therefore, the database for assessing the relative backwardness of districts would get substantially improved. Similarly, the poverty estimates prepared by the Planning Commission are available only at the State level and not for divisions below the State level. There are problems of sample size that do not permit the computation of poverty estimates at the district level at present. The Planning Commission has engaged the Indian Statistical Institute, Kolkata, to develop a methodology that will be capable of generating statistically valid estimates of poverty at district level from the existing NSSO sample data. Once this methodology is put in place, we should be able to obtain a better picture of the variation in poverty levels across districts within a State.

#### DISTRICT HEALTH PROFILE

7.1.55. During the Eleventh Plan period, it is proposed to start the preparation of District Health Profiles for all districts in the country based on an annual health survey

undertaken through the Registrar General. The need for this has arisen because of the partial nature of coverage of the Civil Registration System.

#### STATE HUMAN DEVELOPMENT REPORTS (SHDR)

7.1.56. India today has the largest programme of any country in the world for the preparation of Human Development Reports (HDRs) at the sub-national (State and lower) level. As on date, 18 States have published State HDRs (SHDRs). Madhya Pradesh has already brought out three SHDRs, while Karnataka has published two. Several other States are also in the process of preparation of their second SHDR. Even with the problems at present regarding data, one of the major contributions of SHDR preparation has been the documenting and highlighting of inter se disparities among districts. The State HDRs have computed HDIs for each of the districts in the States. These reports are based on available summary indicators at the present time of the relative standing of districts on a development scale. The actual values of district HDIs are not comparable across the States because of differences in methodology, different data sources, the method of construction of indices, and so on. However, HDIs computed for districts within a State are comparable. The following table summarizes the range in HDIs among the districts within each State in comparison with the average for that State.

7.1.57. It is clear from Table 7.1.8 that in some States with high average level of development, there is a wide variation in the HDI of individual districts. For example, Maharashtra has calculated HDI of 1.00 for Mumbai city. However, considering this as an outlier, the next highest HDI in Maharashtra is 0.82 for Thane district. The lowest HDI for any district is only 0.210 (Gadchiroli). Even after removing the effect of the district with HDI of 1.0, the coefficient of variation for Maharashtra is 30.50% which remains the highest in the country. This shows the extent of intra-State disparity. On the contrary, all districts in Kerala lie between a range of 0.749 and 0.801, and with a coefficient of variation of only 2.37%, thereby denoting very limited intra-district disparity.

7.1.58. In States that have already published SHDRs, the emphasis now is on the preparation of District Human Development Reports (DHDRs), at least in a few selected districts to start with. As of date, DHDR preparation is

**TABLE 7.1.8**  
**Disparities in State HDI**

S. No	State	No. of Districts in the State	State HDI	Highest HDI for a District in the State	Lowest HDI for a District in the State	Coefficient of Variation %
1.	Arunachal Pradesh	17	0.515	0.660	0.362	18.36
2.	Assam	23	0.407	0.650	0.214	27.99
3.	Chhattisgarh	16	0.471	0.625	0.264	21.16
4.	Gujarat	25	0.479	0.582	0.309	16.14
5.	Himachal Pradesh	12	0.433	0.534	0.390	11.14
6.	Karnataka	27	0.633	0.753	0.547	7.62
7.	Kerala	14	0.773	0.801	0.749	2.37*
8.	Madhya Pradesh	45	0.394	0.694	0.372	11.37
9.	Maharashtra	34	0.580	1.000	0.210	36.55
10.	Nagaland	8	0.620	0.733	0.450	15.89
11.	Orissa	30	0.404	0.736	0.389	16.94
12.	Punjab	17	0.537	0.761	0.633	4.93
13.	Rajasthan	32	0.424	0.656	0.456	8.88
14.	Sikkim	4	0.454	0.501	0.391	8.92
15.	Tamil Nadu	29	0.657	0.757	0.584	5.97
16.	Uttar Pradesh	70	0.532	0.710	0.366	11.59
17.	West Bengal	18	0.610	0.780	0.440	16.68

Source: SHDRs.

under way in over 45 districts all over the country. The process of preparation of DHDR is in itself as important as the final product. This is because the process is one of capacity building. Widespread participation among all the government departments dealing with Human Development, academic institutions, Civil Society organizations, NGOs, and so on, is the route adopted for preparation of DHDRs. This enables active dissemination of the findings and recommendations of SHDR on the one hand, and awareness building and sensitization among all key stake holders at the district and lower levels on the other. The process of preparation of DHDR is to be closely linked to the district planning process. During the Eleventh Plan period, all the districts in the country would need to be progressively covered. The DHDRs attempt to identify and quantify the status of Human Development in the administrative sub-divisions of the district. This process helps in assessing the development imbalance within the district and throws up possible solutions to these problems. Various districts have used innovative tools for this purpose, including extensive use of computerized (IT) NRDBMS. An advantage of the process of drilling down is that often, at the grass roots level, data problems are not as severe as at an intermediate aggregate level. In some States, a set of indicators that can be monitored at the Gram Panchayat level have been

identified and efforts are on to vest the Gram Panchayats themselves with the responsibility of generating this information for their own use. One of the advantages of DHDRs has been stated to be the increased use of hard data in planning at the local level, and therefore of more rational decision making.

**7.1.59.** In the Eleventh Plan, the Planning Commission has issued detailed guidelines to the States reiterating the necessity of preparation of district plans through the DPC that are Constitutional bodies created for this purpose. In fact, in some of the new CSS and ACA Schemes, the preparation of the district plan has been insisted upon as a pre-requisite for accessing funds. Elsewhere in the Plan document, the details of these guidelines have been spelt out. This emphasis in the Planning process, it is hoped, will provide an institutional basis for the regular and systematic study of intra-State disparities as part of the Annual Plan and Five Year Plan processes.

#### INTERVENTIONS BY STATES

**7.1.60.** Simultaneously, many State Governments are also taking action to redress the problem of regional imbalances. In West Bengal, 4612 revenue villages have been identified for special attention. Female literacy and employment opportunity were used as variables to capture the extent

of poverty. Thus villages in which over 60% of the population in the working age group are either non-workers or marginal workers and villages with female illiteracy over 70% have been identified for special attention. The services to be universalized in these villages are: (i) food security; (ii) social assistance; (iii) elementary education with emphasis on enrolment and retention of girl children; (iv) nutrition programmes; (v) employment generation; (vi) housing for the houseless; (vii) formation of SHGs and bank linkages to them; (viii) sustainable drinking water and strengthened public health services. As many of these villages are small hamlets hitherto excluded from proper connectivity and social infrastructure, they are to be given high priority now under all relevant schemes. The District Magistrates and other senior officials have been asked to visit these villages and ensure time-bound implementation of their activities. In addition to sensitizing the Panchayats at all levels about the priority to be given to these villages, all government departments have been instructed by the Chief Secretary to conduct special review of the implementation of their development programmes in these villages. The Government of West Bengal has been providing additional financial assistance since 2006–07 for meeting the critical gaps in these backward villages.

7.1.61. In Andhra Pradesh identified backward villages have been selected for saturation/universalization under eight schemes/activities under the 'Indiramma' Village Scheme. These schemes are: (i) Pension for all eligible old persons, persons with disability and widows; (ii) weaker section housing; (iii) sustainable drinking water; (iv) Power supply to every household; (v) sanitary latrines in every household; (vi) enrolment and drop out prevention in elementary education; (vii) Anganwadi with building and (viii) improvements in primary health with 100% immunization, 100% institutional delivery and 100% maternity benefit for eligible pregnant women.

7.1.62. The Government of Gujarat had set up a committee to study the backwardness of talukas in 2004. This Committee has now identified 30 talukas falling under least developed talukas in the State, based on 44 indicators. The Government of Gujarat has developed a strategy to raise the level of development of these talukas in a time-bound manner. The senior most officers of the rank of Secretary and above have been asked to voluntarily adopt one taluka each to prepare and implement development plans for these talukas in a time-bound programme.

7.1.63. Thus, it is seen that from a general area approach there is a move towards more vulnerable settlements. This approach of identifying settlements which need special attention will help to concentrate development efforts in laggard habitations which either because of their isolation or the social composition of their population, continue to depress the HDI and other development indicators of the district/State.

## 7.2 NORTH EASTERN REGION

7.2.1. The North Eastern Region (NER) of the country forms an area of low per capita income and major growth requirements. Growth in social infrastructure through national programmes must be complemented by development of physical and economic infrastructure. In this context, the development efforts of the States have to be supplemented in order to minimize certain distinct geo-physical and historical constraints.

### BASIC FEATURES OF THE NORTH EASTERN REGION

7.2.2. The process of development had been slow in the NER for many reasons. Traditional system of self-governance and social customs of livelihood in NER remained virtually untouched during the British rule. The creation of a rail network for linking tea-growing areas for commercial interests was the only major economic activities taken up in the Region during this period. The partition of the country in 1947 further isolated the region. This has also disturbed the socio-economic equations in many parts of the Region resulting in the demand for autonomy by the relatively more backward areas. The late participation in planned development process by some of the North Eastern States (for example, Nagaland and Sikkim) has also deprived the region from the benefit of the strategies adopted for infrastructure improvement and creation of basic minimum services for some years after independence. While development efforts over the years have made some impact (as reflected in some of the HDIs which are comparable with the rest of the country), the region is deficit in physical infrastructure which has a multiplier effect on economic development. The basic development indicators of NER are provided in Annexure 7.2.1.

### NER AS A SPECIAL CATEGORY FOR DEVELOPMENT EFFORTS

7.2.3. Recognizing the special requirements of the region and the need for significant levels of government investment, the North Eastern States have been categorized



**TABLE 7.2.1**  
**Central Assistance as Percentage of GSDP during the Tenth Plan**

S. No.	Category	2002–03	2003–04	2004–05	2005–06	2006–07
1.	North Eastern States	9.07	9.18	10.67	10.55	10.60
2.	Special Category States	9.30	10.14	10.44	10.03	9.65
3.	Non-Special Category States	2.43	2.30	2.26	2.05	1.94
4.	All-India	2.83	2.75	2.72	2.49	2.35

as Special Category States and Central Plan assistance to these States is provided on liberal terms. For the Special Category States of NER, the per capita level of Central assistance is among the highest in the country. A statement indicating total Central assistance provided during Tenth Plan indicating per capita Central assistance is shown in Annexure 7.2.2(a). It may be observed that against the all-India average of Rs 683.94 the per capita Central assistance, in the NER was Rs 2574.98 in 2006–07. It may be observed that per capita Central assistance is the highest in the State of Sikkim. A statement indicating total Central assistance as a percentage of GSDP in the NE States, Special Category States and Non-Special Category States is given in Table 7.2.1.

7.2.4. It may be observed that Central Assistance as a percentage of GSDP of Special Category States had been considerably high as compared to Non-special Category States during the Tenth Plan period.

#### **SPECIAL INITIATIVES (10% MANDATORY EARMARKING OF FUNDS FOR NER)**

7.2.5. Special attention has been given to the economic development of the region from the Eighth Plan period onwards. In October 1996, the Central Government's announcement of 'New Initiatives for the North Eastern Region' included a number of measures for the development of the NER which covered policy changes, special area development and development projects in key sectors. In order to mobilize financial resources, a policy decision was taken to earmark at least 10% of the Plan Budget(s) of the Central ministries/departments for development of the North Eastern States.

#### **NON-LAPSABLE CENTRAL POOL OF RESOURCES (NLCRP) AND SETTING UP OF MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION**

7.2.6. The Non-Lapsable Central Pool of Resources (NLCPR) created in 1997–98 (operationalized in 1998–

99) is the accrual of the unspent balance of the mandatory 10% budgetary allocation of the Ministries/Department. The broad objectives of the NLCPR Scheme is to ensure speedy development of infrastructure by way of filling the existing infrastructural gaps (economic and social) in the region by making funds available from the pool.

7.2.7. The Ministry of Development of North Eastern Region (DoNER) was set up in 2001 to coordinate and give impetus to the Centre's development efforts pertaining to socio-economic development of the region. NLCPR, which was initially handled by the Planning Commission, was transferred to DoNER after its creation. DoNER is responsible for coordination the planning, execution and monitoring of the developmental schemes and projects in NER; NEC; NEDFI; North Eastern Regional Agricultural Marketing Corporation Limited; NEHHDC, and so on. While DoNER is to coordinate with various Ministries/Departments primarily concerned with development and welfare activities in NER, the respective Ministries/Departments are responsible in respect of subjects allocated to them.

#### **FLOW OF RESOURCES THROUGH SPECIAL INITIATIVES**

7.2.8. A statement indicating year-wise expenditure by Central Ministries (other than exempted Ministries/Departments) in NER is given in Annexure 7.2.2(b). According to the assessment made by DoNER, the Central Ministries/Departments (except the exempted Ministries/Departments) invested Rs 35186.30 crore from 1998–99 to 2005–06 (2006–07 estimates are not available). The utilization of the 10% mandatory earmarked funds by the Central Ministries has gone up in recent years. An amount of Rs 10426.36 crore has accrued to NLCPR till the end March 2006. Out of this accrual, an amount of Rs 4660.46 crore has also been released to the States from NLCPR for specific projects. As on 31 May 2007, a total of 836 projects had been taken up (including four interstate/regional projects), out of which 389 projects have been completed.

### SPECIAL PACKAGES FOR NER

7.2.9. The Central Government has also been announcing special packages for socio-economic development of the NER from time to time. Priority funding (both in the Central plan and State Plan) are being arranged from time to time for expeditious implementation of these packages.

### NORTH EASTERN COUNCIL (NEC)

7.2.10. The NEC was established under the NEC Act, 1971 to act as an advisory body in respect of socio-economic development and balanced development of the seven States of the NER. In 2002, Sikkim was included by an amendment and the Council has been designated the Regional Planning Body. The functions of NEC are to discuss matters of common interest in the field of economic and social planning of the region and advise the governments (Central and State) as to the action to be taken on such matters, formulate Regional Plans and recommend the manner in which the Regional Plan may be implemented. NEC is also to monitor the progress of project implementation and recommend to the Central Government the quantum of financial assistance to be given to the States. However, the absence of a well coordinated Regional Plan is being felt constantly.

7.2.11. Since its inception, NEC has invested Rs 7182.61 crore till the end of the Tenth Plan. Statement of sector-wise investment by NEC from 1973 to 2006–07 is given in Table 7.2.2.

**TABLE 7.2.2**  
**Sector-wise Investment by NEC from 1973 to 2006–07**

Sectors	Rs crore
Agriculture and Allied Sectors	241.53
Water and Power	2586.27
Industry and Mining	110.36
Transport and Communication	3315.32
Manpower Development	393.15
Social and community services	472.85
General Services	48.07
Externally Aided Projects	15.06
<b>Total</b>	<b>7182.61</b>

7.2.12. The major investments had been in transport and communication followed by the water and power sector. Investments include construction of roads, upgradation/improvement of airports, survey and investigation of hydroelectric power projects, funding support for hydro

and gas based power projects, transmission lines and transformation projects, and so on. Schemes taken up under the health sector are development of technical manpower (MBBS, postgraduate courses, para-medical and other specialists/super specialists' courses), improvement of health infrastructure/health centres, and so on. Important regional institutes funded by the NEC are the North East Police Academy (NEPA); Regional Institute of Medical Sciences (RIMS), Imphal; Regional Institute of Para-medical and Nursing (RIPAN), Aizawl; Regional College of Nursing, Guwahati; Regional Dental College (RDC), Guwahati; LGBRIMH, Tezpur; and Regional Institute of Pharmaceutical Science and Technology, Agartala. Based on the suggestion made by the Planning Commission, RIMS, Imphal; LGB Regional Institute of Mental Health (LGBRIMH), Tezpur; RIPAN, Aizawl; have been transferred to the Health Ministry and NEPA has been transferred to the Ministry of Home Affairs from the Annual Plan 2007–08.

7.2.13. Notwithstanding the volume of investments made by NEC, it is in the role definition and discharging of it that NEC requires a critical review. The function of NEC was to have been an effective regional planning body which will act as a bridge between the State's priorities and the regional perspectives and ensure well orchestrated investments of States and Central resources within a common regional perspective.

### TOTAL FLOW OF PLAN INVESTMENT RESOURCES IN THE TENTH PLAN

7.2.14. As per the assessment made by DoNER, total Plan investment by the Centre and States of the NER had been approximately Rs 80000 crore during the Tenth Plan through various windows of funding (including Central assistance provided to the States under their plans) indicated above (Annexure 7.2.3). These include project-based assistance under the State Plan, NLCPR, NEC and the Central Ministries as well as CSSs.

7.2.15. It is often criticized that despite these huge investments the impact is not visible. Major projects in the transport and communication, irrigation and also in the power sectors are incomplete due to poor planning and execution. The need for a coordinated approach to investment is evident. Although it would be difficult to come to a definite conclusion on the impact of the investments made so far without any evaluation study, it is prudent to

intensify closer monitoring and evaluation of outcomes from investment made as a self-improvement mechanism. It would be necessary to evaluate some of the programmes under DoNER (NEC, NLCPR).

7.2.16. The NEC's continued role as a Regional Planning Body is crucial for overall development of the region. Priorities for development, especially those which have a regional bearing, must not get diluted while selecting projects for sanction. The forward and backward linkages of developmental projects must be given due consideration. It is observed that major projects suffer immense time and cost overruns due to poor management and little accountability. NEC's role as a planning and coordinating body has to be considerably strengthened and its procedures streamlined, so that it may act as a mentor to the States in their quest to bring about greater inter-regional coordination. NLCPR funds are also sanctioned based on the priorities fixed by the States, at times without any regard to the regional thrust. DoNER's coordinating role for Central investments in the NER has become very effective in the Tenth Plan. It needs to be further strengthened. Some important decisions taken in this regard in the review meetings must be followed up. One of the important issue DoNER needs to stress is the monitoring of economic activity in terms of availability of credit.

#### CENTRALLY SPONSORED SCHEMES (CSS)

7.2.17. It is evident from the plan performance review that North Eastern States were unable to contribute the State's share as per the norms of various CSS due to fund constraints. As a result, North Eastern States are not availing of the programmes to the fullest extent. North Eastern States have been demanding an uniform funding pattern (90:10) for CSS for the NER. There is a need for a clear policy so that North Eastern States are able to take full advantage of all the CSS.

#### FINANCIAL STATUS OF STATES

7.2.18. The States of the NER have a weak financial base and also limited scope to raise additional resources. While some States have made some efforts in controlling expenditure and have taken initiatives in fiscal reforms under the direction of the Ministry of Finance, other States in NER need to step up their efforts. Often, the full benefit which should be apparent from the total fund flow has been curtailed as the Central funds earmarked

for development have been diverted towards meeting the non-plan revenue gap.

7.2.19. One of the critical developments having a major affect on the financial position of the States is the revision in the salaries of the State Government employees comparable to the Central pay pattern based on Fifth Central Pay Commission's recommendations. This has created a heavy burden, especially in the light of the States' inability to generate their own resources. Due to the sharp increase in the salary bill, States depend more on borrowing to finance their revenue expenditure.

7.2.20. Analysis of the States' plan resources during the Tenth Plan period shows that Sikkim, Nagaland, and Mizoram could achieve the projected SOR for the Tenth Plan. However, there had been deterioration in States Own Resources (SOR) of the remaining States. Additional Resource Mobilization (ARM) had been negligible in the North Eastern States. Funding of the Plan had mainly been through Central Assistance during the period.

#### FINANCIAL INSTITUTIONS AND CREDIT AVAILABILITY

7.2.21. Availability of credit is one of the critical weaknesses in the development of economic activity. Various indicators for NER show that despite improvement in banking facilities the last five years, the level of financial outreach is low. Credit to Net State Domestic Product (NSDP) ratio of all the States ranging from nine in Nagaland to 41 in Meghalaya, is lower than the national average of 62. The ratio of current and savings accounts of scheduled commercial banks per 100 adult population as on 31 March 2005, ranged from 19.5 in Manipur to 40.9 in Meghalaya, with a regional average of 37.3, distinctly lower than the national average of 59.3 (Table 7.2.3).

7.2.22. The main impediments for banking and financial development are topography of the region, sparse population settlements, infrastructural bottlenecks, smaller size of the market, lack of entrepreneurship, law and order conditions in some parts of NER, land tenure system especially in hilly areas, development strategy based on grants rather than loans, low network of branches, lack of simple, customized and flexible financial products to suit the needs of the local population, poor loan recovery experience, lack of awareness of banking services and inadequate payment systems.

**TABLE 7.2.3**  
**Indicators of Banking Development in the North East**

S. No.	States	APPBO		CD Ratio		Current and Savings Accounts per 100 adult		Credit Accounts per 100 Adult population		Per Capita Deposit (in Rs) Population		Per Capita Credit (in Rs)		Credit to NSDP Ratio Latest NSDP data
		2001	2005	2001	2005	2001	2005	2001	2005	2001	2005	2001	2005	
1	Arunachal Pradesh	15813	16211	15	22	45.9	37.8	6.8	6.2	5629	10869	786	2287	1
2	Assam	21008	20960	32	35	39.4	39.1	4.5	5.9	3701	6669	1155	2261	26
3	Manipur	28436	29791	40	42	20.1	19.5	3.2	4.0	1808	4289	717	1713	11
4	Meghalaya	12741	12658	17	44	44.3	40.9	6.9	8.3	7139	13087	1138	5281	41
5	Mizoram	11279	11278	24	48	25.8	29.0	5.4	7.7	4441	8741	1030	4028	NA
6	Nagaland	28009	27990	12	23	22.3	19.7	2.6	3.6	4513	6425	518	1356	9
7	Tripura	17438	17429	22	29	37.0	36.7	12.3	13.6	4905	8200	1015	2240	18
	NE Region	19894	19885	28	35	38.2	37.3	5.4	6.7	4003	7199	1068	2407	NA
	All India	15209	14949	57	66	55.0	59.3	9.7	13.3	9245	16700	4976	10474	62

Source: Report of the Committee on Financial Sector Plan for NER.

7.2.23. The penetration of banking in NER, particularly in the rural areas, has been very low. Though the annual growth rate of deposit for NER was more or less aligned with the national average, there is a wide variation among individual States. The CD ratio of NER as a whole, as also the individual States, was far below the national average, which is a matter of concern. The sectoral share of total credit shows significant divergence from the national pattern. The trend clearly shows the low level of commercialization of agriculture and low level of industrialization in NER. Poor recovery of loans, especially those under government-sponsored schemes, and default by borrowers act as a deterrent for granting fresh loans. Micro credit linkages of the banks with SHGs leave much scope for improvement. There is a need to upscale the operations through SHGs, especially for providing working capital and investment credit.

7.2.24. The land tenure system prevalent in most States of the region (except non-scheduled areas) restricting alienation of land from a tribal to a non-tribal, together with absence of personal ownership rights and commensurate land records, makes it difficult for the banks to lend in the region. Important suggestions have been given by committees set up for looking into the issues of credit supply in NER. Suggestions have been made for using social capital as alternative collateral and also devising an alternative to land documents for extending small credits. There are also other important suggestions for expanding credit supply for economic activity which need to be looked in to.

#### TASK FORCE ON CONNECTIVITY ON PROMOTION OF TRADE AND INVESTMENT IN NER

7.2.25. The Planning Commission constituted a Task Force on Connectivity and Promotion of Trade and Investment in NER. The main recommendations of the Task Force are completion of modified Phase A of SARDP-NE, to take the Trans Arunachal Highway on priority; road links in Manipur; completion SARDP-NE Phase B selectively based on resources availability in the Eleventh Plan; construction of a bridge at Sadia-Dholaghat over the Brahmaputra River; completion of ongoing railway projects; priority funding for identified projects; construction of three greenfield airports at Pakyong in Sikkim, Itanagar in Arunachal Pradesh and Cheithu in Kohima; modernization of airports of NER and

harnessing of the maximum potential of inland water as a mode of transport. Endeavour is on to look for possible funding arrangements for the priority projects during the Eleventh Plan.

#### SECTORAL SUMMITS

7.2.26. The North Eastern Council has been reviewing sectoral programmes of the respective ministries with regard to NER and has also suggested appropriate steps for expeditious implementation of important projects/programmes. Important suggestions have come out of these sectoral summits on Power, Health, Tourism and Hospitality, Roads, Irrigation and Flood Control and Education and Sports held during 2007.

7.2.27. NER has hydro-power potential of 63257 MW (42.54%), including Sikkim, against the all-India potential of 148701 MW. Arunachal Pradesh alone has the potential of 50328 MW which is 80% of the total hydro-power potential of the NER and 34% of the total potential of the country. Despite recognizing this potential, the desired thrust is not there as hydro power development requires huge investments. The sectoral summit on power suggested a two-pronged strategy for power generation with focus on small/localized hydel and thermal and NER power projects for local needs and high capacity hydel and thermal power projects with associated transmission lines for meeting the demands of the region and also supply to the rest of the country. Transmission, sub-transmission and distribution system improvements have been identified as one to the thrust areas for the Eleventh Plan. The summit also suggested preparation of a master plan for power development for NER, including an appropriate funding mechanism relevant to the Region.

#### FOREST RESOURCES AND NER

7.2.28. The forests of NER face unrelenting pressures from increasing population and development resulting in degradation and deforestation. Over-exploitation due to the shortening cycle of shifting cultivation is assumed to be the core driver of this forest degradation and depletion, affecting the biodiversity of the region.

7.2.29. Forest cover statistics of NER reveals some contradictory trends. One set of data (forest survey) showed a steady reduction in forest cover at an annual rate of 0.15% during 1991–2001. However, State-level

data provides a clear indication of increase in forest cover in almost all the States in 1997–2001. There is a popular perception that the biological potential for carbon finance in the forest sector of the NER is substantial. Afforestation and reforestation are being suggested for increasing forest cover in NER. However, this needs huge investment, which the States are unable to meet from their own resources. There is need for incentives to the States for increase in forest cover.

### NATURAL DISASTERS AND THE NER

7.2.30. The NER is regularly struck by natural disasters in the form of floods and landslides, though other extreme events causing disaster are rare except the disastrous earthquake of 1950. Damages caused by the menace of floods, which assume an alarming proportion, especially in the Brahmaputra and Barak Valleys of Assam, exert considerable strain on the economy not only of Assam but also other North Eastern States. Other than temporary measures like construction of embankments, long-term measures for construction of multi-purpose storage dams for moderating the effect of floods are lacking. Floods causing disruption in communication network and loss to human life and property have become almost an annual feature in Assam, Tripura, Arunachal Pradesh and other plains areas of North Eastern States. Considering the regular periodicity and gravity of such disasters, appropriate measures need to be adopted and continually refined for management and mitigation of the consequences.

### PRIMARY SECTOR DEVELOPMENT

7.2.31. The pattern of agricultural growth has been uneven across the region. The NER is a category of its own kind. The Region, which is about 8% of the country's total geographical area, produces a very meagre proportion of food grains (1.5%). The enormous potential of the region in agriculture, horticulture, animal husbandry and fisheries is contrasted by the low levels of productivity in the region, which are generally below the national average.

7.2.32. To attain sustainable development of agriculture in the Region, the availability of the critical inputs like irrigation facilities, including field drainage to prevent water logging, fertilizers, high-yielding variety (HYV) seeds and institutional credit would have to be ensured.

Large irrigation schemes may take their time. Modest but useful unexploited potential for groundwater, river lift and small diversions offer significant immediate possibilities by promoting the use of cost-effective means of irrigation. Agricultural growth can be stepped up by taking measures to improve cropping intensity. The problem of agricultural credit can be overcome by revitalizing the cooperative credit structure and availing of NABARD credit.

7.2.33. Taking into account the connectivity problem and the perishable nature of the primary produce, in the short run, greater emphasis needs to be given to food processing industries. Cultivation of vegetables, fruits and spices, and commercialization of agriculture needs to be encouraged by investing in marketing and storage facilities. Institutional reforms are needed to ensure equitable distribution of benefits from groundwater resources. The emphasis should be agricultural strategy and programmes for income enhancement of the farmer through provision of multiple livelihood opportunities.

### APPROACH AND STRATEGIES FOR THE ELEVENTH FIVE YEAR PLAN (2007–12)

7.2.34. The NER, though rich in development potential in terms of human capital and natural resources, lacks in adequate physical infrastructure which is impeding its growth. While considerable progress has been made over the years, certain crucial gaps remain. The primary sector has remained largely stagnant; the secondary sector has been handicapped due to a variety of reasons. The planning exercise has resulted mainly in the expansion of the tertiary sector. Lack of employment opportunities, especially among the educated youth, gets reflected in social disturbances, further slowing down the developmental process.

7.2.35. The Approach document for the Eleventh Plan emphasizes inclusive growth as its aim. To this end, it is the collective endeavour of the Central and State Governments to formulate appropriate policies during the Eleventh Five Year Plan for NER. As stated earlier, significant levels of government investment had been made during the Tenth Plan. Both NEC and DoNER were strengthened. The mandatory earmarking of minimum 10% of Central ministries' budget as also setting up of NLCPR have accelerated the pace of development. These steps need to be continued during the Eleventh Five Year

Plan with strategy strengthening particularly in the area of regional planning.

7.2.36. The NEC has to convert itself into an effective planning body. The long awaited Vision 2020 document needs to be finalized at the earliest. The thrust of NEC has to be the preparation of a perspective plan for each of the major/critical sectors in consultation with the States and ensure that the forward and backward linkages are accorded priority as well as pledging of funds by the State Governments annually.

7.2.37. The Approach to the Eleventh Plan document has emphasized connectivity as the key area for the development of NER. The Eleventh Plan would have a special thrust on transport infrastructure under the identified programmes and areas identified by the Task Force which would necessitate a concerted and multi-pronged action, including resource mobilization, which may also comprise of VGF. Various road development programmes, including SARDP-NE would be taken up at an accelerated pace. High priority would be accorded for converting the Meter Gauge (MG) network to Broad Gauge (BG) in the region during the Eleventh Five Year Plan period. Efforts will be made to provide rail link to all State capitals of the NER. Construction of three greenfield airports at Pakyong in Sikkim, Itanagar in Arunachal Pradesh and Cheithu in Kohima would be taken up on priority. Important airports in the NER are proposed to be modernized. In order to harness the potential of inland water as a mode of transport, and the River Brahmaputra National Waterway 2, which provides trunk route connectivity to the Region, will be made fully functional.

7.2.38. 98% of the borders of the States of NER (excluding Sikkim) are with other countries—Bhutan and China in the north, Myanmar in the east, and Bangladesh in the south and west. Economic ties with the neighbouring countries have special significance for the States of the NER due to the long, common border with neighbouring countries and proximity to South-east Asian countries. There is wide scope of generating economic activity through interaction with these countries. A transit route through these countries could also provide larger integration of several States and bring considerable mutual economic advantage. The Look East Policy, hence,

is important for bringing these areas out of isolation and gradually developing an economic identity and moving on a higher growth path. Land Customs Stations, which are the gateways for the transit of goods, services and people between neighbouring countries, need upgradation of infrastructure facilities. There are twelve Land Customs Stations in NER, which need to be strengthened on priority basis.

7.2.39. Agriculture, horticulture and related activities can be the engines of economic growth and should be the focus of development planning of the States as well as the Centre. For sustainable development of agriculture during the Eleventh Plan, the thrust would be to ensure availability of the critical inputs (irrigation, facilities of drainage, fertilizers, HYV seeds and institutional credit). Implementation of a region-specific strategy depends critically upon State-level agencies. The Central Government will provide them both technical and financial support.

7.2.40. Horticulture, including floriculture, is assuming great significance in NER. Apart from more predictable shortages of planting materials, marketing infrastructure is the weakest link in the value chain. The approach will be to substantially step up efforts in 'field to road' connectivity and also to strengthen the transportation network through dedicated road/rail/air cargo routes. There is need for greater research and training inputs for converting the horticulture produce to low volume, high value products having long shelf life. During the Eleventh Plan, the 'Technology Mission for Integrated Development of Horticulture' should address these issues. To realize the full potential of horticulture, all four stages between the producer and the consumer—production, procurement/transportation, processing and marketing/distribution—would be strengthened.

7.2.41. There is need for conscious effort in banking and financial sector development to ensure unhindered credit flow for supplementing the developmental efforts of the governments in NER. Periodic meetings between industry associations and banks would be of help in understanding the associated problems related to industries in the region. A dialogue with banking and financial institutions is necessary in order to review their existing norms and procedures and adapt suitably to respond to the special

**Box 7.2.1**  
**Critical Parameters for Growth of the North Eastern Region**

- Two-pronged growth strategy: creation of critical infrastructure and creation of employment opportunities.
- Improvement in the security, law and order and governance.
- Capacity building of implementing machinery (government functionary); technical assistance programmes for capacity building.
- Thrust on major sectors of connectivity (road, rail, air, inland waterways, telecommunication) and power with major step-up in investment in these sectors.
- Thrust on major social infrastructure: Health, Education (upgradation of quality) and Tourism, clearly identifying gaps therein, and Skill Development.
- Emphasis on the primary sector of the economy to substantially step up productivity in food grains within a period of five years. Emphasis on agriculture extension services, irrigation.
- Farm-based economic activities: Horticulture, Animal Husbandry, Fisheries, Poultry, and so on.
- Post-harvest management and marketing infrastructure.
- Synergy and dovetailing of programmes/schemes between Central ministries and the State Governments for filling up gaps in infrastructure.
- Building capacity and bringing professionalism in NEC as a Regional Planning Body.
- Active involvement of Autonomous District Councils, Panchayati Raj and local Self Government institutions, communities and Self-Help Groups in various development welfare schemes.
- Making the region an attractive destination for private sector investment and PPP.
- State-specific approach for the creation of opportunities for employment generation.
- Development of the region linked to the Look East policy of the government and development of relationship with neighboring countries of the entire region.
- Development of LCS to make international trade attractive through the North East.
- Systematic approach to infrastructure development (road/rail/power/IWT/airports) in the Region. Resources requirement for development is huge. Many of these roads or airports cannot be justified on the basis of economic viability, but these are vital for opening up the region and better integration.
- Maintenance of roads is an important aspect and needs a separate financial arrangement.
- Setting up of an interdisciplinary body for overseeing the planning and timely execution of communication projects undertaken including, inter alia, the absorption capabilities and their augmentation.

land laws and other features prevailing in the NER with a view to augmenting the flow of credit to the Region during the Eleventh Plan.

7.2.42. There is an urgent need for intensive, effective, focused and time-bound drive for capacity building of State machinery wherever States feel that the existing capacity is inadequate. There is need to revisit the 'Capacity Building' scheme of DoNER. One critical area that requires immediate re-look is the States' capacity to mobilize their own resources. The desired Plan size will depend considerably upon the ability to mobilize resources. There is realization that it is through effective control on non-plan expenditure and generation of resources in all possible areas that sustainable growth is feasible. Capacity building of personnel in this area would have to be upgraded.

7.2.43. The development of human resources needs to be taken up on the highest priority. Upgrading of skills of the workforce, as are relevant to the area, need to be emphasized. Redesigning of the educational map for quality education in the NER should be a priority concern. A holistic planning of education and vocational skills are essential to provide enough opportunities for gainful employment to the youth of the Region. This would form an interfaced core point of the Plan.

7.2.44. Health and education requires an expanded role for the States of NER for achieving the 'monitorable targets' of the Eleventh Plan. Access to essential public services such as health, education, clean drinking water and sanitation calls for strong State intervention to ensure delivery of these services. The NRHM has been launched in order



to improve the access and availability of quality health care and nutrition. However, due to the difficult terrain conditions, access to these basic services remains a concern for all. During the Eleventh Plan, the delivery mechanism will be strengthened and schematic flexibility of content as well as operationalization, and partnership with private/non-governmental organizations working in the area will be promoted.

7.2.45. Several areas of the region are sparsely inhabited or have special requirements (for example, the islands in

the Brahmaputra river) where development programmes, particularly basic services, like education and health have to be provided. State governments would be supported in all the schemes which aim at these.

7.2.46. While the above-mentioned issues are critical to the growth of the region, effective implementation and monitoring of the above programmes holds the key to any quantum jump in the growth of the region.

**ANNEXURE 7.2.I**  
**Socio-economic Indicator of North East and India**

S. No.	Indicators	Name of the States								All India
		Arunachal	Assam	Manipur	Mizoram	Meghalaya	Nagaland	Sikkim	Tripura	
<b>I. General</b>										
1.	Area(Sq. Km)—2001	83743.00	78438.00	22327.00	21081.00	22429.00	16579.00	7096.00	10486.00	3166414
2.	No. of Districts—2001	13	23	9	8	7	8	4	4	593
3.	No. of Blocks—2001	54	214	34	30	39	52	8	38	5550
4.	No. of Towns and Cities—2001	17	125	33	22	16	9	9	23	5161
5.	No. of Villages—2001	4065.00	26312.00	2391.00	817.00	6026.00	1317.00	452.00	870.00	638588
<b>II. Demography</b>										
6.	Total population-2001	1091117	26638407	2388643	891058	2306069	1988636	540493	3191168	1027015247
	(i) Rural Poulation	868429	23248994	1818224	450018	1853457	1635815	480488	2648074	741660293
	(ii) Urban Population	222688	3389413	570410	441040	452612	352821	60005.00	543094	285354954
7.	Sex Ratio(female per 1000 male)	893	935	978	935	972	900	875	948	933
8.	SC/ST polulation									
	(i) SC	6188.00	1825949	60037.00	272.00	11139.00		27165.00	555724	1666635700
	(ii) ST	705158	3308570	741141	839310	1992862	1774026	111405	993426	84326240
9.	Population density(per sqkm)	13.11	339.83	97.05	42.15	103.38	236.37	76.22	305.07	324.85
10.	BPL (1999–2000)	33.47	36.09	28.54	33.87	19.47	32.67	36.55	34.44	26.02
	(i) Rural	40.04	40.04	40.04	40.04	40.04	40.04	40.04	40.04	27.01
	(ii) Urban	7.47	7.47	7.47	7.47	7.47	7.47	7.47	7.47	23.62
<b>III. Health</b>										
11.	Crude Birth/Death rate									
	(i) Birth Rate	23.3	25.0	14.7	18.8	25.1	16.4	19.9	16.0	23.0
	(ii) Death Rate	5.0	8.7	4.1	5.1	7.5	3.8	5.1	5.7	7.6
12.	TFR	NA	2.9	NA	NA	NA	NA	NA	NA	NA
13.	IMR	37	68	13	20	49	18	30	31	58
14.	MMR	NA	301	NA	NA	NA	NA	NA	NA	301

*(Annexure 7.2.I contd.)*

(Annexure 7.2.1 contd.)

S. No.	Indicators	Name of the States								
		Arunachal	Assam	Manipur	Mizoram	Meghalaya	Nagaland	Sikkim	Tripura	All India
<b>IV.</b>	<b>Education</b>									
15.	Literacy Rate(Total)	54.3	63.3	70.5	88.8	62.6	66.6	68.8	73.2	64.8
	(a) Male	63.8	71.3	80.3	90.7	65.4	71.2	76.0	81.0	75.3
	(b) Female	43.5	54.6	60.5	86.7	59.6	61.5	60.4	64.9	53.7
16.	Gross enrolment ratio (class I-VIII) 6-14 years-2001-02	98.82	99.54	91.65	105.21	94.26	89.72	97.72	89.83	82.35
17.	Drop out ratio (1-VIII)-2001-02	60.02	69.21	37.75	59.89	76.99	53.36	63.41	69.02	54.65
<b>V.</b>	<b>Other Eco. Indicators</b>									
18.	No. of Districts with access to Safe Drinking Water(2001)	13	23	9	8	7	8	4	4	593
	(a) 100% access	0	1	2	0	1	5	0	0	
	(b) 90% access	0	5	3	0	0	2	0	1	
	(c) 80% access	10	7	2	0	2	1	3	1	
	(d) less than 20%	3	10	1.00	0	4	0	0	2	
19.	Rail Density as on 31.03.2003 (Route Kms/1000 sq. Kms)	0.02	32.09	0.06	0.07		0.78		6.14	19.22
20.	Road per 100 Sq. Kms of area(Kms.)	21.80	109.04	51.20	23.00	40.70	122.70	26.10	148.40	76.80
21.	CDR (scheduled Bank) March, 2002									
	(a) As per sanction	15.80	31.70	26.40	26.40	18.30	12.80	16.00	21.50	58.40
	(b) As per Utilisation	27.40	70.30	27.30	36.20	24.30	18.10	22.50	21.60	58.40

*Note:* Literacy Rate—percentage of literate to total population aged seven years. Per capita investment ratio is total investment (Public and Private divided by population 2001 Census).

*Source:* Census Website India—Demographic figures; Ministry of Health and Family Welfare—Health Sector.

**ANNEXURE 7.2.2**

**(a) Central Assistance for State Plans during the Tenth Plan (2002–07)**

(Rs crore)

S. No.	States	2002–03	Per Capita CA	2003–04	Per Capita CA	2004–05	Per Capita CA	2005–06	Per Capita CA	2006–07	Per Capita CA	Population
1.	Arunachal Pradesh	653.16	5937.82	695.49	6322.64	802.49	7295.35	859.31	7811.91	939.50	8540.91	0.11
2.	Assam	1962.99	737.97	2043.48	768.23	2720.99	1022.93	2907.45	1093.03	3008.02	1130.83	2.66
3.	Manipur	609.72	2540.50	668.79	2786.63	874.39	3643.28	1080.70	4502.92	1216.46	5068.58	0.24
4.	Meghalaya	452.59	1967.78	492.24	2140.17	611.36	2658.10	656.23	2853.17	695.78	3025.13	0.2
5.	Mizoram	471.24	5236.00	555.42	6171.33	675.72	7508.04	705.00	7833.33	717.25	7969.44	0.09
6.	Nagaland	497.36	2486.80	546.34	2731.70	662.06	3310.28	642.64	3213.20	721.97	3609.85	0.20
7.	Sikkim	320.02	6400.40	362.42	7248.40	437.19	8743.88	399.49	7989.80	464.92	9298.40	0.05
8.	Tripura	683.61	2142.31	754.93	2365.81	876.17	2745.76	860.98	2698.15	976.22	3059.29	0.32
9.	Total Northeast (1 To 8)	5650.69	1449.23	6119.11	1569.36	7660.38	1964.65	8111.80	2080.43	8740.12	2241.57	3.90
10.	Spcl. Cat. States	10349.82	1625.01	12294.28	1930.30	13880.23	2179.31	14559.74	2286.00	15310.33	2403.85	6.37
11.	Non-spl. Cat. States	43829.92	455.75	46568.41	484.23	50343.89	523.49	51455.24	535.04	54820.41	570.04	96.17
12.	Grand Total (10+11)	54179.74	528.38	58862.69	574.05	64224.13	626.34	66014.98	643.80	70130.74	683.94	102.54

**(b) Central Assistance to NE States, including NLCPR and NEC and per capita Assistance (eight States taken together)**

(in Rs Crore)

	NLCPR	NEC	Central Assistance	Total	Per Capita Assistance
2002–03	550.00	450.00	5650.69	6650.69	1705.70
2003–04	550.00	500.00	6119.11	7169.11	1838.66
2004–05	650.00	500.00	7660.38	8810.38	2259.59
2005–06	679.17	461.5	8111.80	9252.47	2372.98
2006–07	700.00	600.00	8740.12	10040.12	2574.98

**ANNEXURE 7.2.3**  
**Year-wise Expenditure by Central Ministries in NER**

Year	GBS	Expenditure in NER		%
		(In Rs Crore)		
1998–1999	32113.10	2128.28		6.63
1999–2000	3651.46	2228.57		6.25
2000–2001	42478.54	2920.49		6.88
2001–2002	52186.12	3802.93		7.29
2002–2003	*55297.08	5139.59		9.29
2003–2004	*58356.18	5237.31		8.97
2004–2005	*63030.75	6403.74		10.16
2005–2006	*87061.62	7325.39		8.41
2006–2007	*11279.57			

Note: \*Excluding Externally Aided Projects (EAP)

**ANNEXURE 7.2.4**  
**Investment in NER during the Tenth Five Year Plan**

Source of funding	Rs crore					Total
	2002–03 RE	2003–04 RE	2004–05 RE	2005–06 BE	2006–07 BE	
State Plan	5367	5702	6833	8274.00	9685.00	35861.00
Central Ministries/ Central Sector/CSS	5460	6776	6787	9150.14	11268.14	39441.28
NEC	450	500	500	461.50	600	2511.50
NLCPR	550	550	650	679.17	700	3129.17
<b>Total</b>	<b>11827</b>	<b>13528</b>	<b>14770</b>	<b>18564.81</b>	<b>22253.14</b>	<b>80942.95</b>

## Innovation and Technology

### INTRODUCTION

8.1. Since Independence, India has endeavoured to bring economic and social change through science and technology. The effort has been both on upgrading the traditional skills to make them relevant and competitive and developing advanced capabilities in frontier areas of science and technology. The visionaries who led the growth of science and technology (S&T) in India were convinced that S&T could play an important role in transforming India into a modern, industrialized society. Experience and results show that this confidence was well placed. Science, technology, and innovation are even more relevant today. Scientific knowledge and expertise, innovation, high technology, industrial infrastructure and skilled workforce are the currencies of this new era.

8.2. The investments made in Research and Development (R&D) by the developed countries reveals that the comparative strength of India in knowledge sectors would be seriously disadvantaged in competition to other nations with similar or even smaller sizes of economy relative to India if adequate investments are not made in this domain. As per R&D statistics for 2004–05, India invests around 0.8% of GNP in R&D compared to more than 2% by the developed countries. India currently ranks 13th among the top 38 countries in terms of number of publications in SCI journals; China ranks ninth. On the other hand, India ranks second after China, among the top 23 developing countries. However, the productivity of Indian science as a measure of dollars spent per publication in Science Citation Index (SCI) journals is comparable with other countries.

### ELEVENTH PLAN POLICY AND APPROACH

8.3. While India's economic growth in the recent years has been impressive, many challenges remain to be met to create a strong and vibrant innovation eco-system, which is the need of the day. This requires (i) an education system which nurtures creativity; (ii) an R&D culture and value system which supports both basic and applied research and technology development; (iii) an industry culture which is keen to interact with the academia; (iv) a bureaucracy which is supportive; (v) a policy framework which encourages young people to enter into scientific careers and (vi) an ability to scan scientific developments in the world and use technology foresight to select critical technologies in a national perspective. It is with this conviction that the Eleventh Five Year Plan approach to S&T has emphasized the following:

- Setting up a national-level mechanism for evolving policies and providing direction to basic research;
- Enlarging the pool of scientific manpower and strengthening the S&T infrastructure and attracting and retaining young people to careers in science;
- Implementing selected National Flagship Programmes which have direct bearing on the technological competitiveness of the country in a mission mode;
- Establishing globally competitive research facilities and centres of excellence;
- Kindling an innovative spirit among scientists to translate R&D leads into scalable technologies;
- Developing new models of PPPs in higher education, particularly for research in universities and high technology areas;

- Identifying ways and means of catalysing industry–academia collaborations; and,
- Promoting strong linkages with advanced countries, including participation in mega international science initiatives.

8.4. The Eleventh Five Year Plan will provide policy support for incentivizing greater accountability, administrative efficiency and flexibility and in some cases, systemic changes. The most important among these is the need for organizational and administrative changes in S&T departments/agencies/institutions to create a conducive environment for R&D and ensuring optimal/efficient use of public sector R&D resources. Manpower being critical for the successful implementation of research projects, approval of the scheme/project needs to be accompanied by approval of the scientific and technical manpower.

8.5. In addition there is a need to focus on policy issues relating to experiments on animals, women in science, cyber infrastructure for S&T, encouragement of S&T based entrepreneurs, mobility of scientists between organizations, multi-ministerial funding and implementation mechanisms for projects. The role of socio-economic ministries towards mainstreaming S&T in their programmes is also an important policy issue because many programmes/activities relating to S&T fall within the purview of these ministries. A substantial part of the activities that affect large sections of society are carried out at the State level using local infrastructure and resources. To derive maximum benefits from the application of science and technology, it is necessary that the State S&T departments and councils play a crucial role involving and using the facilities and expertise created within the State as well as by the Central agencies.

## DOMAINS FOR FOCUSED ATTENTION FOR THE ELEVENTH PLAN

### INNOVATION FOR FASTER AND MORE INCLUSIVE GROWTH

#### Innovation for Increasing Returns from Raw Materials

8.6. Innovation is linked to first application of concepts and the creation of value from an idea or concept. In the global market economy, the ability of nations to create, absorb and commercialize innovations determines their competitiveness. Innovation is closely linked to the creation

of wealth in a modern knowledge economy. Value addition to raw materials in India through applications of technology has remained low compared to other nations such as Israel, Finland, Japan, and South Korea. Typically, innovation-led manufacturing provides 20–25% increase in value to raw material inputs. Increasing labour productivity through technology change and innovation is the main route for the creation of additional wealth to enterprises and better wages to employees.

#### Innovation as the Means for Sustained and Sustainable GDP Growth

8.7. There is a vast untapped potential in India for wealth creation by increasing the levels of innovation content in the entire economic development activities of the country. It is a tall call but an essential one, if the current levels of growth of GDP were to be maintained over the next two decades. There are several case histories of nations benefiting substantially from a flow of innovations. Innovation will also be a key for sustainability—the ability to meet developmental objectives while ensuring sustainable use of natural resources.

#### Institutional Elements of an Innovation Eco-system

8.8. The elements of an innovation ecology identified earlier fall into a number of institutional domains. An institutional representation of the innovation system is a useful tool for exploring the role of various actors in the innovation process and the way in which they may interact. Five categories of institutional participants can be identified:

- (i) Governments, which play a key role in setting broad policy directions and a primary role in funding basic scientific research;
- (ii) Private enterprises and their research institutes, which contribute to development and other activities that are closer to the market than governments are;
- (iii) Universities and related institutions that provide key knowledge and skills;
- (iv) Bridging institutions acting as intermediaries under such names as ‘technology centre’, ‘technology brokers’, or ‘business innovation centres’, which play an important role in closing the gaps among the other actors and have been important to the success of all types of research centres; and
- (v) Other organizations, public and private, such as venture capital firms, federal laboratories, and training organizations.

8.9. The interaction and role of these stakeholders and institutions is defined and determined by four contextual factors sufficiently important to the operation of innovation systems to be able to make or break them: market conditions, physical infrastructure, education and training and regulatory conditions.

### Role of Governments in the Innovation System—Global Experience

8.10. There is a wide spectrum with regard to the extent to which governments can influence the innovation system. To a large extent, the approaches adopted by various nations in the direction of innovation systems have varied depending on the overall national economic orientation. These approaches have ranged from a ‘directed or coordinated’ model such as the one selected by Japan, to a much more laissez faire model employed in the USA. Countries such as Canada and others in the European Union (EU) region have adopted models that fall in between those of Japan and the US, at least in terms of strategy and sector identification for leveraging innovations. Thus, from the standpoint of a national planning process, there are several approaches to directing and shaping the innovation-led development processes. Although there may be varying levels of the directed or coordinated functions of the governments in shaping the innovation infrastructure, most nations have recognized the similarity of needs for creating an innovation infrastructure.

### Examples of Global Experiences

8.11. The economic rationale for government support and intervention in the innovation process described earlier provides the basis for most of the major innovation support programmes and mechanisms in different countries. Examples include the Small Business Innovation Research and the Advanced Technology Programme (ATP) in the US. An important part of the innovation system is courage on the part of the scientist to take risks and the support of risk-taking by the S&T system. The greater the innovation, the greater is the risk in converting it into a commercial product or process. Thus, the US Government provides between 20 to 25% of all funds for early stage technology development. This contribution is rendered more significant in segments of the innovation cycle that private investors often find too risky.

### Intellectual Property Regime

8.12. As a result of global competition, it is becoming difficult for the Indian industry to compete on the basis

of low cost alone without value creation through new technology. With the Indian Intellectual Property Regime (IPR) getting Trade Related Intellectual Property Rights (TRIPS) complaints since January 2005, many Indian companies have stepped up their R&D spending to keep generating new technology, particularly in the pharmaceutical and automobile sectors. Besides amendment of the Indian Patents Act, 1970, the country has also enacted intellectual property (IP) laws covering geographical indicators, biodiversity, plant varieties and farmers’ rights and layout design of integrated circuits. The IP Acts covering designs, trademarks and copyrights have also been updated to be TRIPS compliant.

8.13. Due to increased patent awareness and changed circumstances, patent filing by Indians in the country has increased threefold from a stagnant figure of about 1000 in the pre-World Trade Organization (WTO) regime. Patent filing by foreigners in India has also increased substantially, which reflects increasing interest of foreigners in the Indian economy. Thus, the current patent filing by Indians and foreigners in India has reached a level of more than 17000. The Council of Scientific and Industrial Research (CSIR) alone is filing approximately 500 foreign patents and 400 Indian patent applications every year.

### Creating an Innovation Infrastructure in India and the Need for a National Innovation Policy

8.14. Often missing within discussions of innovation in the developed countries is the role of innovation for directly improving the livelihood or quality of life of the poor. The general assumption is that the market mechanism will take care of this. However, innovation may also be important for the delivery of, and access to, services that are essential for a quality of life; whether it is clean water, modern energy or affordable health care. In terms of an innovation policy for India, this may be an important and distinguishing feature.

8.15. The forward plan of India is towards faster and more inclusive growth. Faster growth in a globally competitive market environment demands a national innovation infrastructure that connects knowledge systems to wealth creation efficiently and effectively. In the Indian social context, there is a need to ensure that innovative growth-linked processes do not bypass the poor and leave them out of developmental choices emanating from the benefits of globally competitive innovations. Therefore, the Indian model for innovation should be unique. The innovation



infrastructure of India should aim to bridge the internal asymmetries and serve the dual purpose associated with global competitiveness and inclusive growth.

8.16. Both pro-poor and global competitiveness objectives should be embedded in the search for innovations. The number of grass-root innovators in the informal sector in India is large. However, grass-root innovations are not able to reap sufficient economic benefits for want of backing with adequate resources. The innovation infrastructure in the formal sector is thin. It requires deepening by referencing to global best practices and market demands. Such an innovation infrastructure would depend strongly upon a vibrant and gainful PPP in research and development as well as commercialization of innovations.

8.17. The prevailing asymmetry between inventors and investors is required to be bridged. Financing systems for backing up early-stage innovations with risk capital are required. Provisions for exiting from non-profitable innovations also need to be made. Innovations created at the expense of considerable investment of resources would demand a matching Intellectual Property Rights (IPR) regime. While the legal framework for protecting IPR is in place, infrastructure for capturing and protecting IPR is still evolving in India. Use of technology tools and capacity building in the area of IPR management require scaling up. New approaches and programmes are essential for unleashing India's innovation potential. Competitiveness innovation cluster has emerged as a successful global concept. Such innovation clusters in which academia, research and industry partner under viable and equitable PPP are the way forward.

8.18. The design and development of a sustainable innovation infrastructure should take into account global best practices, attraction, attachment, retention and renovation of talent within the research and development streams, PPPs, venture and angel financing and capacity building. The realization of Indian Vision 2025 to emerge as a major economic power in the global knowledge economy would call for a sustainable innovation infrastructure.

8.19. At the root of innovation is invention, which is an essential creative step that cannot really be directed or forced. However, there is much that can be done to facilitate this initial step and the many subsequent steps that will ultimately yield the value to society from the

invention. These steps are not isolated or distinct from one another; therefore it is more appropriate to think of a comprehensive innovation policy, rather than a policy that is aimed at only one of the steps in the process or elements of the innovation system. Innovation policy needs to be placed within the broader social and economic context, informed by goals and aspirations of development and should reflect a fair and effective balance between public and private interests, social and economic goals and inclusiveness versus rapidity.

8.20. In order to unleash our full innovative potential, we need to put in place a National Innovation policy, which encourages competition among enterprises, greater diffusion of knowledge and increased support to early-stage technology development initiatives and grassroots-level innovators. We need to foster increased collaboration among R&D institutes, universities and private sector enterprises and leverage upon their cumulative strengths in designing and implementing various innovation programmes. There is also a need for an appropriate legislative framework for incentivizing the innovators and commercialization of public funded R&D, where the government, the recipient(s) of funds, the inventor, as well as the public benefit from the protection and commercialization of IP.

#### SCIENCE AND TECHNOLOGY AS A CAREER OPTION/ CHOICE FOR THE YOUNG

8.21. Attracting and retaining young meritorious students in science and technology is a major concern. The general perception among students and their parents about science as a career is that it is not an attractive enough option as it requires a long time to enter the job market, and that good employment opportunities do not exist for science degree holders, including those with doctorate degrees. The absence of colleges/universities with a brand value equivalent to that of the IITs for pursuing courses after Class XII also acts as negative factor.

8.22. In order to make science an attractive career option for the talented, scientists need encouragement. Peer-reviewed good performance should be given recognition through a suitable scheme of incentives. Assured career support for 15 years may induce meritorious students to opt for the science stream after the senior secondary ('Plus Two') stage. There is a need to multiply institutions like the Indian Institutes of Science Education and Research (IISER) at Pune, Kolkata, and Chandigarh, and discipline-specific institutions like the National Institute of Science

Education and Research (NISER) at Bhubaneswar and Indian Institute of Space Science and Technology (IISST) at Thiruvananthapuram, with a view to capture talent at senior secondary level for developing quality human resources in the country. There is also need to strengthen universities/colleges which already have accomplishments to their credit and who show promise for future growth. Such institutions should be identified and provided with the required infrastructure facilities. The focus should be on creating new integrated programmes to which bright students are attracted, rather than multiplying the existing conventional undergraduate (UG) and postgraduate (PG) programmes.

8.23. Unfortunately, mobility is conspicuously absent among college teachers. A strong and vibrant Visiting Teacher scheme should be launched through which teachers are able to go for six months, every five years, to reputed research institutions/university departments. Similar mobility is needed for PhD/PG/UG students working on their projects.

### PROMOTION OF BASIC SCIENCES

8.24. Basic research in science, engineering, and medicine is essential for the overall growth of science and technology and it is a critical input for development. To promote basic science research in academic and research institutions, there is need of a well-defined and focused approach for building infrastructure of equipment, facilities in colleges/universities/institutions.

8.25. Apart from supply-side interventions through higher allocation of funds for S&T, there is also a need to increase efficiency of the delivery system so that the resources are made available to R&D groups in a much faster manner. The promotion of basic research in the different disciplines of science needs a mechanism which can be charged with the responsibility of formulating and implementing programmes, and playing a catalytic role for upgrading research infrastructure and attracting a new generation of students and faculty into the research system. This is essential since much of modern research in science and engineering requires development, acquisition and up-gradation of sophisticated equipment facilities. The mechanism should act both as a creator of facilities and as a watchdog to ensure efficient operation. Most institutions have aged collectively with a consequent decline of their research profile. Vigorous and attractive recruitment policies for S&T personnel need to be introduced by the government and the corporate sector. Flexibility in salary

support and start-up grants would facilitate to attract class scientists to work in India. There is also a need for improving inter-institutional linkages to quickly enhance scientific activities within the university system. Focus is also required on initiating programmes to promote establishment of technology business incubators in universities which support scientists to start commercial activities based on indigenous technologies developed at their institutions. This type of technology transfer can be very effective for implementation, particularly for low initial capital start-ups. Industries with active R&D divisions should be encouraged to recruit research students working in basic science areas related to new technology demands.

### MEGA SCIENCE PROJECTS

8.26. The implementation of mega science projects in high technology areas will lead to direct technological gains for the country in terms of advanced technologies and equipment building, as well as development of expertise to take on similar projects in future. Mega science projects would involve multi-institutional teams, including possible international collaboration and linking projects to a broader academic framework would help in sustaining the research activities around these large facilities. Mega science projects would also create exciting opportunities for young students to actively involve them in cutting-edge research and attract them to science. India's successful participation in European Organization for Nuclear Research (CERN) has enabled it to participate in the International Thermonuclear Experimental Reactor (ITER) project as an equal partner. Some of the other mega science projects include: Nano-technologies, International Linear Collider and related programmes, India based Neutrino Observatory (INO), National Radioactive Ion Beam Facility, Facility for Antiproton and Ion Research (FAIR), astronomy based research, creation of National Hetero-structure Facility and the Square Kilometre Array (SKA). These programmes have a major component of international collaboration, and participation in them will allow the Indian scientific community to take its rightful place in the world scene.

### CROSS-DISCIPLINARY TECHNOLOGY AREAS

8.27. Modern technology development is increasingly becoming dependent on research inputs from a large number of disciplines. A seamless and multi-sectoral flow of technologies and inputs from scientists and engineers from various disciplines is essential for making a visible societal impact and create economic prosperity. Under

the umbrella of cross-disciplinary technologies, efforts are needed to identify programmes cutting across the traditional divides of sciences, engineering, and medicine, where investments can pay rich dividends. Strong interfaces amongst academia, R&D laboratories and industries and special mechanisms need to be created for financing innovation in the early stage of technology development. Cross-disciplinary technology areas include: desalination and water purification technologies, nutrition, health care (medical diagnostics, medical devices, vaccines), advanced computing, advanced manufacturing, robotics and automation, combustion research, sensors and integrated systems, distributed sensors and networks, security technologies, and advanced functional materials. The list is not comprehensive and it represents a common denominator of cross-disciplinary areas where building core expertise and competence will have far-reaching consequences in the development of science-based technologies for societal benefits, economic competitiveness and national security.

#### STRENGTHENING ACADEMIA–INDUSTRY INTERFACE (INCLUDING PUBLIC–PRIVATE PARTNERSHIPS)

8.28. The relationship between the academia and industry should be of interactive, collaborative and participative nature, realizing and respecting each other's role and contribution. Efforts are needed to focus on PPP and creation of enabling environments. Effective academia–industry interaction will lead to: strengthening competitiveness, promoting innovation and new technology development on the one hand and ensuring development and supply of qualified S&T manpower. In order to strengthen the interface and tap the PPP potential effectively, the thrust should be on creation of new interface structures such as consortia, partnership research institutions for basic and applied R&D; enhancing mobility of S&T professionals; and promotion of technology transfer and new venture creation. Industrial houses may be encouraged to create corpus funds in academic institutions for promoting applied R&D relevant to their needs. Centres of Relevance and Excellence may also be set up in academic and R&D institutions in select areas of S&T, which are of direct relevance to industries. The student internship programme should also be made more meaningful, so that it benefits both the students and the industry.

8.29. The focus of consortia approach should be on pre-competitive partnerships involving academia to help the

industries develop advanced technologies and upgrade their manufacturing competitiveness. While government participation could be in the form grant-in-aid to academia and/or conditional grant to innovative small companies, industry partners will bring with them inputs like domain knowledge, market research and facilities for testing and validation of prototypes. PPP can also comprise co-locating an industrial R&D Centre within the premises of a national laboratory or academic institution and co-sharing some of the laboratory's select facilities with industry. For enhancing the mobility of S&T professionals, the young faculty could be given an internship programme at an advanced level so that they can spend some time in industry. This would enable them to impart more practical knowledge to students, relevant to industry. Active programmes may be established for regular visits of experts from industry to address students, academic and scientific staff. Efforts are also needed to strengthen venture funding for an effective proliferation of knowledge-based entrepreneurship.

#### SCIENCE AND TECHNOLOGY FOR SMALL AND MEDIUM ENTERPRISES

8.30. Small and medium scale enterprises (SMEs) occupy an important and strategic place in economic growth and equitable development of the country and are the driving force behind a large number of innovations. The post-liberalization era has enhanced opportunities and challenges for this sector. For enabling the SMEs to tide over the problems of technological backwardness and to enhance their access to new technologies, it is essential to understand and assess the real needs of the SMEs and devise approaches accordingly. There is also a need to leverage on modern technologies through increased communication, cooperation and linkages both within the enterprise as well as across enterprises and across knowledge-producing organizations.

#### EFFECTIVE DELIVERY AND PROPAGATION OF APPROPRIATE TECHNOLOGIES FOR RURAL DEVELOPMENT (INCLUDING PARTNERSHIP WITH VOLUNTARY ORGANIZATIONS)

8.31. The effective delivery of rural technologies is an important issue for the development and growth in the country. Technology transfer for rural areas is weak due to a lack of field-tested and validated models and inadequate institutional support both for technology development and transfer. The Council for Advancement of People's Action and Rural Technology (CAPART) is

the nodal government agency for creation and delivery of rural development related technologies. The role of the Support Voluntary Organization (SVO) programme is to search out and link up the thousands of disparate, small but sincere, groups working in far-flung corners of the country and provide them the necessary wherewithal to implement watershed programmes in their areas and mobilize rural communities for this purpose. The SVOs should be linked to S&T institutions so that they can absorb and deliver the technology packages to grass-root NGOs/Community-based Organizations (CBOs). CAPART should become an effective link between the technology generation centres and the line Departments such as the Ministries of Rural Development (MoRD), Agro and Rural Industries, Welfare, Tribal Affairs and Human Resource Development, for dissemination and propagation of technology packages through schemes for income/employment generation and capacity building. The S&T interventions in all spheres of rural life, such as agriculture, sanitation, health, physical and social infrastructure, need to be strengthened. Efforts are also needed to develop cost-effective rural technologies for non-farm rural enterprises, since non-farm rural employment assumes increasing importance due to low employment elasticity in the farm sector.

8.32. The role of NGOs in rural technology delivery should relate to: field surveys for assessing feasibility; preparation of Detailed Project Report with inputs from potential users; networking, motivating and organizing rural poor producers, artisans, small farmers and other partners/beneficiaries. NGOs need to develop linkages with technology providers, development agencies, and financial institutions and provide support for location-specific technology adaptation and upgradation and assistance in marketing. The NGOs will also need to play an entrepreneurial role on behalf of pro-poor enterprises, especially in dealing with financial institutions, traders, and the like. The NGO efforts of disseminating technologies relating to rural development, however, need to be enhanced by establishing synergy with the efforts of other government agencies so as to strengthen the existing and nucleate new initiatives.

#### LEVERAGING INTERNATIONAL COLLABORATION INPUTS

8.33. International S&T collaborations are essentially mechanisms of providing opportunities and platforms to various countries to work together, taking mutual advantage of complementary scientific & technological

capabilities of each other. They provide first-hand acquaintance with scientific and technological developments and work cultures in other countries and access to sophisticated research facilities abroad. Interaction between scientific researchers helps in updating and refining their knowledge base for accelerating the pace of investigation as also to fill up information gaps. Science being location neutral, international collaboration affords the way forward for development of advanced technologies, high tech equipment/facilities and new-generation materials.

8.34. Technology-led growth of the economy is a proven global model of growth, more so of developed nations. This has brought technology-led diplomacy to the centre-stage in international cooperation, and India also needs to leverage such technology-led diplomacy. Several developed nations have been targeting the young population of India for catalysing the growth of their own science and technology systems. India cannot remain a supply system of talents alone. Our strategy for international cooperation needs to be based on mutual gain and complementary strength. There are nations from which India may stand to gain by teaming up in certain sectors of development. Overall growth in important sectors of the economy cannot be based on total self-reliance as that may prove too expensive and time consuming. Re-inventing and reverse engineering models of growth are also not sustainable for modern India. In such domains, India would need to develop strategic partnerships with other nations after appropriate cost benefit analysis. Energy-, water-, ecological and nutrition-security of India would call for large global models of S&T cooperation. Areas of research such as high energy physics, nuclear physics, accelerator physics and technology, are distinctly international in character. Suitable collaborative projects by mobilizing the national strengths in these areas would need to be evolved and funded in coordination with other agencies.

8.35. A mechanism will also need to be evolved for attracting the best talent from other parts of the world, particularly people of Indian origin settled abroad and excelling in their respective areas of S&T. There is need to attract them for building active research centres/schools in frontier areas of science, engineering and technology. Scientists and technologists of Indian origin, abroad, could contribute in developing capabilities of Indian institutions and S&T groups. International S&T collaboration inputs may also be leveraged effectively by undertaking joint

R&D projects of industrial interest/commercial value at the pre-commercial stage involving academic and R&D groups as well as industrial groups at both ends.

## NUCLEAR RESEARCH

### ELEVENTH PLAN OBJECTIVES/THRUST/FOCUS

8.36. The Department of Atomic Energy (DAE) has been pursuing research in high-tech areas and developing technologies to meet the technological requirements of the country and building self-reliant capabilities in all aspects of the nuclear fuel cycle. Even in the present era, when globalization and liberalization have become buzzwords, we have to retain and strengthen our capability in the nuclear field so that the country remains unaffected by technology denial regimes. That apart, India's nuclear power programme has to be in tune with our nuclear resource profile. Therefore, the R&D programmes have been designed keeping in view the modest uranium and vast thorium resources that we have. While the technologies for Pressurized Heavy Water Reactors (PHWR) developed indigenously are now in the commercial domain, the approach now is to push the fast breeder reactor and thorium technologies. The thrust would also be on expansion of human resource development activities and encouraging students to carry out research on the interface of science and engineering. To augment the installed nuclear power capacity, maximum possible thrust would be given to development of new techniques for exploration of uranium and deployment of known techniques extensively for quick results. For uranium resource sustainability, credible waste management, and eventual thorium utilization, focus would be on development of advanced fuels having short doubling time for use in fast breeder reactors. Major achievements of the DAE (R&D) sector during the Tenth Plan period are given in Box 8.1

### ELEVENTH FIVE YEAR PLAN PROGRAMMES

8.37. During the Eleventh Plan, R&D support will continue to improve capacity utilization, environment and safety and economic competitiveness of PHWRs. Technology will be upgraded based on latest developments in the entire PHWR fuel cycle. R&D work on the development of 700 Megawatt electrical (MW<sub>e</sub>) PHWR will also be taken up. Focus would also be on the development of new techniques for uranium exploration to increase installed capacity based on PHWRs. Since the nuclear power programme in the next few decades will have a large component of Fast Breeder Reactors

(FBRs), major R&D programmes would be taken up for development of materials, equipment and processes for FBRs on a comprehensive basis.

8.38. R&D on advanced fuels for FBR, fuel reprocessing, study of fuel chemistry and other safety studies would also be carried out to be on a firm footing during the operation of Prototype FBR (PFBR) and planning of subsequent FBRs.

8.39. While the current generation nuclear energy systems have been very successful in terms of safety and economy, it is necessary to continue R&D for the development of advanced nuclear reactor systems. R&D towards the development of the thorium-fuelled Advanced Heavy Water Reactor (AHWR) would be continued. A demonstration unit of the Compact High Temperature Reactor would be built during the Eleventh Plan, which will serve as a platform for development and demonstration of very high temperature heat removal capabilities and other challenges associated with the operation of high temperature reactors. Work on the development of materials for high temperature reactors, including fusion reactor would also be taken up.

8.40. The International Thermonuclear Experimental Reactor (ITER) is a prestigious international project which will nearly complete the scientific and technological investigations required to build a prototype demonstration reactor, based on the magnetic confinement scheme of controlled thermonuclear fusion. India's contributions to ITER, worth nearly Rs 2500 crore in terms of equipment to the experiment, are largely based on the indigenous experience and the expertise available in Indian industry. India will also participate in the subsequent operation of ITER and the experiments thereon. R&D efforts on fusion and plasma science will continue to strengthen domestic technologies.

8.41. The research reactors, Assessment of Passive System Reliability (APSARA), CIRUS, DHRUVA, and KAMINI, which provide reactor based facilities for research in basic sciences, and other services like: production of radioisotopes, neutron radiography, neutron activation analyses, material irradiation testing, fuel testing, shielding studies, and so on, would be refurbished. It is also planned to set up a Multi-Purpose Research Reactor with high flux especially for basic research in frontier areas of science and for applied research related to development and testing of nuclear fuels and other

**Box 8.1****Major Achievements of DAE (R&D Sector) during the Tenth Five Year Plan Period**

- The DAE contributed significantly to international mega-science projects, particularly the CERN. This contribution has been recognized and lauded by the international scientific community.
- Some of the important deliverables under the Advanced Reactor Design and Technology Development Project include: polyurethane booting for rugged duty manipulators, special purpose water hydraulic valves, in-core flux mapping system, DNA micro arrayer, and so on. The technology for on-line vibration diagnostics of the steam turbine has now been offered to NTPC for their 500 MW<sub>e</sub> thermal power plants. Using the tools developed by BARC, pre-service inspection was carried out on 20 coolant channels prior to criticality. BARC also developed a methodology, called Assessment of Passive System Reliability (APSARA), for evaluation of passive systems which would be useful in new reactors under development.
- A process for recovery of uranium from low grade Tummallapalle ore using the pressure alkali process has been successfully developed and a technology demonstration pilot plant was set up at Jaduguda. Processes have also been developed for bulk separation of trivalent actinides from high level waste (HLW). Removal of uranium from simulated HLW was also demonstrated on full scale. BARC has also established the 'Indian Environmental Radiation Monitoring Network' with 37 monitoring stations across the country.
- The emphasis of the nuclear power programme stage-II has been on development of materials, equipment and processes as well as development of advanced fuels for fast breeder reactors. The Mark-I fuel (uranium-plutonium mixed carbide fuel with 70% plutonium) for Fast Breeder Test Reactor (FBTR) has reached a burn-up of 154.3 GWd/t without any fuel pin failure in the core. Compact Reprocessing Facility for Advanced Fuels in Lead Cells, was commissioned successfully for reprocessing high Plutonium content mixed carbide fuel. Sodium resistant concrete has also been developed to protect the structural concrete of FBRs.
- As part of Reactor Engineering studies, towards developing robust steam generator for FBRs, a Steam Generator Test Facility has been commissioned. Scale model of reactor assembly was commissioned and several experiments were completed successfully for qualifying the PFBR design. Realization of a robust, safe and economic fuel cycle for fast reactors is the ultimate goal for achieving rapid growth of fast reactors in the country.
- Under the nuclear power programme stage-III, DAE has initiated work towards development of the thorium fuelled Advanced Heavy Water Reactor. One major deliverable under the project is the AHWR Fuelling Machine (prototype). Installation of passive valve test facility, development and demonstration of conductivity probe, procurement of high speed CCD camera, development of indirectly heated fuel rod simulator, and installation of the liquid metal loop have been completed. Under the Thorium Fuel Cycle Technology Development and U<sup>233</sup> Clean up project, a new process based on coated agglomerate particles (CAP) for (Th-U<sup>233</sup>) MOX fuels has been developed.
- Refurbishing the CIRUS Research Reactor and integration of a seawater desalination unit for demonstration of Low Temperature Vacuum Evaporation Process utilizing low-grade reactor waste heat from the CIRUS reactor has been completed. In the area of lasers, a facility for in-situ cutting operation using Nd:YAG lasers has been developed and deployed for en-mass coolant channel replacement at the Narora power plant. A facility for laser welding of automobile transmission gear assemblies using indigenously developed high power CO<sub>2</sub> laser was also set up. Substantial progress has also been made in the development of processes for ceramic materials synthesis and thin film processes for the solid oxide fuel cell components.
- Several new technologies have been developed for societal applications, which include: Sea water Reverse Osmosis plants for coastal areas, brackish water RO plant in villages for producing safe drinking water, Multistage Flash evaporator plant for seawater desalination using low grade steam, Low Temperature Evaporation plant using waste heat for seawater desalination, and waste water recycle and reuse plants for the effluent. In the field of nuclear agriculture, 26 elite Trombay varieties have been developed. In addition, a laser-based land levelling system was built at the behest of the Ministry of Agriculture, and this technology has been transferred to M/s OSAW Udyog of Ambala Cantonment for mass production.

materials. A radioisotope processing facility is also planned to be set up at Visakhapatnam.

8.42. Some of the other major programmes proposed to taken up include: setting up of the second campus of BARC at Visakhapatnam and R&D for Accelerator and

Accelerator Driven Systems development; development of beam lines for Indus-2 and their utilization; and development of superconducting cavities and associated technologies for high energy accelerators. A proton therapy unit would be assembled and installed the Advanced Centre for Treatment, Research and Education

in Cancer, Navi Mumbai, for clinical application in treatment of cancer. Medical cyclotron, which is under construction, would also be available during the Eleventh Five Year Plan period.

8.43. A programme on enhancement of the DAE Grid and Anunet facility will be taken up to improve the communication and computing power of the DAE units. It is also planned to have an INO in collaboration with the scientific community of the country. This would be open for international participation also. In addition, the project on energy conversion technologies for study of alternate energy conversion technologies will be strengthened.

8.44. Research–education linkages are the backbone for developing of scientific manpower for the country at large and within the DAE in particular. It is planned to have a separate training school for an Atomic Minerals Directorate for Exploration and Research in line with other training schools in the Department. The DAE has also initiated the process for establishment of the NISER at Bhubaneswar, at par with the IISER to undertake integrated five-year Masters' courses and integrated M.Sc–Ph.D. programme in core and emerging branches of science to provide world-class education to students.

8.45. The Eleventh Five Year Plan outlay of the DAE (R&D Sector) has been tentatively fixed at Rs 9726 crore at 2006–07 constant price and Rs 11000 crore at current price.

## SPACE SCIENCE & TECHNOLOGY

### ELEVENTH PLAN OBJECTIVES/THRUST/FOCUS

8.46. The major objectives of the Space Programme are to establish self-reliant operational space services in the areas of satellite communications, satellite-based information for management of natural resources and satellite meteorological applications. Over the years, India has established two operational space systems—the Indian National Satellite (INSAT) System providing services for telecommunications, TV broadcasting and meteorology including disaster warning support, and the Indian Remote Sensing Satellite (IRS) System for natural resource monitoring and management.

8.47. The focus of the INSAT programme will continue to provide a variety of services in telecommunications

and television broadcasting, including meteorological observations, disaster communications, tele-education, tele-health services and village resource centres (VRCs). Under the IRS programme, the focus will be on vital applications of IRS data for identifying locations for ground water recharging, monitoring command areas, estimating crop areas and yields, assessing deforestation, mapping urban areas for planning purposes, delineating ocean areas with higher fish catch potential and monitoring of the environment. The emphasis of the space programmes will be on large-scale applications of space technology in the priority areas of national development. The already established space-based services for socio-economic development of the country will be sustained and strengthened. The future directions for the space programme will take into account the needs of the country in the context of emerging international environment and the potential that India holds for human development.

8.48. Technology advancement, which is essential to maintain competitive relevance, will be an important thrust area for space endeavours. Emphasis will be given to strengthening the ground segment to ensure and enhance effective utilization of the remote sensing data for programmes relating to the creation of a natural resource inventory and databases, food security, water security, disaster management support, infrastructure development, weather forecasting, ocean state forecasting, environment protection and climate variability and change. The emphasis in the area of satellite communications will be towards meeting the growing demand for transponders, ensuring continuity of quality services, protection of space systems, efficient spectrum management and continuous improvement in technology.

8.49. In the area of launch vehicle development, emphasis will be on the development of Geosynchronous Launch Vehicle (GSLV) Mk III capable of launching 4T class INSAT satellites. Polar Satellite Launch Vehicle (PSLV) and GSLV will continue to be workhorse vehicles for launching IRS and INSAT (2T class) satellites and their capabilities will be further improved. The objective of the Manned Mission programme would be to develop a fully autonomous manned space vehicle to carry two crew to 400 km Low Earth Orbit and safe return to earth. Major achievements of the Department of Space (DoS) during the Tenth Plan period are given in Box 8.2.

### Box 8.2 Major Achievements of DoS during the Tenth Five Year Plan Period

- The Tenth plan witnessed significant progress in Indian space capabilities. Operationalization of GSLV, development and qualification of indigenous cryogenic engines, establishment of a state-of-the-art, second launch pad facility at Sriharikota, launch and operationalization of Kalpana (Metsat-1), Resourcesat-1, Cartosat-1/HAMSAT and Cartosat-2/SRE-1 by PSLV, augmentation of the INSAT system with INSAT-3A, 3E, GSAT-2, EDUSAT, INSAT-4A and 4B satellites are some of the important achievements of the period.
- GSLV Mk III has made good progress towards the establishment of S-200 facilities. With the successful initiation of stage hot tests, the GSLV flight with indigenous cryo stage will take place in 2008.
- The design, development, characterization and realization of the supersonic combustor module, required for future Reusable Launch Vehicles, were completed and the technology was successfully demonstrated through ground tests for 2.5 kg/s and 5 kg/s air flow rates.
- Yet another important technological achievement was the development and testing of an Electric Stationary Plasma Thruster (18 millinewton) for future inter-planetary missions. This will be flight tested onboard GSAT-4 spacecraft planned for launch during 2008. Planetary mission Chandrayaan-1, multi-wavelength astronomy mission ASTROSAT, Indo-French joint climatic mission Megha-Tropiques, microwave remote sensing mission RISAT and oceanography mission OCEANSAT-2 were other important initiatives during the Tenth Plan period. Work on the Indian Regional Navigational Satellite System (IRNSS) was initiated.
- Development of indigenous strategic capability in certain critical areas like ring rolling mill, alloy, Titanium sponge, hi-reliability electronic components and space materials were other important achievements. ANTRIX Corporation won contracts for two dedicated launches of PSLV and also supply of a sophisticated communication satellite in consortium with a leading European manufacturer M/s EADS ASTRIUM.
- India is now one among the six countries in the world to develop Geosynchronous Transfer Orbit (GTO) (36000 km high) launch capability. The technological capability to recover a satellite from orbit through a space capsule recovery experiment was demonstrated, thus laying the foundation for future reusable launch vehicle systems.
- India's first lunar mission, Chandrayaan-1 (scheduled for launch in 2008), and the multi-wavelength observatory satellite ASTROSAT are two important initiatives of the recent past in space science research. The end-to-end capability in space for vital applications in communications, broadcasting, meteorology and natural resource information, which are of direct relevance for national development, has secured India a unique place in the international community.

## ELEVENTH FIVE YEAR PLAN PROGRAMMES

8.50. The major plans/programmes during the Eleventh Plan would be related to:

- Building capabilities in Space Communications and Navigation; development of high power Ka band satellites and ground systems for point-to-point connectivity; building navigational satellite systems and related services; R&D in satellite communications; institutionalization of tele-medicine, tele-education and VRCs; communications systems/support for disaster management; self sustenance of INSAT/GSAT system;
- Developing Leadership in Earth Observations: improved imaging capability and continuity of data/services; development of advanced microwave imaging capability; strengthening ground systems and State Natural Resources Management System; establishment of a national natural resource database; Data Management System (DMS) infrastructure and urban/rural development;
- Providing thrust in Space Transportation System: operationalization of GSLV Mk III; development of perfect payload recovery and re-entry technologies; reusable launch vehicle; and development of critical technologies for manned missions;
- Strengthening Space Science Enterprise: advanced space science endeavours, namely Chandrayaan, multi-wavelength X-ray astronomy, mission to Mars; establishing space science instrumentation facilities and an Indian Space Science Data Centre;
- Promoting spinoffs in the discipline of human resource development, space science and technology education, industry-academia interface and international



cooperation. The thirst for expanding knowledge about the universe, solar system and planet Earth would be the driving force of the programmes.

- Based on demand, the INSAT system capacity will be progressively augmented to about 500 transponders (currently 175). Development of a cost-effective 4T-12KW bus with capacity of more than 50 transponders and flexibility to accommodate a wide range of payloads, will also be undertaken.

8.51. Earth Observation (EO) Systems would be taken up primarily to ensure continuity and quality of EO data with a view to maintain global leadership in this area. The EO series of satellites, both in the IRS and INSAT/METSAT series, will address broadly the thematic applications in three streams—Resourcesat series, Cartosat series and Atmosphere series. The Radar Imaging Satellite (RISAT) would be launched to provide all-weather remote sensing capability critical for applications in agriculture and disaster management. The other thrust areas would include expansion of tele-education and tele-medicine networks and VRCs with the involvement of Central Government ministries/departments, State Governments and NGOs. Satellite navigation would be a vital component not only for civil aviation but in many other areas such as mobile telephony, surface transport, intelligent highway system, maritime transport, rail, oil and gas, precision agriculture, fisheries, survey and marine engineering, electricity networks, and so on. Besides the completion of GAGAN (Global Positioning System and Geo Augmented Navigation), focus will also be on the establishment of the IRNSS with a constellation of seven satellites. The realization of a national database for emergency management, impact mapping and monitoring support for disasters, satellite-based communication support for disaster management, strengthening of early warning systems and development of tools and techniques for decision support systems would be the major activities under the DMS programme.

8.52. Considering the need to provide an impetus to studies and research in the critical area of atmospheric research, an Atmospheric Science Programme has been planned with special emphasis on the use of satellites and advanced observation tools and techniques of modelling. A mechanism would be worked out for interactions with scientific departments and academia for initiating suitable projects, leading to operational end-user products in different domains. Human resource development, international cooperation, industry and academia interface,

indigenous development of space materials and components and space commerce will continue to be priority areas. An important target during the Eleventh Plan period would be to set up an Indian Institute of Space Science and Technology with a view to capture the talent at the 'Plus Two' (senior secondary) level for creating quality human resources in the country for Indian Space Research Organization (ISRO). While efforts would be made to partner with Indian industries or outsource a majority of the production, fabrication, testing and software development activities, some of the routine production jobs, which requires capital intense infrastructure and involves strategic and security considerations, will be taken up in-house by creating a few production islands.

8.53. The Eleventh Five Year Plan outlay of the DoS has been tentatively fixed at Rs 27305 crore at 2006–07 constant price and Rs 30883 crore at current price.

## BIOTECHNOLOGY RESEARCH

### ELEVENTH PLAN OBJECTIVES/THRUST/FOCUS

8.54. The approach of the Department of Biotechnology (DBT) has been to create tools and technologies that address the problems of the largest section of the society and provide them with biotech products and services at affordable prices. The ultimate objective is to make India globally competitive in the emerging bio-economy by converting the country's diverse biological resources to useful products and processes. Developing a strong biotechnology industry and technology diffusion capacity is critical for fulfilling this objective. The advancement of biotechnology as a successful industry confronts many challenges related to research and development, creation of investment capital, technology transfer and technology absorption, patentability and intellectual property, affordability in pricing, regulatory issues and public confidence and tailor-made human resources related to all these aspects. The department has been working on cross-cutting issues such as human resource development, smarter re-entry for our scientists abroad, new and varied models of creating an innovation-friendly environment, R&D in small and medium size companies, newer ways of collaborating with large companies, establishing centres of excellence and translational research centres, remodeling life science departments in universities/institutions, establishment of technology management centres, promoting dynamic biotech regional clusters, establishment of biotechnology parks and incubators, and setting up of

### Box 8.3

#### Major Achievements of DBT during the Tenth Five Year Plan Period

- In the area of Human Resource Development, the Department is implementing an Integrated Programme of Human Resource Development in Biotechnology to generate adequate and appropriately trained manpower required for overall development of Biotechnology in the country. The MSc/MTech teaching programme which was started in 1985–86 in five universities, has been gradually increased to 63 courses with a total intake of around 1000 students per annum. Of these, 22 courses were started during the Tenth Five Year Plan. The Junior Research Fellow (JRF) programme has also been started from 2004 to fill the gap between the PG teaching courses and the Post Doctoral Fellowship programme.
- 35 biotech facilities were established in the public sector for production and supply of biologicals, reagents, culture collection and experimental animals to scientists, industries and students at nominal costs and to conduct regular training programmes for capacity building. An International Depository Authority was established at Institute of Microbial Technology, Chandigarh, which is the first such facility in India, 7th in Asia and 34th in the World. The Department also initiated the Centres of Excellence programme during 2005–06 and supported five centres in the areas of cancer biology, industrially important non-conventional yeasts, drought tolerant crop varieties, genetics and genomics of silk moth, and tuberculosis.
- An extensive bioinformatics network, covering 65 institutions, spread geographically across the country, has been established. Scientists associated with this network have published more than 1200 bioinformatics research papers in peer reviewed journals and helped in publishing more than 3500 research papers in biology/biotechnology. Courses such as MSc/MTech/PhD in Bioinformatics have also been introduced.
- Technology for recombinant anthrax vaccine has been developed and transferred to M/s Panacea Biotech Ltd., New Delhi. Ovum pick up technology for production of a large number of embryos in cattle and buffalo has been standardized and ELISA/PCR based diagnostic kits for *Peste des petits ruminants* (PPR) virus and Buffalopox virus (BPV) have been developed.
- India has successfully decoded the genome information of the rice chromosome number 11. Some of the important achievements in the field of crop biotechnology include: transformation technologies for rice for salinity and drought tolerance; molecular marker for wheat quality traits; novel Bt-cotton technology; transgenic virus resistant tomato; Genetically Modified (GM) mustard with higher yields; and technology for double haploids in cereals. Four mass production technologies for bio-control agents/biopesticides have been developed and standardized and six patents have been filed.
- Development of newer technologies for affordable vaccines for malaria, tuberculosis, cholera, HIV, rabies and Japanese encephalitis, helicobacter, and filariasis has been undertaken. Efforts to develop a tetravalent dengue vaccine candidate are in progress. Two candidate vaccines on rotavirus developed under INDO-US Vaccine Action Programme, have been found to be safe in clinical settings. Limbal stem cells have been successfully used to repair cornea surface disorders and more than 220 patients have been treated. In the area of medicinal and aromatic plants, four technology transfer agreements have been made for further screening of compounds as potential anti-diabetic and immunomodulatory agents.
- In the area of environmental biotechnology, technologies for bioremediation of mine spoil dumps; ecological restoration of degraded ecosystems and wastelands; mangrove afforestation; biosensors for detection of organophosphorus pesticides; bioscrubber for removal of obnoxious odours from industrial emissions; and oilzapper technology for bioremediation of crude oil spills and treatment of oily sludge ready for commercialization.
- Technologies have also been developed for the manufacture of nutrient supplements, health foods, fruit juice processing, production of natural food additives, oil and fat modification, ensuring food quality/safety, biodegradable food packaging and production of chitosan based packaging films. Out of 19 technologies developed, eight technologies were transferred to the industry. Diagnostic kits were developed for rapid detection of food-borne pathogens like *E. coli*, *Listeria monocytogenes*, *Bacillus cereus*, and so on.
- Four international patents and ten Indian patents were granted to the National Institute of Immunology (NII). A technology relating to novel molecules which inhibit tuberculosis bacteria with the potential to be developed as anti-mycobacterial drugs, is being explored under a memorandum of understanding with Astra Zeneca India, Bangalore, and Cadila, Ahmedabad. A technology developed for the high density culture of Vero cells of an Indian strain of Japanese encephalitis virus (JEV) has been transferred under a memorandum of agreement to International Panacea, New Delhi.
- The repository at the National Centre for Cell Science (NCCS) procured 34 new cell lines, raising the total culture collection to 1161. The Centre made a total of 155 publications and obtained six US and three Indian patents. Methodologies for cryo-preservation and revival of bone marrow and cord blood cells have been transferred to Armed Forces Medical College, Pune. A technology on use of selected amino acid–zinc complexes as anti-malarials has been transferred to Shreya Life Sciences, Mumbai.
- The Department supported the setting up of a biotechnology park at Lucknow, and five biotechnology incubation centres, one each at Hyderabad, Bangalore, Kochi, Chandigarh, and Solan. The Department has also launched the Small Business Innovation Research Initiative (SBIRI) to boost PPP efforts in the country. An agreement has been executed by the Department with Biotech Consortia India Ltd., New Delhi, which is acting as the Special Purpose Vehicle (SPV)/Fund Manager for smooth running of the scheme. So far, ten proposals have been recommended for support.

biotechnology regulatory mechanisms. For this purpose, the DBT will be formulating the 'National Biotechnology Development Strategy' during the Eleventh Five Year Plan in consultation with all the stakeholders. Major achievements of DBT during the Tenth Plan period are given in Box 8.3.

#### ELEVENTH FIVE YEAR PLAN PROGRAMMES

8.55. The priority areas for the Eleventh Five Year Plan include the development of improved crops, functional foods, nutraceuticals, nutritional rich food for combating malnutrition, bioprocessing and scale up for production and manufacture of biologicals, R&D on bio-drugs, vaccines, biological reagents and adjuvants, diagnostics, implants, devices, medical bioinformatics, clinical research, stem cell research and regenerated medicine. Nano-biotechnology applications for drug, delivery, biosensors, microbial prospecting for novel compounds, genes, bio-energy and bio-fuels, bioremediation, and so on, are other important thrust areas. International cooperation activities matching national needs and the above priorities, will also be accelerated.

8.56. A technology management network that is locally linked to stronger Central resources is an essential link. It is therefore proposed to create ten national/regional technology transfer cells (TTC) to provide high-calibre, specialized and comprehensive technology transfer services; evaluate technology and identify potential commercial uses; develop and execute commercialization and intellectual property protection strategies identifying appropriate potential licensees; negotiate a wide variety of licenses and monitor the licensing arrangements. Each TTC would service a cluster of institutions in a region. New Centres of Excellence (CoEs) would be established within existing universities and medical, agriculture and allied colleges, around innovative leaders.

8.57. Cutting-edge research in biotechnology requires creation of state-of-the-art infrastructure. Therefore, large animal house facilities with Good Manufacturing Practices (GMP) for testing candidate vaccines and biotherapeutics; DNA and stem cell banking facilities; depositories of biological materials; testing facilities for Genetically Modified Organism (GMO)/Living Modified Organism; and validated laboratory facilities to support major clinical trials would be set up. Upgradation/reengineering of existing life science departments of

selected university departments and medical colleges by way of providing infrastructure support and faculty, and creating new research agenda would also be undertaken to develop world-class life science departments doing both education and research. Strengthening bioinformatics R&D and infrastructure in terms of higher super computing capabilities, expansion of biogrid, human resource development, linkages with industry, institutional mechanisms for software development and validation, development of an Indian portal site and bioinformatics parks and clusters through PPPs, would also be taken up.

8.58. In the areas of industrial biotechnology, priority would be on biotransformation to make bioproducts cost effective; advanced manufacturing technologies for production of vaccines and other medical products; bio-separation technologies for recombinant DNA products; reactor engineering; and development of bioprocesses for high quality textiles, silk and paper industry. Some of the other important R&D areas would be genomics, proteomics, pharmaco-genomics, and in-silico drug design.

8.59. Interdisciplinary 'grand challenge' projects would be taken up in areas of national importance, where biotechnology interventions can bring about significant value addition, cost effectiveness and competitiveness in product and process development. These would be implemented through special management, administrative and organizational structures for time-bound results. Some of the areas identified for this purpose include: (i) food and nutrition security; (ii) molecular breeding of agricultural crops and silk worm; (iii) microbial prospecting for industrial, agricultural, environmental, medical and therapeutic purposes; (iv) new generation human and animal vaccines and delivery systems; (v) diagnostics for health care; (vi) integrated tuberculosis research; (vii) stem cell biology and regenerative medicine; and (viii) bioengineering for implants and medical devices.

8.60. With a view to focus on translational and innovation activities, the existing autonomous institutions would be remodelled. This would require expansion of the scope of the institutions by building centres of translation, innovations and services along with focused networking. The National Institute of Immunology, New Delhi, will establish translational research programmes for the development of anti-HIV microbicides, anti-viral vaccines and Cancer diagnostics and therapeutics. The NCCS,

Pune, will be initiating focused programmes on diabetes and an inter-institutional network programme on HIV and Tuberculosis, apart from establishing centres for cell and tissue engineering and immuno-therapeutics. The Centre for DNA Fingerprinting and Diagnostics, Hyderabad, will undertake new activities such as a national facility for training in DNA profiling; a Disaster Victim Identification Cell (DVIC); and creation of a national DNA database. The National Brain Research Centre, Manesar, will take up Neural Stem Cell research and set up a Clinical Research Centre for brain disorders and Brain Machine Interface. The Institute of Life Sciences, Bhubaneswar, will undertake translational activities for the development of DNA chip-based diagnostics and nano-medicine.

8.61. It is also proposed to establish new institutional structures, especially in the areas which have marginal strength and a critical mass of expertise. These include institutes for translational research in health science and technology; stem cell research and regenerative medicine; UNESCO regional centre for science, education and innovation; agri-food biotechnology and bioprocessing unit; animal biotechnology; marine biotechnology; seric and textile biotechnology and molecular medicine and medical genetics. Besides, three autonomous Translational Molecular Medicine Centres and one centre for plant sciences in existing institutions and taking over of the Rajiv Gandhi Institute of Biotechnology, Thiruvananthapuram, from the Government of Kerala, are also proposed.

8.62. The establishment of biotechnology parks and incubators as part of biotech clusters, essentially through PPPs would be supported. It is also proposed to promote the biotech cluster concept, and based on an analysis of opportunities and feasibility, creation of new clusters at Punjab, Delhi, Haryana, West Bengal, Gujarat, and Orissa would be considered. Major expansion of the SBIRI scheme has also been envisaged. A Special Purpose Vehicle (SPV) will be created for managing this scheme professionally. New models of partnership namely, the Biotechnology Industry Partnership Programme, would be worked out to pursue path-breaking technology initiatives and building greater flexibility in public institutes to enable them to work with industry. A Biotechnology Industry Research Assistance Council (BIRAC) would also be put in place for monitoring,

supporting and nurturing R&D in small and medium biotechnology companies.

8.63. A scientific, rigorous, efficient, predictable and consistent regulatory regime for biosafety evaluation and release of protocols is essential. It is therefore proposed to create a 'National Biotechnology Regulatory Authority' to provide an effective, single window clearance mechanism for all biotechnology products.

8.64. The Eleventh Five Year Plan outlay of the DBT has been tentatively fixed at Rs 5649 crore at 2006–07 constant price and Rs 6389 crore at current price.

## DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)

### ELEVENTH PLAN OBJECTIVES/THRUST/FOCUS

8.65. It is envisaged that the S&T output indicators of India would register more than double growth rates during the Eleventh Plan period as a result of planned investments based on output directed development strategy. The thrust would be on developing processes and strategic alliances with other departments and State agencies for ensuring efficient delivery of the programmes.

8.66. The focus would be on strengthening R&D systems in order to shorten the waiting time for funds from the current 12–16 months on an average, to 4–6 months. The development of a measurement and assessment system suited to the S&T landscape of the country and an enhanced accountability of research and technology institutions are critical requirements. There is also a need for expanding and strengthening of the institutional framework of higher learning and research, which is showing signs of saturation and maturity. The accelerated growth processes desired by the country calls for development of new aggressive models and establishment of institutions without jeopardizing the existing S&T systems. Major achievements of the DST (R&D) sector during the Tenth Plan period are given in Box 8.4.

### ELEVENTH FIVE YEAR PLAN PROGRAMMES

8.67. The low entry of talent into the S&T streams is one of the most serious challenges facing S&T systems in the country. Therefore, during the Eleventh Plan period and beyond, a new scheme under the title 'Innovation in

**Box 8.4****Major Achievements of DST during the Tenth Five Year Plan Period**

- The Science and Engineering Research Council (SERC) is the flagship programme of DST for Extra Mural Research (EMR) support to individual researchers in the country with a 40–44% share. The support provided by SERC has resulted in more than 500 research publications per year in Science Citation Index (SCI) journals with an average impact factor consistently in the range of 2.2 +/- 0.1.
- SERC has contributed significantly towards augmentation of R&D capabilities at academic institutions and national laboratories in terms of advanced research facilities, which include: National Facility for High Field Nuclear Magnetic Resonance (NMR) at Tata Institute of Fundamental Research; Non-Destructive Evaluation (NDE) facility at National Metallurgical Laboratory and IIT, Chennai; Low temperature High Magnetic field facility at University of Hyderabad; Centre for study of ultra fast processes at University of Madras; National Facility for protein sequencing at IIT, Mumbai; Superconducting Quantum Interference Device (SQUID) based Magneto Encephalography (MEG) system for non-invasive studies of human brain at Indira Gandhi Centre for Atomic Research (IGCAR); NMR facility for biological research at Indian Institute of Science (IISc), Bangalore; and Linear accelerator with conformal radiotherapy and intensity modulation radiotherapy facility at Sanjay Gandhi Post-Graduate Institute of Medical Sciences (SGPGIMS), Lucknow. Ten centres on nano science were also established for quality nano science research aimed at anchoring technology development programmes. SERC has also played a crucial role in strengthening S&T infrastructure in the Universities under the Fund for Improvement of S&T infrastructure (FIST) programme and has helped in rejuvenating to a great extent, R&D activities in the university system.
- The average output indicators per scientist per year of the autonomous institutions during the Tenth Plan period has been in the range of 2–6 publications with an aggregated average impact factor in the range of 2.3 per paper.
- Indian scientists were also assisted and supported in accessing/utilizing some of the major international research facilities like CERN (Geneva), ELETTRA (Italy), Sp Ring-8 (Japan), KEK Accelerator (Japan), National Laboratory for High Energy Physics (Japan), Synchrotron Radiation Sources Beam line facility (Novosibirsk, Russia), FAIR (Germany), Fermi Lab (United States), and Synchrotron Light Source (Singapore), for advanced training and conducting experiments in the fields of crystallography, condensed matter physics, high energy scattering, solid x-ray spectroscopy, nuclear resonance scattering, magnetic Compton studies, and so on.
- Under the Drug and Pharmaceutical Research programme, national facilities in the field of Regulatory toxicology, Proteomics, Pharmacokinetic Evaluation and Biosafety Facility at level 3 have been created. Collaborative R&D projects on diseases like AIDS, TB, diabetes, and leucoderma were supported in R&D and academic institutions with the participation of leading industries. R&D efforts have led to six product patents filed both in India and abroad, 13 process patents, and synthesis of over 250 New Chemical Entities (NCEs) resulting in around 25 lead molecules. Around 7000 molecules already existing in various national laboratories were screened for their efficacy. The programme has been able to bring in private contribution to the tune of Rs 150.00 crore for drugs and pharmaceutical research and has emerged as a good example of the PPP model in research and development.
- Inter-governmental agreements for cooperation in S&T were signed with 16 countries, which include Canada, China, Colombia, the EU, Islamic Republic of Iran, Iceland, Italy, Laos, Mozambique, South Korea, Serbia and Montenegro, Sudan, Sweden, Switzerland, Thailand and USA. Detailed protocols on IPR were also signed with Canada, Israel, USA and Switzerland. Eight joint centres were also set up with active cooperation of some of the bilateral partner countries, namely, Indo-French Centre on Organic Synthesis, IISc, Bangalore; Indo-French Laboratory for Solid State chemistry, IISc, Bangalore; Indo-Russian Centre for Ayurvedic Research, Moscow; Indo-Russian Centre for Gas Hydrate Studies, NIOT, Chennai; Indo-Russian Centre for Earthquake Research, Indian Meteorological Department (IMD), New Delhi; Indo-French Institute of Mathematics, Mumbai, and Indo-Russian Centre for Biotechnology, Allahabad. Several new programmes have also been launched during the Tenth Plan period, which include: Indo-Israel Industrial R&D Cooperation, Indo-Russian Technology Centre, Indo-UK Science and Innovation Council, Indo-Russian S&T Cooperation in cutting-edge areas, Indo-Canadian S&T Cooperation in cutting-edge areas, and establishment of Joint Bilateral Centres of Excellence in the areas of Non-ferrous Metallurgy, Biomedical Technology and Lasers and Accelerators.

Science Pursuit for Inspired Research' (INSPIRE) would be initiated to attract and foster talent in scientific research. The main features of the proposed scheme would be innovation funding in schools (one million young innovators); summer camp with Science Icons (for high performers); assured opportunity schemes for proven

talent; and retention of talent in publicly-funded research through PPP. The Oversight Committee's recommendation regarding SHE providing 10000 scholarships of one lakh rupees each per year, for attracting talented science students to BSc and MSc courses, would also be subsumed in this scheme.

8.68. Research and development support mechanisms will be strengthened by launching a two-pronged strategy. While continuing its endeavour to widen and strengthen the base of basic research through appropriate HRD measures and building up of research capabilities of the academic sector, support would also be provided for undertaking major, internationally competitive and front-ranking projects through a Science and Engineering Research Board. For this purpose, the existing SERC mechanism would be restructured in to the National Science and Engineering Research Board. Necessary in-house infrastructure and suitable changes in procedural mechanisms will be undertaken to ensure both quality and speed in the delivery of resources. A special programme for rejuvenation of research in universities would be initiated.

8.69. The national mission on nano science and technology would be a major new programme, designed to enable India to become a significant player in the global race by tapping the potential applications of nano science and technology. The proposed Nano Science and Technology Mission would focus on basic research, infrastructure development for quality nano science and technology research, human resource development, forging international collaborations and most importantly, promoting PPP in the area of nano science and technology. The Drugs and Pharmaceutical Research Programme, which has emerged as a true PPP in the area of pharmaceutical research and development, will be another major programme to be pursued during the Eleventh Plan period.

8.70. Investment in autonomous institutions would be on the basis of performance and assistance will be provided to them to attain global best standards in science and engineering. A study of impact assessment of the Technology Information, Forecasting and Assessment Council (TIFAC) and National Accreditation Board for Testing and Calibration Laboratories (NABL) has also been planned. The proposed study will form a decision tool to shape the future structure and programmes of these two organizations. TIFAC will be developed into a policy body for developing technology foresight and strengthening the innovation infrastructure of the country. The Survey of India (SoI) enjoys brand equity in the area of geo-spatial products. In the wake of a new map policy of India, geo-spatial products have gained market value in the consumer market. Keeping this in view, SoI requires an urgent package for modernization of its physical, human,

market and intellectual capitals. The modernization package of SoI will also bring about organic linkages in the programmes of the National Atlas and Thematic Mapping Organization. A few new autonomous S&T institutions would also be established in critical areas like glaciology, molecular materials, pre-competitive research institutes for computer sciences, and so on.

8.71. Several new initiatives like the Water Technology Initiative, setting up of innovation clusters, security technology initiative, and programmes for setting up mega facilities for basic research will also be taken up. The Water Technology Initiative would focus on the design and development of low-cost solutions for safe drinking water for domestic use. Innovation clusters are emerging on the global platform and numerous success stories of such innovation clusters benefitting both academic and industrial sectors have been reported. It is necessary for India to mount such an initiative under an effective PPP model in areas where the trade and advantages have already been established and the clustering processes are evident. A proposal for taking up a National Innovation Project has also been contemplated, which would be taken up after a dialogue with key stakeholders to identify the needs regarding the innovation system and possible interventions, with World Bank involvement. The Security Technology Initiative would address issues relating to internal security. DST, along with DAE, has also identified areas where an effective partnership of the two departments can bring about effective capacity building in the university and academic sector for building mega facilities for basic research both within and outside the country.

8.72. The Eleventh Five Year Plan outlay of DST has been tentatively fixed at Rs 9750 crore at 2006–07 constant price and Rs 11028 crore at current price. The existing allocation for schemes like INSPIRE, Security Technology Initiative and support to autonomous institutions may need to be enhanced during the course of the Plan, depending upon the actual progress.

## SCIENTIFIC AND INDUSTRIAL RESEARCH

### ELEVENTH PLAN OBJECTIVES/THRUST/FOCUS

8.73. The avowed objectives of the Department of Scientific and Industrial Research (DSIR) are to promote industrial research, technology development and transfer, and its utilization, with a view to making Indian industry

globally competitive. During the Eleventh Plan, the focus would be on promoting creativity and innovation among individuals; promoting and supporting industry for development of new products, processes and technologies; attracting venture capital funding; developing the consultancy profession; promoting commercialization of technologies in India and abroad; and creating awareness about the latest IPR regime.

8.74. The focus of CSIR would be on finding holistic and optimal solutions to the pressing problems of the country by deploying technologies ranging from the simplest to the most sophisticated ones. Innovation in all spheres of activities, ranging from science, technology, management and financing, would be supported. The thrust would

be on adoption of three-pronged approach to: (i) conceptualize, plan and work, in network mode, on R&D of relevance both nationally and globally and to align it with public, private, strategic or social needs as the case may be; (ii) forge viable, defined and scientifically challenging R&D projects in supra institutional mode to make each laboratory a cohesive and close-knit unit. This would help in aligning and reinforcing the core competency of the laboratory; and (iii) build within each laboratory, Centres of Sustainable Growth, a kind of magnet to attract scientists/technologists of Indian origin, industry (both national and foreign) and a large number of trainees. Such centres would aim to be creative think-tanks to look at the future with a clear vision. Major achievements of DSIR/CSIR during the Tenth Plan period are given in Box 8.5.

#### Box 8.5

##### Major Achievements of DSIR/CSIR during the Tenth Five Year Plan Period

- Major achievements under the Technology Promotion, Development and Utilization Programme (TPDU) programme include: Composite insulators for high power transmission; technologies for manufacture of digested organic supplement enriched with micronutrients, Tetrabromobisphenol-A; Liposomal Amphotericin-B, Pyrazinamide using the catalytic route; and processes for Hydrogen Sulphide removal and recovery of sulphur from sour gases; isolation of natural dyes from forest plants of Uttaranchal. A cotton seed delinting plant and an integrated pilot demonstration plant for spice processing have also been developed in collaboration with various industries.
- The two-seater, all composite trainer aircraft Hansa designed and built by National Aerospace Laboratories has been certified by Director General Civil Aviation (DGCA) for day and night flying. It is now being manufactured along with a private partner and a dozen of them are now flying successfully across the country. Saras, India's first indigenously developed, multi-role civilian aircraft, took its inaugural test flight on 22 August 2004, and till March 2007, the prototype-1 has made more than 110 test flights. Taxi trials for the second prototype have begun and it is expected that the prototype-2 test flight would commence soon. After successful completion of the test flights and DGCA license, the aircraft will go in for commercialization by Hindustan Aeronautics Limited.
- For the first time in India, an optical fibre amplifier for light wave telecommunication network has been developed using erbium-doped optical fibre (EDF) and power semiconductor pump laser source which has the potential for use in the propagation of 'Fibre-to-Home' technology. An alternative novel route for synthesis of 1, 1', 1''-Tris 4'-hydroxyphenyl ethane (THPE) was developed and transferred.
- CSIR operated a New Millennium Indian Technology Leadership Initiative (NMITLI) scheme in PPP mode through which 42 projects were developed involving 65 industrial partners and 222 research groups for capturing global technology leadership position. Some of the significant achievements were: development of a new pharmacophore for the treatment of tuberculosis where the molecule works through combination therapy (compatible with the present drugs), is less toxic, clears the total infection within two months and no recurrence has been observed; development of a novel drug delivery system based on dry powder inhalation of micro particles containing rifampicin/rifabutin and isoniazid; development of 'Bio Suite' and 'Geno Cluster' software, and also of two new varieties of *Mentha piperita* namely, 'CIM-Indus' (with the characteristic of high menthofuran and pulegone) and 'CIM-Madhuras' (with the characteristic of sweet smell).
- In the areas of drugs and pharmaceuticals, significant achievements were related to: isolation of a compound from the leaf of the betel plant (*piper betel*) that is able to induce death of cancer cells in chronic myeloid leukemia; crude extract prepared from a marine organism (mussel) by the enzyme-acid hydrolyzing process shows a potent anti-malarial activity when examined for *in-vitro* cultures of *Plasmodium falciparum* in human erythrocytes; isolation of a natural compound

from *Boswellia* species, and alternatively prepared its semi-synthetic compounds for cancer of colon, prostate, liver, breast, central nervous system, leukemia and malignancy of other tissues, including ascites and solid tumors; herbal formulation from the plant extract of *Cedrus deodar* for the treatment of cancer, a process for high-level production of recombinant Staphylokinase which is produced intracellularly using a genetically engineered strain of *Escherichia coli*; developed a single plant base standardized hepatoprotective agent useful for the treatment of liver disorders such as alcoholic and viral cirrhosis; developed a herbal medicament which has shown promising anti-stroke activity along with antioxidant and anti-inflammatory properties on pre-treatment in rats; developed a process for the oral delivery of insulin and also of hepatitis B vaccine, this new invention is a boon to the diabetic population showing the reduction of blood glucose levels comparable to that of the injectable insulin; isolated the first biologically derived molecule ATB 1 that inhibits HIV-1 protease; developed gelatin micro spheres wherein SSD-loaded collagen membranes have been evaluated for wound healing; developed and commercialized two important formulations one as a brand name Regen-D™ –60 for skin graft and burn injuries, while the other, Regen-D™ –150, meant for diabetic foot ulcer.

- Some other important achievements include: development of synthetic peptide-based nanotubes; Thin Film Composite reverse osmosis high flux membrane suitable for treatment of tertiary treated sewage water; technology for arsenic and iron removal based on ceramic membrane technology for the production of safe drinking water from contaminated ground water; developed, demonstrated and transferred an Ultra Filtration (UF) membrane-based water purification technology which removes germs, cysts, spores, parasites, bacteria, cryptosporidium, endotoxin, Pseudomonas viruses of hepatitis A and E (the filtration unit requires no electricity and chemicals to filter water); and design and development of a 10HP small tractor. A Fog Forecast and Visibility model, which is a combination of high performance computing and new generation dynamical meso-scale models, advanced data analysis and informatics, was also developed and calibrated during this period.
- During the Tenth Plan, the research outputs of CSIR had been of a very high order. It has emerged among the top three entities from the developing world in terms of PCT filing. US patents granted are considered as one of the indices in measuring the technological achievement of a country. CSIR was granted 667 US patents during the Tenth Plan. 62% of the total US patents granted to Indians excluding, NRIs and foreign assignees, belonged to CSIR. As a result of researches carried out in the national laboratories, over 13000 basic research papers were published in internationally peer reviewed journals. The average impact factor per paper of nearly 2.01 has been achieved during 2005–06. The external cash flow from contract research was nearly Rs 1500 crore.
- HRD initiatives: During the Tenth Plan period, 5946 JRFs (NET qualified), 2228 Senior Research Fellows, 484 Research Associates, 375 Senior Research Associates (Under Scientist's Pool Scheme), and 35 Shyama Prasad Mukherjee Fellows were supported in different disciplines till 31 March 2007. 59 meritorious scientists were recognized with the prestigious Shanti Swarup Bhatnagar prizes for their outstanding research contributions done primarily in India, and 25 CSIR Scientists were given Young Scientist Awards to promote in-house excellence, during the same period.

## ELEVENTH FIVE YEAR PLAN PROGRAMMES

8.75. During the Eleventh Five Year Plan, DSIR would continue the TPDU programme with increased emphasis on technopreneur promotion, technology development and demonstration, information facilitation, PPP with SMEs in SBIRI mode, and Funding for Accelerating Start-ups in Technology (FAST). These programmes will be supplemented by technology transfer and management assistance as well as incentives for research and development. Focus will be to create opportunities for starting new technology- and knowledge-based businesses by science entrepreneurs, encouraging small businesses to increase their R&D capabilities and capacities and stimulating technological innovation. The major objective of the FAST

programme will be to prepare start-up companies to become eligible for venture capital funding. The IPR programme will aim at providing support for patent filing, creating information systems and facilities for patent searches by using modern software tools and commercialization of patented innovations. Efforts would also be made to operationalize an Indo-Australian Bi-national Industrial Research and Development Programme; undertake technology benchmarking and audit exercise; establish technology management national resource centres; and set up an S&T portal in a PPP mode. Central Electronics Limited has set a target to achieve solar photovoltaic production of 25 MW per annum and a production of 30000 to 40000 of phased control



modules per year during the Eleventh Plan period. The focus of the National Research Development Corporation will be on incubation and venture capital funding, development of basic design engineering packages, development of rural clusters in dairy and sericulture industries and programmes for development of women entrepreneurship and the NER. The CDC will emphasize on consultancy services exports and implementation of the Technical Consultancy Development Programme for Asia and the Pacific.

8.76. CSIR laboratories will seek to leverage their unique scientific and technological capabilities through a series of:

- Supra-institutional project wherein the laboratory will have at least one flagship project in which a majority of the groups within the laboratory participate and synergize the in-house capabilities to optimize outputs;
- Inter-laboratory network mode projects started during the Tenth Plan which will be further strengthened with a sharp focus to develop products/processes and knowledge;
- Network mode with institutions/agencies outside CSIR to develop advanced technologies/products/prototypes/knowledge base that require multi-disciplinary inputs and synergies; and
- Major national facilities which will be created in frontier areas to help in the generation of competitive knowledge capabilities at par with international standards of future relevance.

8.77. The Plan would be operationalized by undertaking projects which would create high value and large impact on socio-economic delivery. A few major projects are:

- Supra-institutional projects: technology development and R&D initiatives in aerospace; niche food processing technologies for cost effective, safe, hygienic, nutritious food for the targeted population; evolution of the Indian lithosphere—focus on major earth processes, natural resources and the geo-environment since the break-up of gondwana super continent; science for the development of a forecasting system for the waters around India; development of know-how and technology for environmental friendly conversion and

utilization of biomass to fuels, lubricants and additives; competencies in clean coal initiative and energy conservation technologies leading to development of Integrated Gasification Combined Cycle (IGCC) and Under Ground Coal Gasification (UGCG) in India; development of new drugs programmes for parasitic diseases and microbial infections.

- Networked projects: designing and developing a regional aircraft specially suited for developing economies; plasma proteomics health, environment and disease; exploitation of India's rich microbial diversity; pathway engineering and system biology approach towards homologous and heterologous expression of high-value phytochemicals; multi-scale modelling platform including state-of-the-art multi tera flop high performance computing facility; uncertainty reduction, vulnerability impact assessment, mitigation policy intervention and capacity building for global change; programme on climate change; hydrogen energy initiative—overcoming materials challenges for the generation, storage and conversion of hydrogen using fuel cells; design and fabrication capabilities for very high power, high efficiency and very high frequency microwave tubes; fabrication of Light Emitting Diode devices and systems for solid state lighting applications; technology for assessment and refurbishment of engineering materials and components; development of advanced lightweight metallic materials for engineering applications; diabetes mellitus—new drug discovery R&D, molecular mechanisms and genetic factors; nano material and nano devices in health and disease; comparative genomics and biology of non-coding RNA in the human genome.
- Inter-agency projects: new insights in cancer biology—identification of novel targets and development of target based molecular medicine; development of cost effective mine water reclamation technology for providing safe drinking water; utilization of indigenous know-how to address drinking water needs in coastal/rural areas.
- National facilities: Advanced Centre for Flight Mechanics and Control; facilities for functional genomic research (i) celloomics facility, (ii) zebrafish facility, (iii) Liquid Chromatograph-Nuclear Magnetic Resonance Spectrometer facility; Advanced Centre for Protein Informatics, Science, Engineering and Technology; setting up a compact high energy light

source for the structural analysis of biomacromolecules; Centre of Excellence for lipid research; Bio-Safety Level-4 facility for infectious diseases research.

8.78. Recognizing the changing context of scientific enterprise and the present national needs, HRD programmes would be strengthened with a focus on fostering scientific research in universities and other academic, scientific and engineering institutions, and attract the brightest young persons to careers in science and technology. Under the Intellectual Property and Technology Management scheme, the major activities would be relating to: filing, capturing, prosecution and maintenance of IPR for CSIR R&D outputs; valuation and valorization of patent and IP portfolios; surveillance for infringement and enforcement of IPR; human resources in IP cells of CSIR laboratories; modernization of computing, communication and related facilities and infrastructure. Activities pertaining to Early-Stage Venture Fund; National Innovation Foundation; Human Resource Development Centre; R&D management and business development; international scientific collaboration; and science dissemination would be strengthened under the R&D Management Support scheme.

8.79. The New Millennium Indian Technology Leadership Initiative (NMITLI) scheme will be expanded with new approaches of innovation development and focus on funding with industry (50:50 Initiative); co-financing with venture capital funds; and acquisition of early stage relevant knowledge/IP for portfolio building. An Institute of Translational Research would be set up as a part of the new scheme for application of knowledge of modern biology into clinical care; systematic collection and analysis of large amounts of clinical data; development of specific stem cell populations to treat a variety of illnesses such as Parkinson's disease, Type I diabetes, retinal degeneration, spinal cord damage, multiple sclerosis; development of nano materials, and so on. Training programmes broadly in the areas of induction, orientation, refresher and skill upgradation, would be continued for different categories of CSIR staff in addition to the number of other programmes in specialized areas such as technology management, research methodology, development of management information system, e-procurement, and so on. The scope of the Human Resource Development Centre would be expanded to give

impetus to produce specialized scientific human resource in selected frontier areas, to take up scientific industrial research as a career

8.80. The Eleventh Five Year Plan outlay of the DSIR, including CSIR, has been tentatively fixed at Rs 7957 crore at 2006–07 constant price and Rs 9000 crore at current price.

## EARTH SCIENCES

### ELEVENTH PLAN OBJECTIVES/THRUST/FOCUS

8.81. The Ministry of Earth Sciences (MoES) was created in July 2006, with the objective to reorganize national effort in atmospheric and ocean sciences and related services by integrating activities of related departments such as the Department of Ocean Development, India Meteorological Department (IMD), Indian Institute of Tropical Meteorology (IITM) and National Centre for Medium Range Weather Forecasting (NCMRWF). The focus will be on the study of interdisciplinary links of phenomena relating to global climate change and to create a framework for understanding the complex interactions among key elements of the Earth system, namely ocean, atmosphere and the Earth, encompassing national programmes in ocean science, meteorology, climate, environment and seismology. The emphasis of activities in the area of ocean science would be towards the development of technology to harness ocean resources with the active participation and support of national R&D laboratories, educational institutions and industries. There will be a special thrust on the development of several cutting-edge technologies, including deep-sea mining technology; ocean information services; marine geophysical surveys; development of potential drugs from the sea; setting up of metallurgical plant for extraction of metals from polymetallic nodules; and to undertake front-ranking research in polar science and southern ocean studies. Major achievements of the MoES during the Tenth Plan period are given in Box 8.6.

### ELEVENTH FIVE YEAR PLAN PROGRAMMES

8.82. India has made great strides both in polar sciences and related logistics, through a judicious and harmonious blend of multi-institutional expertise brought together under the umbrella of the MoES. This has paved the way

**Box 8.6****Major Achievements of MoES during the Tenth Five Year Plan Period**

- The major achievements in ocean science were related to:
  - Development and demonstration of desalination technology to cater to the requirement of fresh water in coastal States and island territories of India
  - Setting up an interim early tsunami and storm surge warning system
  - Strengthening of ocean observing network by deployment of state-of-the-art technology data buoys and Argo floats for operational weather forecast and climate variability studies
  - Indigenous development of data buoys and tide gauges to meet the requirement of ocean observations
  - Completion of geophysical surveys for delineation of the continental shelf
  - Close grid surveys for polymetallic nodules in the allotted area in the central Indian Ocean Basin
  - Establishment of an extractive metallurgical pilot plant to extract copper, nickel and cobalt from the nodules
  - Design, development and testing of soil sampler at 5000 m depth in the central Indian Ocean
  - Establishment of a Ferro-Silico pilot plant at NML
  - Design and development of Remotely Operable Vehicle capable of working up to 6000m depth
  - Development and testing of deep sea crawler at 500m depth
  - Completion of clinical trials of two potential drug molecules from marine organisms having anti-diabetic and anti-hyper lipedemic properties
  - Multi-disciplinary studies to assess the marine living resources of the Indian seas, and to understand the large-scale variation of fishery resources
  - Monitoring of coastal pollution to assess the health of the coastal seas of India;
  - Strengthening of basic research by setting up of a network of nine Ocean Science and Technology Cells in universities/institutes and a chain of Marine Data Centres at National Institutions
- NIOT has developed and demonstrated commercial-scale Low Temperature Thermal Desalination Technology (LTTD) and a land based 0.1 million litre per day (MLD) plant was commissioned at Kavaratti, in May 2005. The technology was upgraded and a 1 MLD barge-mounted demonstration plant was commissioned in April 2006.
- Forecasting services for monsoons and other weather/climate parameters, ocean state, earthquakes, tsunamis and other phenomena related to earth systems were provided through well-integrated programmes. IMD acted as a national weather service provider by focusing its efforts on weather forecasting services for the government, public and weather-sensitive activities like agriculture, aviation, shipping, engineering industry, environment and hydrometeorology.
- IITM is an institution dedicated to atmospheric science, mesoscale processes, climate and paleo climate research. NCMRWF continued to develop expertise on numerical modelling and data assimilation. Capability to analyse the storm/cyclone structure using data received from Doppler Weather Radars installed at Chennai, Kolkata, Machhilipatnam, Vishakhapatnam and Sriharikota, helped in providing accurate cyclone and weather warning. About 100 Digital Cyclone Warning Dissemination centres were setup along the Andhra coast and the warnings were disseminated directly to the concerned agencies.
- The other major achievements in the areas of atmospheric sciences include: upgradation of meteorological capability at airports; establishment of a Mountain Meteorology Centre at Delhi to provide meteorological inputs to enable prediction of landslides, avalanches and flash floods; setting up of an Earthquake Risk Evaluation Centre at Delhi for seismic micro-zonation at a scale of 1: 50000; validation of crop-weather models for a variety of crops; preparation of atlases depicting the spatial and temporal variations in rainfall during 1813–2003 over India; and development of a state-of-the-art atmospheric chemistry model to study long-term trends in the atmosphere from the surface to 100 km

for the country to sustain its scientific endeavour in the icy continent on a year-round basis, from the Indian Permanent station, Maitri.

8.83. The major endeavours under polar science would include: launch of research expeditions to the Arctic, preferably through international cooperation; construction of a new Antarctic Research Station to enhance research activities; establishment of a dedicated

satellite based communication and data transmission system between the Antarctic and India; undertake southern Indian oceanographic studies for assessment of living and non-living resources and acquisition of ice class vessels.

8.84. In the area of desalination technology, setting up of a 10 MLD capacity barge-mounted plant has been envisaged. In the next phase, this programme would be

expanded with industry partnership, for taking up large-scale plants of 25–50 MLD capacity. The thrust of NIOT would be on the development of world-class ocean technology by strengthening its activities related to: design, development and demonstration of underwater technologies for deep sea mining; development of underwater materials and sensors; creation of seafront facility and other research infrastructure for testing of various oceanographic equipment; and coastal engineering related activities. The emphasis of NIOT would be on societal applications of various ocean sciences related technologies, and development of necessary infrastructure and skill base to support and maintain the deep ocean systems. Indian National Centre for Ocean Information Services, Hyderabad, would be strengthened for providing reliable coastal ocean services and to meet the requirement of a wide range of user communities in India. User-oriented data/data products such as species specific Potential Fishing Zone advisories and Coastal Ocean State forecast would be generated and disseminated using existing and upcoming satellites and in-situ data, on an operational basis. Electronic display boards and information kiosks would be established in every coastal village covering the entire coast of India for providing various ocean information services including storms, cyclones, weather, sea state, and so on. Special focus would be on the development of an effective early warnings system for oceanogenic disasters such as storm surges and tsunamis. Under the Integrated Coastal Marine Area Management and Coastal Ocean Monitoring Area and Prediction Systems programmes, focus would be on the demonstration of ideal coastal protection measures, coastal circulation, ecosystem modelling, marine ecotoxicology, carbon cycling in coastal waters and preparation of a coastal risk atlas; and modelling of movement of oil spills along the western and eastern Exclusive Economic Zone of India.

8.85. Under atmospheric science and technology, emphasis would be on modernization of the observation networks in a phased manner. This will facilitate rendering of various services relating to weather and climate to the public (by setting up a dedicated weather channel) and

to other specific sectors like agriculture, aviation and hydrology. Focus would be on the development of expertise both for numerical models and assimilated models. This is essential for making an accurate forecast of local-scale weather which is highly diverse in India due to its climatic and topographic condition. In addition, strengthening of infrastructure facilities for numerical weather modelling; undertaking state-of-the-art climate and atmospheric research by setting up a Centre of Climate Studies to act as a dynamic feedback to improve weather forecast and services; and climate research and monitoring with focus on the computing and data requirements to build a credible climate service facility in India, have also been envisaged. Focus will also be on Numerical Weather Prediction based on a global Atmospheric General Circulation Model of horizontal resolution of 25 km in order to generate a district/taluk level Agromet Advisory Service. Seismic monitoring for earthquake detection and support to a tsunami warning system and other related hazards would be initiated, and a state-of-the-art network to augment real time connectivity with major analysis and decision support centres will be established at Delhi. Micro-zonation activity would be strengthened to study hazard potential in a few cities and hot spots with respect to seismogenic areas would be identified. Micro-zonation of specific geo-hazards like land slides, inundation and damage potential by cyclones and floods, would be taken up in a project mode. IMD will cover all the 127 agro climatic zones and provide forecast to these units on a bi-weekly basis.

8.86. The Eleventh Five Year Plan outlay of the MoES has been tentatively fixed at Rs 6193 crore at 2006–07 constant price and Rs 7004 crore at current price.

8.87. The Progress of Plan Outlays/Expenditure during the Tenth Five Year Plan and Eleventh Plan Outlays of the central scientific departments is given in Annexure 8.1. In absolute terms, the Eleventh Five Year Plan proposed allocation for scientific departments is almost 3–4 times that of the Tenth Plan. The major deliverables of the scientific departments are given in Annexure 8.2.

**ANNEXURE 8.1**  
**Progress of Plan Expenditure of Central Scientific Departments**

(Rs in crore)

S. No.	S&T Department/ Agencies	Tenth Plan (2002-07) Outlay	Annual Plan 2002-03		Annual Plan 2003-04		Annual Plan 2004-05		Annual Plan 2005-06		Annual Plan 2006-7		Tenth Plan (2002-07)		Eleventh Plan (2007-12) Projected Outlay (at current price)
			BE	Actuals	BE	Actual	BE	Actual	BE	Actual	BE	RE	Total BE	Anti Expdr.	
1	2	3	4	5	6	7	8	9	10	11	12	13	15	16	17
1	Dept. of Atomic Energy (R&D Sector)	3501.35	535.00	405.56	464.00	409.94	703.58	609.52	872.74	770.80	1003.00	1032.72	3578.32	3228.54	11000.00
2	Ministry of Earth Sciences	1125.00	175.00	138.69	175.00	147.38	200.00	198.88	340.00	225.04	438.00	417.49*	1328.00	1127.48	7004.00
3	Dept. of Science & Tech.	3400.00	625.00	537.10	800.00	602.37	900.00	896.26	1250.00	1024.24	1367.00	964.16 #	4942.00	4024.13	11028.00
4	Dept. of Biotechnology	1450.00	225.00	203.25	260.00	248.76	310.00	319.27	445.00	386.36	521.00	496.00	1761.00	1653.64	6389.00
5	Dept. of Scientific & Industrial Research, incl. CSIR	2575.00	440.00	366.96	520.00	380.15	650.00	596.25	846.00	730.33	975.00	775.00	3431.00	2848.69	9000.00
6	Dept. of Space	13250.00	1950.00	1846.71	2050.00	1941.00	2400.00	2194.70	2800.00	2294.30	3220.00	2600.00	12420.00	10876.71	30883.00
	<b>Grand Total</b>	<b>25301.35</b>	<b>3950.00</b>	<b>3498.27</b>	<b>4269.00</b>	<b>3729.60</b>	<b>5163.58</b>	<b>4814.88</b>	<b>6553.74</b>	<b>5431.07</b>	<b>7524.00</b>	<b>6285.37</b>	<b>27460.32</b>	<b>23759.19</b>	<b>75304.00</b>

*Note:* \* including outlays for IMD, NCMRWF & IITM; # excluding outlays for IMD, MCMRWF & IITM.

## ANNEXURE 8.2

### Major Deliverables of Scientific Departments during the Eleventh Five Year Plan

- **Department of Space (DoS)**
  - Development of satellite launch capabilities to GSLV Mk-III
  - Indigenous development and initiation of cryogenic engine and stages
  - Enhancing INSAT systems capacity for communications and broadcasting to 500 transponders
  - Development of critical technologies for manned missions in space
  - Exploration of the lunar environment through Chandrayaan
  - Establishing Diurnal All Weather Microwave Imaging Capability, crucial for Natural Resource Management (NRM) applications in agriculture and disaster management
  - Establishing Regional Satellite Navigational System and providing Global Positioning Services
  - Setting up a constellation of state-of-the-art high-resolution remote sensing satellites for NRM, weather forecasting and disaster management
  - Enlarging societal applications of space technology in areas of education, health care, rural development, agriculture and disaster management
  - Capacity building for advanced space missions and infrastructure, creation of ground facilities and technology upgradation
  
- **Department of Atomic Energy (DAE)**
  - Development of a new campus for Bhaba Atomic Research Centre (BARC) at Vishakhapatnam
  - Infrastructure upgradation at—
    - (i) Tata Institute of Fundamental Research (TIFR), Mumbai
    - (ii) Institute of Plasma Research (IPR), Gandhinagar
    - (iii) Variable Energy Cyclotron Centre (VECC), Kolkata
    - (iv) Saha Institute of Nuclear Physics (SINP), Kolkata
  - Participation in the International Thermo-nuclear Experimental Reactor
  - Setting up of a National Institute of Science Education and Research (NISER)
  - Intensification of Uranium exploration and development of aerial electromagnetic survey capability
  - Thorium fuel cycle development
  - Life extension of existing nuclear/heavy water power plants
  - Fuel cycle and safety related R&D
  - Development of new energy systems such as Advance Heavy Water Reactor (AHWR), Indian High Temperature Reactor (IHTR) and a multi-purpose research reactor with facility to accommodate a Proton beam-driven neutron source
  - Setting up Scientific Frontier Research Facilities such as or Radioactive Ion Beam (RIB) or Indian Neutrino Observatory (INO)
  - Participation in international mega-science projects like:
    - (i) Facility for Anti Proton and Ion Research (FAIR)
    - (ii) International Linear Collider (ILC)
    - (iii) X-Ray Free Electronic Laser (XFEL)
  
- **Department of Earth Sciences**
  - Comprehensive modernization of India Meteorological Department (IMD) with a network of state-of-the-art weather observation systems—Automatic Weather Stations, Rain Gauges and Data Buoys connected with Doppler Weather Radars. This network will be serviced by an IT-based decision support system using 10 Teraflop Supercomputing facilities at IMD, NCMRWF and IITM
  - Provision of comprehensive atmospheric, hydrological, land surface and oceanic data services to client communities
  - Dissemination of weather forecasts/warnings, flood and cyclone warnings, tsunami early warnings for coastal communities, and so on, and providing agro-met services to all farmers
  - R&D on climate change and cloud seeding
  - Seismic research on earthquake precursors and micro-zonation of major earthquake prone cities
  - Polar science R&D; a third Indian station in Antarctica and a dedicated Arctic Expedition; acquisition of an ice-class vessel

- Development and exploitation of Exclusive Economic Zone or EEZ and the continental shelf; acquisition of state-of-the-art technologies for deep-sea mining and manned missions, particularly for gas hydrates and polymetallic nodules
- Upscale sea water desalination technology up to 25 million litres/day to meet the potable water supply requirements of coastal cities and areas affected by coastal salinity
- **Department of Science and Technology (DST)**
  - National Mission on development of nanotechnology
  - Creation of new R&D institutes on Molecular Materials, and Glaciology
  - Modernize existing R&D institutions
  - Modernization of SoI and Creation of a seamless GIS in digital format
  - Promote innovation and creation of Intellectual Property and National Innovation clusters
  - Attracting bright young students to take up science as career by launching a new scheme INSPIRE to cover 100000 scholarships of Rs 1 lakh per year each for students joining Universities and dedicating themselves for scientific research. INSPIRE will also fund innovation in schools (one million young innovators) and provide assured opportunity schemes for proven talent and for retention of talent in public funded research through PPP.
  - Building research capabilities in the academic sector
- **Department of Scientific and Industrial Research**
  - Creation of Centres of Excellence in CSIR laboratories
  - Expanding the New Millennium Technology Leadership Initiative (NMTLI)
  - Providing fellowships for research in basic sciences and interdisciplinary areas
  - Setting up Translational Research Centres
  - R&D on Photovoltaics and solar energy
  - Technology development in the strategic aerospace sector
  - Development of alternative energy source for a cleaner and green environment
  - Expanding scientific frontiers in areas such as Plasma Proteomics, bioactive molecules, bio-energy technology, cancer biotechnology and gene environment
- **Department of Biotechnology (DBT)**
  - Creation of new institutes for
 

(i) Stem Cell Research	(iv) Seri Biotechnology
(ii) Marine Biotechnology	(v) Animal Biotechnology
(iii) Centre for Translational Research in Public Health	(vi) National Institute for Agri-food Biotechnology at Punjab Knowledge City
  - Human Resource Development—Biotechnologists with expertise in Genomics, Proteomics and Metabolomics, Development of 'Info-bio' and 'Info-bio-nano' manpower
  - Creation of a SPV for Small Business Innovation Research Initiative (SIBRI) to pursue technological innovation
  - Creation of: Large animal house facilities for testing candidate vaccines; DNA and stem cell banks and depositories of biological materials.

## Environment and Climate Change

### 9.1 ENVIRONMENT

9.1.1. Protection of the environment has to be a central part of any sustainable inclusive growth strategy. This aspect of development is especially important in the Eleventh Plan when consciousness of the dangers of environmental degradation has increased greatly. Population growth, urbanization, and anthropogenic development employing energy-intensive technologies have resulted in injecting a heavy load of pollutants into the environment. More recently, the issue assumed special importance because of the accumulation of evidence of global warming and the associated climate change that it is likely to bring.

9.1.2. An important feature of any environmental strategy is that environmental objectives require action in several areas, which typically lie in the purview of different ministries. The Ministry of Environment and Forests (MoEF) has the important role of monitoring the development process and its environmental impact in a perspective of sustainable development and to devise suitable regulatory structures to achieve the desired results. While this role is crucial, environmental objectives can only be achieved if environmental concerns are internalized in policymaking in a large number of sectors. This would require sharing of responsibility at all levels of government and across sectors with respect to monitoring of pollution, enforcement of regulations, and development of programmes for mitigation and abatement. Regulatory enforcement must also be combined with incentives, including market and fiscal mechanisms to encourage both industry and people in their day-to-day working lives to act in a manner responsive to environmental concerns. Sustainable

use of natural resources also requires community participation with a responsible role assigned to the communities for conservation.

9.1.3. In this chapter, we outline the main issues in the traditional area of environment and also consider the new challenges posed by climate change.

#### OVERVIEW

9.1.4. The Tenth Plan was a period of extensive review of environmental processes and law. The first National Environment Policy was put into place in May 2006. Also, the re-engineering of the environmental clearance process and Environmental Impact Assessment (EIA) Notification and review of the Coastal Regulation Zone Notification were undertaken to improve the quality of environmental governance. The Eleventh Plan must build on this experience by integrating environment considerations into policymaking in all sectors of the economy—infrastructure, transport, water supply, sanitation, industry, agriculture, and anti-poverty programmes. It also calls for strengthening the oversight and regulatory framework for environment management so that development decisions do not impinge adversely on sustainability.

9.1.5. Some initiatives needed to integrate environmental concerns into planning and developmental activities across all the sectors are given below:

- Environment is a residual Central subject. Since regulation and enforcement in this area cannot be handled by the Central Government alone and the responsibility of maintaining the environment rests at all levels of government, we need to consider



- whether environment can be made a concurrent subject in the constitution. This will help the State Governments and the local authorities to enact and notify their own enforcement laws and rules to ensure compliance of relevant environmental norms.
- There is a case for setting up an independent, statutory body on sustainable development with the specific responsibility of guiding government policies and programmes for making them more socially and environmentally sustainable, and to monitor and evaluate their outcomes. This body should comprise eminent environmental experts and citizens with a long and publicly known record in environmental research or action. It should have adequate powers to address environment concerns and not be a purely advisory body.
  - The State Pollution Control Boards should be restructured into statutory Environment Protection Authorities with the mandate of developing regulations, standards and upgraded facilities for enforcing compliance.
  - At the district level, the scheme of Paryavaran Vahinis, or committees of concerned citizens, should be revived to serve as environmental watchdogs and undertake selective first hand monitoring of the environmental situation in the districts.
  - For improving the quality and transparency of the environmental clearance process, prior informed consent of the local self governments of the respective area, as specifically provided in PESA, may be introduced for proposals requiring environmental clearance. Public hearing should also be made mandatory for the activities specified in the EIA notification.

### ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

9.1.6. EIA is an important management tool for integrating environmental concerns in the development process and for improved decision making. The MoEF in 1994 issued the first EIA Notification prescribing mandatory environmental clearance for 32 categories of developmental activities. The process involved consideration of environmental consequences before starting projects and included procedures like EIA study, public hearing in certain cases, and consideration of the outcome by expert groups before issuing of final clearance by MoEF. This process takes time, often causing long delays in commencement of projects. MoEF organized a re-engineering of the process and a fresh notification was issued in September 2006. The specific modifications made in the EIA notification are summarized in Table 9.1.1.

**TABLE 9.1.1**  
**Changes in Environment Clearance Notification, 2006**

Step	Pre 2006 Notification position	As per 2006 Notification
Activities requiring clearance	32 activities including infrastructure in respect of petroleum and chemicals, exploration, hazardous industries, large tourism projects, thermal power plants, construction and industrial estates.	39 activities in eight categories including mining/exploration/power generation, primary processing, material processing, material production, manufacturing/fabrication, service sector, infrastructure, and construction.
Process	Clearance based on recommendation of Expert Committees set up by the Ministry.	Clearance by designated EIA authorities at the Central or State level based on prescribed dimensions of the projects in the Notification. At the Central and State level, Expert Appraisal Committees provide recommendations for decision-making.
Categories of projects	No categories defined as MoEF was the sole authority for granting clearance.	Two categories prescribed namely, (i) to be dealt at the Central level and (ii) delegated to the State EIA Authority for clearance.
Processing time excl. EIA/EMP	180 days.	Cat. A: 120 days. Cat. B: 30 days.
Public Consultation	Requirement of public hearing at the discretion of government.	Public hearing prescribed for all Category A and some of the Category B projects (defined as B1).

Source: Environment Clearance Notifications, 1994 and 2006.

9.1.7. The new process came into effect on 14 September 2006. As State level authorities and committees are in the process of being set up, the impact of the new process is yet to be seen.

#### AFFORESTATION

9.1.8. Forests play a critical role in environment protection in two ways. They help to absorb carbon dioxide in the atmosphere thus mitigating the build up of GHGs. They also help to cope with water stress by trapping water that would otherwise run off and this is especially so when forests exist in upper ends of catchments. Unfortunately, both benefits are eroded by deforestation largely as a result of human pressure to exploit forest resources. While some exploitation of forests may be appropriate, the sustainability of forest resources is determined by the quantum of withdrawals.

9.1.9. The existing information on forest/tree cover based on the satellite data of 2002 indicates a green cover of 23.68%. There has been a net improvement of 0.65% between 2000 and 2002. Presuming that the same growth rate continues till 2007, the Tenth Plan target of 25% may have been achieved by 2007. This will be variable in the data of 2008, to be used for the *State of Forest Report (SFR) 2009*.

9.1.10. The present extent of forest lands in the country is 77.47 million ha. However, not all the forest lands are under the tree canopy and trees grow outside forests also. *SFR 2003* of Forest Survey of India indicates a tree cover of over 67.83 million ha, that is, 20.64% of the land area. This extent aggregates the blocks of more than 1 ha area under tree cover. Outside this, nearly 10 m ha area has been assessed as under tree cover in smaller than 1 ha patches outside forests. This brings the total green cover up to 77.83 million ha or 23.68% of the total area. Out of this, dense forests have declined from 416809 sq km in 2001 to 390564 sq km, that is, a fall of 6%. Though over the last few years the extent of forest cover has stabilized, the low extent of good forests is a matter of concern.

9.1.11. Severe pressure for meeting growing livelihood, industrial, and development needs have been some of the critical contributing factors. A demand–supply gap of almost 64 million cubic meters has been projected for timber in 2006. The shortage is being met through

import since 1985 amounting to nearly Rs 9000 crore (2003–04). Against a sustainable availability of fuel wood of only 17 million tonnes from the forests, the annual fuel wood requirement has been estimated to be above 200 million tonnes. With development of technologies for use of even smaller sizes of wood for structural uses, small wood is also not available for fuel. India may have sufficient food to eat but it does not have sufficient fuel wood to cook it. Forests also meet about one-third of fodder requirement. The total production of Non Timber Forest Produce (NTFP) has been assessed as worth about Rs 4188 crore annually (Institute of Economic Growth, 2002). Ever increasing herbal markets are only to put further pressures.

9.1.12. While the gaps are huge, potential for improvement of productivity exists. The status of green cover is an indicator of status of productivity of forests. The following strategies have been evolving in the sector for improving the status of green cover.

#### Participatory Forest Management or Joint Forest Management (JFM)

9.1.13. Initiated with the circular of the MoEF on 1 June 1990 on people's involvement in forest conservation and management, the JFM regime has evolved gradually and at present 106479 such committees (22 million participants) are functioning in 28 States covering 22.02 million ha of forests. This participatory regime is seen as a potential strength of forest management for the forest fringes. The challenge now is to effectively empower the local communities with appropriate rights and responsibilities, and ensure that substantial benefits from forest conservation accrue to them.

9.1.14. A similar approach has been attempted in wild-life management also. In Project Tiger, India, Eco-development Project was implemented during 1995–2005 under Global Environment Facility (GEF) with focus on village eco-development through optimum use of local resources and involvement of local people in conservation of protected areas. Integration of this approach to protected area management through shared decision-making and full integration of conservation and livelihoods across the landscape are yet to be realized. Also, the recognition of a large range and diversity of community traditions or new initiatives towards conservation is very weak.

### Social Forestry

9.1.15. The First Five Year Plan, as far back as 1951, indicated the scope for establishment of village plantations. Subsequently, a series of externally aided social forestry projects during the 1980s and allocation of 25% of District Rural Development Agency funds under National Rural Employment Programme, Rural Landless Employment Guarantee Programme, and so on, for social afforestation provided impetus to social forestry. This provision was not pursued since the Eighth Plan. Regeneration of forests and growing of trees being a long-term activity, did not receive due focus in the rural development programmes. Even the Watershed Management Programme aims more at equitable sharing and caring of watershed benefits, and afforestation remains a latent component. The cost norms of these programmes are not able to support substantial afforestation activities requiring strong wage contribution.

### Agro and Farm Forestry

9.1.16. The social forestry programmes also include extension and promotion of agro and farm forestry in the farm sector. The farmers of the States like Punjab, Haryana, Himachal Pradesh, Uttar Pradesh, Karnataka, and Tamil Nadu have adopted agro forestry. However, the forward linkages with the user industry and facilitation by the State agencies have not existed. Thus, the sector suffers from problems of unorganized markets driven by middlemen, depriving the farmers of optimum prices for their produce. Conservative export regulations, cutting and transit controls act as disincentives for diversification into the species which face controls but are economically important.

### Strategy for the Eleventh Plan

9.1.17. The monitorable target of the Eleventh Five Year Plan is to increase the forest cover by 5% of the total geographical area. This would require an additional cover of about 16 million ha. Out of this, 5 million ha could be brought under the tree cover within the recorded forest area while the rest would be added through agro forestry and social forestry. However, the policy target is to have 33% forest and tree cover ultimately which will require additional coverage of about 10–11 million ha. This will have to be done mainly outside the recorded forest area.

9.1.18. The target of 33% forest and tree cover reflects the tree component without accounting for other vibrant non-tree natural biomes like grasslands. The amendment of the target of the 1952 policy, of one-third area under

*forests, to forest/tree cover* resulted in a shift of focus from ecological habitats to tree cover. Further recognition of biodiversity characteristics and ecological services rendered by habitats like grasslands, natural desert ecosystems, alpine, and riparian habitats suggests that several biomes, even if devoid of tree component, can be recognized as 'green cover' and accounted so. Recognizing these facts, the following strategic principles will be adopted for dealing with the green cover.

9.1.19. The policy objective of 33% tree/forest cover should be revisited for its definition on ecological considerations. The green cover should include the existing natural ecosystems within which the tree cover constitutes a sub-set.

9.1.20. Enabling environment for social and participatory regimes should be the aim of Central efforts, as is being done through the JFM mode under the National Afforestation Programme.

9.1.21. Implementation of the Central programmes has met with difficulties on fund flow management at the State level. It is advisable to undertake activities in project mode with earmarked funding, as is done in the externally aided projects.

### IMPROVING AIR QUALITY

9.1.22. The Air (Prevention and Control of Pollution) Act, 1981 is the main legislation for regulating air quality, through the Pollution Control Boards (PCBs) in the States. The Central Pollution Control Board (CPCB) has identified 2301 medium and large scale polluting industrial units under 17 highly polluting categories. The requisite pollution control devices are reported to have been provided in 1927 units, while 235 have been closed and the 139 are still defaulting. CPCB also monitors ambient air quality at 308 stations covering 115 cities/towns in 28 States and four UTs in the country to: (i) determine the status and trend in ambient air quality on significant parameters like benzene and polyaromatic hydrocarbons (PAH); (ii) assess health hazard and the damage to materials; (iii) develop preventive and corrective measures; and (iv) understand the natural cleansing process. Presently, the criteria pollutants monitored by Central/State PCBs and associate agencies include sulphur dioxide (SO<sub>2</sub>), NO<sub>x</sub>, and Respirable Suspended Particulate Matter (RSPM). Other parameters for toxic trace matters PAH are also monitored for select cities.

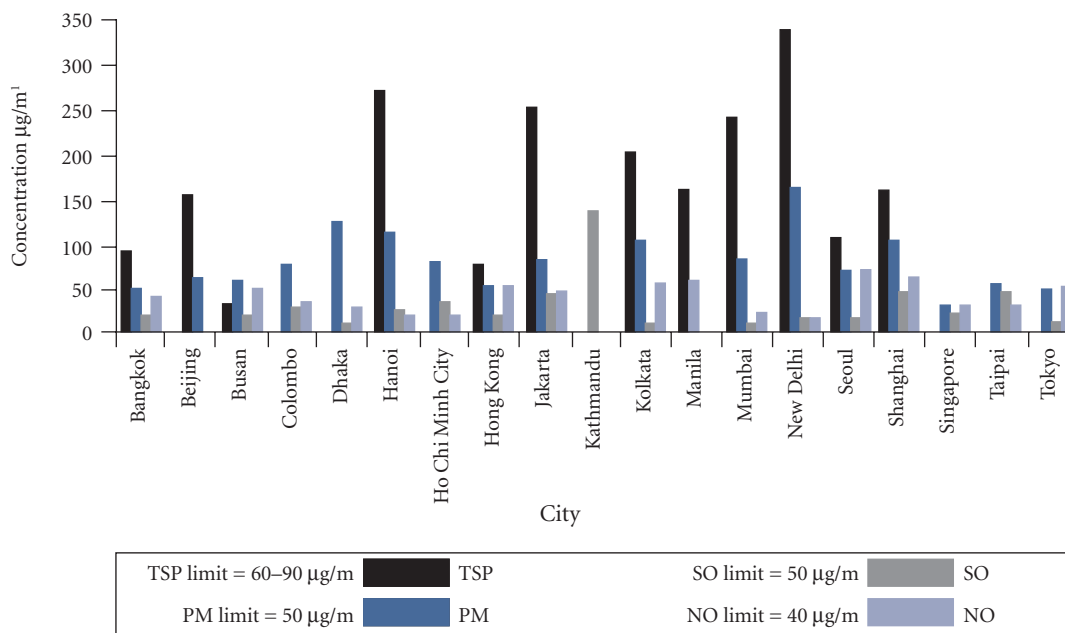
9.1.23. A programme for real time air quality monitoring for cities with population of more than 1 million was started during the Tenth Plan. The automatic air quality monitoring systems are operational in Jodhpur, Patna, Pune, and Sholapur while those in Kanpur, Varanasi, Jharia, and Kolkata will be functional soon. As many as 76 cities/towns are found to exceed acceptable limits of these parameters mainly due to vehicular and industrial pollution measured in terms of ambient air quality in residential, industrial and sensitive areas for SO<sub>2</sub>, oxides of nitrogen, Suspended Particulate Matter, RSPM, ammonia, and carbon monoxide.

9.1.24. Figure 9.1.1 displays the average air quality levels of select Asian cities between 2000 and 2004. The chart shows that New Delhi, Mumbai, and Kolkata have failed to meet the WHO standards as far as Total Suspended Particulate Matter and RSPM are concerned. Beijing and Shanghai, though better than Indian cities, also could not meet the WHO standards in this respect. The other Asian cities which failed to meet the required standards were Jakarta, Katmandu, Seoul, Dhaka, and Colombo. As far as SO<sub>2</sub>, and NO<sub>2</sub> are concerned, New Delhi and Mumbai were much better than the prescribed WHO standards whereas several Asian cities exceeded the safe limits.

9.1.25. Action Plans for improvement of air quality have been drawn for 16 identified cities on the advice of the Supreme Court. Based on the basic format prepared by CPCB for this purpose, the State PCBs have been asked to evolve such plans for their respective areas.

9.1.26. During the Eleventh Plan period, all Central programmes on outdoor pollution should be reorganized under a National Air Quality Plan, which will cover (i) City based Clean Air Action Plans (CAAPs) and (ii) Pollution Control and Prevention in Industrial Areas programmes. The ongoing national programme for monitoring air quality will be taken forward for achieving real time data. This would help in creating early warning systems and thus enforcing the Plan target of conforming air and water quality to WHO standards.

9.1.27. The entire Air Quality Monitoring network should be expanded from the current 308 stations to 1000 stations. Real time monitoring of PM<sub>2.5</sub> (Particulate Matter 2.5 micron), ozone, VOCs (Volatile Organic Compounds), PAH, secondary pollutants—sulphates and nitrates—will be organized in about 15 cities per year, to cover the 76 cities which currently exceed the four specified levels of air pollution. Source monitoring of VOC, BTX (benzene, toluene, and xylene), and toxic heavy metals will be initiated to develop control measures.



Source: CAI-Asia (2006c).

FIGURE 9.1.1: Urban Air Quality in Select Asian Cities, 2000–04

9.1.28. Vehicular pollution is a major source of air pollution in our cities and control of vehicular pollution should have high priority in planning for a clean urban environment. Some of the initiatives needed to control vehicular emissions are listed in Box 9.1.1.

9.1.29. More generally, effective urban transport planning, with appropriate initiatives for the development of public transport is particularly important. CAAP should therefore be integrated with the National

Urban Transport Policy and the JNNURM to ensure optimal development of public transport including both bus and rail based mass rapid transit systems. CAAP should also be the basis of all Central and State funding with appropriate provision of penalties for non-compliance.

9.1.30. The monitorable target in air quality should be to achieve WHO standards of air quality in all major cities by 2011–12.

#### Box 9.1.1 Strategy to Control Vehicular Emissions

- There should be uniform fuel quality and emission standards across India. The road map proposed in the government's Auto Fuel Policy must be accelerated and tightened to cover all cities and to implement Euro IV standards.
- The use of diesel in private vehicles must be discouraged. The present distortions in pricing under which diesel is much cheaper than petrol, encourages the growth of diesel vehicles leading to cheap and toxic motorization.
- All Central funding for the transport sector must be linked to the implementation of car restraint measures including parking charges designed to recover the full cost of using parking space (linked to the real estate and construction costs) and rationalization of road and other transportation related taxes (such as passenger tax, sales tax, and so on) to reduce the tax burden on public transport and increase it for the personal motorized transport.
- The government should impose higher annual taxes on personal transport, which should be used to create a dedicated fund for public transport.

**TABLE 9.1.2**  
**Notified Standards for Water Quality**

Designated-Best-Use	Class of water	Criteria
Drinking water source without conventional treatment but after disinfection	A	1. Total Coliform—Most Probable No. (MPN)/100ml < 50 2. pH – 6.5–8.5 3. DO > 6mg/litre 4. BOD (5 days 20°C) – < 2mg/litre
Outdoor bathing (Organized)	B	1. Total Coliform (MPN)/100ml – < 500 2. pH – 6.5–8.5 3. DO – > 5mg/l 4. BOD – (5 days 20°C) – < 3mg/l
Drinking water source after conventional treatment and disinfection	C	1. Total Coliform (MPN)/100ml – < 5000 2. pH – 6.5 – 9.0 3. DO > 4mg/litre 4. BOD – (5 days 20°C) – < 3mg/l
Propagation of wildlife and fisheries	D	1. pH – 6.5–8.5 2. DO – > 4mg/litre 3. Free Ammonia (as N) – < 1.2 mg/l
Irrigation, industrial cooling, controlled waste disposal	E	1. pH – 6.5–8.5 2. Electrical Conductivity—(25°C) micro mhos/cm < 2250 3. Sodium Absorption Ratio Max. 26 4. Boron Max. 2mg/l
	Below-E	Not Meeting A, B, C, D & E Criteria

Source: CPCB.

## WATER QUALITY

### Monitoring Water Pollution

9.1.31. The Water (Prevention and Control of Pollution) Act, 1974 regulates water quality through the State PCBs. The CPCB, under MoEF, has established a nationwide network for water quality monitoring comprising 1019 stations in 27 States and six UTs. The monitoring is done on a monthly or quarterly basis for surface water and on a half-yearly basis for groundwater. The monitoring network covers 200 rivers, 60 lakes, five tanks, three ponds, three creeks, 13 canals, 17 drains, and 321 wells. Water samples are analysed for 28 parameters including physical parameters, nutrients, major ions, and organic and bacteriological parameters.

### National River Conservation Plan (NRCP)

9.1.32. The different standards of water quality required for drinking, bathing, and irrigation are given in Table 9.1.2.

9.1.33. Out of the various parameters monitored, Biochemical Oxygen Demand (BOD) and Coliforms are critical. Maintenance of certain level of flow that could ensure a minimum assimilative capacity in water bodies remains a matter of concern, especially in the light of increasing consumptive demands of various sectors such as household, industry, and agriculture. Based on monitoring done during the last 10 years, 14% of riverine length is highly polluted (BOD more than 6 mg/litre) and 19% moderately polluted (BOD—3 to 6 mg/litre). A total of 86 polluted stretches have been identified and action plans for improving the water quality in them are being prepared.

9.1.34. As small-scale industries do not have adequate resources, space or skilled manpower to treat their wastewater, a scheme of Common Effluent Treatment Plants (CETPs) was initiated in June 1990. The CETPs are partially funded by the GoI. Eighty-eight CETPs covering more than 10000 polluting industries have been set up during the Tenth Plan. However, the performance of these units has been generally unsatisfactory largely due to improper operation and maintenance. This calls for strengthening of enforcement. Charters on Corporate Responsibility on Environmental Protection in respect of 17 categories of highly polluting industries have also been formulated in collaboration with the concerned industries.

9.1.35. It is necessary to consider rivers holistically to evolve plans to restore their ecological health and improve the water quality to bathing standards. Cities and towns located on the banks have been found to be gross polluters and these have been taken up for planning and implementing schemes to ensure that only treated wastewater is discharged into the rivers.

9.1.36. Untreated sewage dumped into our rivers is a major cause of river pollution. The total sewage generation in the country is about 33000 MLD (million litres per day). Against this, the total average treatment capacity is only 6190 MLD and 40% of that capacity is in Delhi. This underlines the urgent need to expand the sewage treatment capacity in the country.

9.1.37. The NRCP has covered 160 towns along 34 polluted river stretches in 20 States and has created 2055 MLD of sewage treatment plant (STP) capacity till now, which is approximately 38% of the approved capacity of 5435 MLD to be set up under the Plan. The average capacity utilization of existing STP capacity is reported to be about 72% against the desirable capacity utilization of 100%. Under-utilization of capacity is due to factors like irregular power supply, absence of connections between domestic sewage drains and STPs, failure of States to provide for maintenance costs of STPs, and so on.

9.1.38. Under the Ganga Action Plan (GAP) Phase-I, sewage treatment capacity of 869 MLD was set up covering 25 Class-I towns in Uttar Pradesh, Bihar, and West Bengal. This amounted to 35% of the total sewage treatment capacity needed. As a result of the implementation of GAP I, the length of the polluted stretch of the river was reduced from 740 km to 437 km (Kannauj to Varanasi). Phase-II (1993) covered Ganga's tributaries (Yamuna, Damodar, and Gomti) in 96 towns in seven States. It is estimated that another 20% of the pollution load of Ganga would be covered on completion of the on-going works under NRCP. However, there will still be a gap of nearly 45% of the pollution load to be addressed in the future.

9.1.39. Other major river cleaning projects cover Gomti river in Uttar Pradesh; Yamuna River in Delhi; Musi River in Hyderabad and Pamba River in Kerala. The 22 km stretch of the Yamuna in Delhi between Wazirabad and Okhla, is critically polluted. A sewage treatment

capacity of 2960 MLD was required to handle the entire discharge load in Delhi. However, the STP capacity created is about 2500 MLD only, leaving a gap of about 460 MLD. More importantly, the existing STPs are able to treat only about 1600 MLD (about 64% capacity utilization) due to dilapidated condition of trunk sewers.

9.1.40. The impact reported by MoEF reveals that BOD is within the prescribed standards (BOD less than 3 mg/l and Dissolved Oxygen [DO] more than 6 mg/l for Bathing Quality) at most major cities along the Ganges. However, as shown in Table 9.1.3 below, the stretch from Kannauj to Allahabad has not yet achieved bathing quality standard. As shown in Table 9.1.4, the stretch of Yamuna river between Delhi and Etawah in Uttar Pradesh is not even of bathing standard.

9.1.41. The rivers Narmada, Mahanadi, Brahmini, Baitarni, Subarnrekha, Beas, and Chambal maintain DO levels of 4.0 mg/l or above throughout the year. In the Ganga, Yamuna, Krishna, Sabarmati, Tapi, Sutlej however, the DO level goes as low as 0.3 mg/l.

**TABLE 9.1.3**  
**Water Quality Data for River Ganga**  
**(Summer Average, March–June)**

Station/Location	1986		2006	
	DO (mg/l)	BOD (mg/l)	DO (mg/l)	BOD (mg/l)
Rishikesh	8.10	1.70	8.30	1.00
Haridwar D/S	8.10	1.80	8.10	1.30
Garhmukteshwar	7.80	2.20	7.70	2.10
Kannauj U/S	7.20	5.50	7.35	1.11
Kannauj D/S	na	na	6.45	4.20
Kanpur U/S	7.20	7.20	6.20	6.80
Kanpur D/S	6.70	8.60	3.90	6.80
Allahabad U/S	6.40	11.40	7.10	4.90
Allahabad D/S	6.60	15.50	8.50	3.20
Varanasi U/S	5.60	10.10	8.70	2.10
Varanasi D/S	5.90	10.60	8.65	2.25
Patna U/S	8.40	2.00	7.40	2.05
Patna D/S	8.10	2.20	8.10	2.30
Rajmahal	7.80	1.80	7.20	1.95
Palta			6.96	2.58
Uluberia			6.46	2.64

Source: CPCB.

**TABLE 9.1.4**  
**Water Quality Data for River Yamuna**  
**(Summer Average, March–June)**

Station/Location	1986		2006	
	DO (mg/l)	BOD (mg/l)	DO (mg/l)	BOD (mg/l)
Tajewala	11.70	1.20	11.20	1.50
Kalanaur	10.40	1.05	7.30	2.50
Sonepat	9.75	3.00	8.40	2.50
Palla	13.95	6.00	8.00	4.80
Nizamuddin Bridge	0.30	25.00	0.00	31.30
Agra Canal	0.35	26.50	0.00	28.30
Majhawali	0.50	22.00	3.05	26.00
Mathura	8.10	4.00	5.40	15.30
Mathura D/S	8.50	2.50	5.77	15.00
Agra U/S	10.65	4.50	8.40	15.00
Agra D/S	1.65	9.00	8.17	14.80
Batteshwar	13.90	11.00	9.68	14.00
Etawah	11.16	7.00	16.90	15.50
Udi	9.71	2.00	13.30	3.00
Auraiya Juhika	8.14	5.00	8.40	1.80

Source: CPCB.

### Strategy for the Eleventh Plan

9.1.42. The country's first river action programme—GAP—completes over 20 years and the NRCP completes 10 years in 2007. The experience of the first 20 years needs to be used to design an effective and affordable river cleaning programme for the future.

- A basic objective must be to maintain minimum flows, which are threatened by withdrawal of water to meet the needs of agriculture and industry, and to ensure treatment of sewage and effluents.
- As urban sewage load is the dominant factor causing river pollution, integration of the NRCP and National Lake Conservation Plan (NLCP) with the urban development programmes and agencies is essential. It should be ensured that by 2011–12 no untreated sewage is drained into the rivers.
- For receiving assistance under the NRCP/NLCP, ULBs should be fully involved in developing the programme along with specific statutory responsibility for operating and maintaining the treatment facilities created.
- The City Development Plans should incorporate environmental management services as the number one priority in JNNURM and Urban Infrastructure

Development Scheme for Small and Medium Towns (UIDSSMT). Mechanisms are needed to ensure that the urban areas covered under these programmes provide for full treatment of the sewage generated.

- For the plan period, the River Conservation Programme should aim at completing the projects in hand and new projects should be considered only in towns which are not covered under JNNURM and UIDSSMT.
- The NRCP should encourage installations on command area basis to facilitate investment in the treatment of maximum quantity of sewage and reuse in the vicinity. In other words, decentralized systems of wastewater treatment need to be encouraged as against centralized, large, end-of-pipe treatment units.
- The wastewater management strategy needs to emphasize the use of state-of-the-art Geographical Information System (GIS)-based decision support systems.
- Water efficiency in flushes and gadgets should be planned in order to reduce wastewater generation. Recycling/reuse of treated sewage in cities should be promoted. Resident groups should be sensitized towards water conservation, recycling, and reuse.

#### National Lake Conservation Plan (NLCP)

9.1.43. The NLCP was approved as a 100% Centrally funded scheme during the Ninth Plan with the objective of restoring the polluted and degraded lakes of the country. To begin with, NLCP proposed to cover urban lakes of tourist importance. The scope of work has been expanded during the Tenth Plan to include rural water bodies also. Under the programme, conservation of 46 lakes in 13 States has been taken up through 31 projects. So far, projects for 10 lakes have been completed and 10 more are likely to be completed. Improvement in the quality of water in the lakes in the completed projects is more marked than in the river conservation projects. The scheme now provides assistance to States on a 70:30 sharing basis and till date the estimated approved cost is about Rs 565 crore.

9.1.44. The activities covered under NLCP include interception and treatment of pollution loads entering the lake, lake cleaning interventions such as desilting, de-weeding, bioremediation, catchment area treatment, lake front eco-development like bunding, fencing, shore line development, and creation of facilities for public recreation and entertainment.

#### Dal Lake Conservation Project (DLCP)

9.1.45. The DLCP was approved by the government at a cost of Rs 298.76 crore in September 2005. As an exception, this project is being implemented entirely by the Central Government. The expected date of completion of the project is March 2010. The works envisaged include interception and diversion of pollutants entering the lake, setting up of six STPs, desilting, de-weeding, removal of encroachments in the project area, and so on. The GoI has released Rs 70 crore for the project till 2006–07. Utilizing this, three out of six STPs have been made operational. The remaining three STPs are expected to be commissioned by December 2007. The progress of implementation is, however, slow due to delay in relocation of families who need to be shifted from the project area of the lake.

9.1.46. While the lakes conservation plan focuses on pollution abatement in lakes, the larger objective of conservation of lakes is the maintenance of the aquatic ecosystems. Keeping this in view, wetlands will be integrated with NLCP and the programme's objectives will cover conservation of life forms apart from mitigating pollution and augmenting catchments.

#### Water Pollution

9.1.47. Effluent standards, environmental laboratories, and government analysts have been notified under the Environment (Protection) Act. There is a need for much stronger monitoring and enforcement for expanded coverage by both the Central and State Pollution Control Boards. Greater awareness and involvement of local (affected) communities and local governments in compliance and monitoring is critically important. While compliance will cover treatment and recycling of used water, monitoring should include the extent and quality of the treated water, and water quality of the water bodies providing or receiving the water in treated or untreated form.

9.1.48. The Joint Parliamentary Committee on pesticide residues in and safety standards for soft drinks, fruit juice, and other beverages has suggested notifying quality standards for drinking water. These quality standards should be made mandatory.

#### WASTE MANAGEMENT

9.1.49. Municipal Solid Waste (Management and Handling) Rules, 2000 stipulated that these were to be complied by December 2003. Under these rules, all local



bodies were expected to undertake segregation of waste and its collection, storage, transportation, processing, and disposal. While the Ministry of Urban Development reported that Jodhpur in Rajasthan, Sirsa in Haryana, and Namakkal in Tamil Nadu have been making good efforts towards compliance, no other city/town in the country has taken the required steps. Some local bodies are reported to have taken initiatives to set up waste processing and disposal facilities. These local bodies are generating about 1.2 lakh tonnes of municipal solid waste every day and treatment is not a priority in their plans.

### Urban Solid Waste Management

9.1.50. Management of industrial and municipal waste is a serious challenge because of its magnitude and the resources required. The JNNURM covers programmes for urban waste disposal. The scheme of Balanced Use of Fertilizer under the Ministry of Agriculture strengthens the soil-testing programme in the country and encourages efficient fertilizer use and composting of urban biodegradable waste. The Ministry of New and Renewable Energy (MNRE, previously MNES) has formulated a National Programme on Energy Recovery from urban and industrial waste. These programmes need convergence and exploitation of synergies.

### Strategy for the Eleventh Plan

9.1.51. Collection, treatment and disposal of solid waste are the responsibility of the ULBs. These bodies must be made specifically accountable in this respect. The Supreme Court directions for municipal solid waste collection and management which require segregation, sanitary landfills, and other safe options of treatment should be part of a Master Plan. The following measures also need to be taken.

- Processes for waste minimization and segregation should be promoted and pursued. The existing regulations have to be revisited to see the changes needed and the investments required.
- The role of CPCB and MoEF must be clarified. They should be charged with enforcing the rules through the ULBs and not rest satisfied solely from being the key standard setting and pollution monitoring agency.
- Assistance for projects for treatment and disposal of hazardous and biomedical waste should be provided as incentive for compliance.
- Avoidance of waste going to the landfill should be the priority for all ULBs.
- For smaller and medium towns and cities, regional/shared landfills/waste processing infrastructure should

be considered. For larger cities, the problem of availability of land should be addressed.

- Programmes like JNNURM and UIDSSMT need to link assistance to the progress in solid waste management. During the Plan period, all Class I cities should have sanitary landfills in place.

9.1.52. The PCBs are responsible for enforcing Management of Hazardous Waste and Biomedical Wastes (Management and Handling) Rules. It is assessed that about 4.4 million tonnes of hazardous waste are generated annually by over 13000 units. At the instance of the Supreme Court, an inventory of dumpsites is being carried out. MoEF provides assistance for installing Transport, Storage, and Disposal Facilities (TSDF) for management of hazardous waste generating industrial clusters. So far, six such systems have been supported in PPP mode. The average capacity of these units is 1–1.2 lakh tonnes per annum. Biomedical waste is generally disposed of by incinerators or conventional methods. At least 17 units, mostly incinerators, were set up by industry associations. Some health care facilities have installed their own biomedical waste treatment facilities and others are availing the services of Common Bio-medical Waste Treatment Facilities (CBWTF). There were 157 CBWTFs, including eight under installation, in the country as on March 2007.

9.1.53. During Eleventh Plan period, an institutional mechanism would be required to be put in place to ensure that issues related to handling of industrial, hazardous and bio-medical wastes are also dealt under JNNURM and UIDSSMT. Funding through these two umbrella schemes should be made conditional upon appropriate measures being taken in respect of these issues. In places not covered under JNNURM and UIDSSMT, an effective mechanism should be put into place to ensure strict monitoring and compliance by the concerned local authorities. A framework for management of e-waste also needs to be put into place.

### BIODIVERSITY

9.1.54. Habitat conversion or land use changes, land degradation, and pollution result in the decline of ecological goods and services needed for human welfare. The Biological Diversity Act, 2002 and Rules, 2004 provide for constitution of State Boards (SBBs) and Management Committees (BMCs) for conservation, documentation and sustainable utilization of biodiversity and for building up capacities of these bodies. Chronicling in the form of

People's Biodiversity Registers will be the only way we can identify changes happening due to climate change. There is a need to develop appropriate methodology and models for conducting such an exercise. Documentation of traditional knowledge should also include adaptation of such knowledge in line with the present needs of conservation.

### Biosphere Reserves

9.1.55. This programme was started in 1986 with UNESCO (Management and Biosphere) support for integrating social, cultural, and ecological values of ecologically rich landscapes. The primary focus was on monitoring and designing conservation strategies. With a Tenth Plan outlay of Rs 35 crore, the programme has not been able to deliver an effective outcome for the existing biosphere reserves. There is a need to reinforce the information and strategic back up for the management of protected areas in the core of biosphere reserves.

9.1.56. Keeping in view the facts that village eco-development and participatory management of habitats are part of protected areas management schemes, the primary objectives of this programme will be research, documentation, and monitoring of the dynamics of human ecosystem interface. The programme should focus on cross-sectoral linkages between biochemical resources and human livelihood.

### Mountain Ecosystems

9.1.57. The MoEF has established an autonomous institute, the G.B. Pant Institute of Himalayan Environment and Development (GBPIHED), with the overall mandate of dealing with issues relating to the environment of the Indian Himalayan Region. The results of project studies of the Institute also have implications on issues such as climate change and land degradation. However, the output falls far too short of what is needed to be done for the Himalayan ecosystems.

9.1.58. During the Eleventh Plan period, GBPIHED should reorient its activities to evolve as a resource centre for the Himalayan States and GoI for advice on sustainable development of the Indian Himalayan Region. The focus of research should include socio-economic development of the mountain habitations. An Indian Alpine Initiative should also be started for tracking the dynamics of alpine biomes in the context of climate change.

### Coastal Zone Management

9.1.59. The earlier Coastal Regulation Zone notification prescribed regulation of activities based on uniform principles of vulnerability of coastal areas against human activity. Coastal areas are currently classified in four categories (CZ 1 to 4) with different principles for development activities. Category 1 includes ecologically sensitive areas, category 4 includes islands, and categories 2 and 3 permit construction activities based on vulnerability. The Swaminathan Committee prescribed that the local circumstances and vulnerabilities should be the basis of coastal zone management and regulations. For this purpose, use of scientific, social, and local information should be made in environmental management plans for coastal areas. Conservation of life forms (and their habitats such as nesting/spawning sites) and integration of their environments with human well-being should be essential components of such plans. Participation of civil society and fishing/coastal communities in the State level coastal zone management committees should be ensured for conservation and sustainable harvests.

### Botanical Survey of India (BSI) and Zoological Survey of India (ZSI)

9.1.60. The Botanical and Zoological Survey of India are today facing major challenges in view of the new regime on genetic resources, provisions of the Biochemical Diversity Act, and fast evolving knowledge and information environment. Use of recent trends in organizing information and modern skills in exploration and documentation will be given priority. These institutions will develop into prime repositories of information on plants and animals, and as referral institutes. Collaboration and linkages with other institutions as part of a network will be encouraged.

### ENVIRONMENTAL AWARENESS AND EDUCATION

9.1.61. The Environment Education in School System project initiated in 1999 strengthens environment education in the formal school curriculum through infusion of appropriate education material. Introduction of environmental concepts in Business/Management Education is another focus area. A committee comprising representatives from management institutions, AICTE, UGC, industry, and MoEF is working on this.

9.1.62. During the Eleventh Plan, the programme of Environmental Education, Training, and Extension may be continued with further linkages with the publicity and awareness mechanisms of State forest departments.

This may include a manual on public participation in all activities of MoEF. Public transport like railways, buses, and even airways can be extensively used for environmental awareness through well designed awareness material. Information generated by student activities on local environmental issues may be integrated with the database under the National Environmental Monitoring Programme (NEMP). Capacity building, such as training of trainers, should also be focused on.

9.1.63. The National Museum of Natural History (NMNH), New Delhi, and three regional museums at Mysore, Bhubaneswar, and Bhopal will be made more effective in natural history education and awareness with the introduction of the state-of-the-art education and interpretation methods. The MoEF has contemplated setting up of a new regional museum at Sawai Madhopur with focus on the life forms of the region, the details of which are being worked out.

### National Environmental Monitoring Programme (NEMP)

9.1.64. The Steering Committee on Environment and Forests for the Eleventh Plan has suggested a unified NEMP for ecology, environmental chemistry, public health, and socio-environmental studies. This programme would track the status and change in the socially relevant biophysical parameters and their social impacts, wherever possible. NEMP may have sub-programmes on forest cover and ecosystem services, apart from air and water pollution. The programme may have linkages with educational, scientific, and social organizations working in the relevant fields. Accordingly, the existing programme for Environment Information System (ENVIS) will be reshaped to provide information in interactive formats for effective use. Real time sharing of data on environmental parameters collected under NEMP will be implemented. A special portal could also be organized for environmental data from school and college student projects.

### ENVIRONMENTAL RESEARCH AND DEVELOPMENT

9.1.65. The MoEF supports nine Centres of Excellence in research which need to be strengthened.

9.1.66. During the Eleventh Plan period, environmental policies and programmes will need strong research backup. The identified research priorities will be met by a combination of open, competitive research grant programmes, and dedicated support to special organizations and centres of excellence.

- An 'Environmental Research Grants' programme should focus on the relevant areas such as clean technologies, preventive strategies, hazardous substances management, and so on. There should be special programmes on Ecosystem Health, Pollution and Health, Ecological Footprint, NTFP regeneration ecology, Invasive species, Fire Ecology, and Forest-Watershed Services.
- Documentation of traditional and community knowledge should be a special area of research.
- Special mechanisms may be set up for co-ordination and management of research amongst agencies like Indian Council of Forestry Research and Education (ICFRE), ICAR, CSIR, DBT, DST, and UGC, as well as multilateral and bilateral donors and private foundations.
- The All India Coordinated Project on Taxonomy (AICOPTAX) needs strengthening in order to bring more taxa of lower organisms and issues like molecular taxonomy.

### Taxonomy Capacity Building

9.1.67. The implementation of the Biological Diversity Act, 2002 and Rules, 2004 and National Environmental Policy, 2006 calls for an adequate number of trained taxonomists. Existing programmes on botanical gardens and taxonomic capacity building assume immense significance in this respect. MoEF provided assistance to 72 botanical gardens during the Tenth Plan and under an AICOPTAX, 11 coordinating centres and two centres for training have been supported at various institutions.

9.1.68. AICOPTAX should be augmented for capacity building (including human resources) in Taxonomy. The ZSI and BSI will be the key institutions to organize taxonomic capacity building programmes and train young Indian taxonomists for forest, wildlife and management.

### CONSERVATION OF NATURAL RESOURCES AND ECOSYSTEMS

9.1.69. Inland aquatic systems (excluding paddy fields) cover 5.3% of the country's land area but harbour 15% and 20% of India's floral and faunal diversities, respectively. There are wide gaps in knowledge relating to hydrological parameters, ecosystem processes, and aquatic life forms in these systems. Information on the physico-chemical aspects of water quality in rivers and lakes has become available largely because of the support from the National River Conservation Directorate (NRCD) and the CPCB, but that on aspects such as area, depth, hydrology, and

ecosystem processes (functions) is practically non-existent. The existing programmes on conservation accordingly need a revamp.

9.1.70. The Scheme on Conservation and Management of Mangroves, Coral Reefs, and Wetlands has been too small to make an impact on the conservation of these ecosystems. Mangroves and coral reefs are mainly found on government lands. Development of appropriate institutions to motivate people to cooperate in the conservation efforts of these systems will be a priority area. More protected areas are needed for the conservation of coral reefs. Restoration and plantation programmes for mangroves are necessary to make these eco-systems function as effective barriers against invasion of land by sea. The existing programmes on wetlands, mangroves, and coral reefs will be extended to mountains, grasslands, and alpine ecosystems.

9.1.71. Initiatives on conservation need to be more effectively integrated with development and poverty reduction. The principles of Community Reserves under the Wild Life (Protection) Act may be useful in such efforts. Long-term plans for conservation of such habitats will be important. Wetlands will be part of NLCP and the objectives will cover conservation of life forms apart from mitigating pollution and augmenting catchments.

- An information system will be set up for islands, coral reefs, mangroves, and wetlands by developing a consolidated and easily accessible database of all recorded species.
- Support activities will include participatory research for inventory and valuation of freshwater ecosystems, measures to tackle serious threats to them and ensure conservation, as also the livelihood security of dependent communities.
- With regard to linkage between biodiversity and climate change, it should be recognized that biodiversity is an important tool to find solutions for tackling the impact of climate change on rural populations that depend on biomass for their livelihood.
- There is a need to recognize the potential of biodiversity to provide solutions for adaptation in the form of traditional crop varieties and donors for creating GMOs.
- National agro biodiversity hotspot mapping and identification of important agro biodiversity landscapes will be undertaken for conservation with the participation of farmers and pastoralist groups. Regions with high concentration of genetic diversity

on major and important crops may be declared as 'gene sanctuaries' for conservation and enrichment of diversity, involving communities through diversity based income generation and incentives.

- The regulatory mechanism for trials and adoption of GMOs will be required to be based on scientific, socio-economic, and EIA in the long as well as short term. The process of a regulatory regime, therefore, should be consultative and transparent, based on the prescribed scientific, logical, and progressive norms, taking into account factors of human health and environmental health.
- Awareness generation will be important for ensuring effective outreach of the prescribed process for promotion of appropriately and adequately tested GMOs, mechanisms for enforcement of procedures, and processes for safeguarding ecological and health safety will be established.

## OTHER PROGRAMMES

9.1.72. Several ongoing programmes of NoEF on specific subjects will continue to be pursued during the Eleventh Plan period. This includes the Environment Planning and Coordination project for Madhya Pradesh and Nagaland, Environmental authorities and tribunals, the Taj Protection Mission, National Natural Resource Management systems, IT, Adaptation and Capacity Building on Climate Change, and so on. Such programmes, with specific mandate derived from the Supreme Court or externally aided projects, will continue till their logical conclusion.

## 9.2 CLIMATE CHANGE

9.2.1. Global Climate Change due to rising levels of GHGs in the atmosphere is one of the most serious environmental concerns of our time. The Intergovernmental Panel on Climate Change (IPCC), established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, has worked extensively on evaluating past trends and the future prospects of climate change. The synthesis report of the Fourth Assessment Report (AR4) of the Panel was released in November 2007.

9.2.2. The IPCC reports present a grim picture. It is estimated that the Earth's surface temperature has risen by  $0.6 \pm 0.2^\circ\text{C}$  over the twentieth century. In the last 50 years, the rise has been  $0.13 \pm 0.07^\circ\text{C}$  per decade and the recent years have been the warmest since 1860, the year from which regular instrumental records are available. The Panel has concluded that the fact of global warming is unequivocal and there is enough evidence to indicate

that this is due to anthropogenic reasons. Although some of these conclusions have been disputed, the assessment of the IPCC represents a broad and growing consensus in the scientific community worldwide. The current level of atmospheric CO<sub>2</sub> is estimated as 379 parts per million (ppm) compared with the pre-industrial level of only 280 ppm. The annual growth rate of CO<sub>2</sub> concentration has been greater in the last 10 years (1.9 ppm/yr) compared to the last 40 years (1.4 ppm/yr). Halocarbons (chloro-flouro-carbons etc.) in the atmosphere, however, are observed to be decreasing due to their phase out under the Montreal Protocol.

9.2.3. Since warming depends upon the total stock of GHG in the atmosphere, continued emissions beyond the earth's absorptive capacity necessarily imply a rise in temperature. If emissions continue to increase as at present, a warming of about 0.2°C per decade is projected by IPCC. If emissions are stabilized at the 2000 level, the warming could be about 0.1°C per decade. The Special Report on Emission Scenarios projects that surface air temperatures could rise by between 1.1 and 6.4°C over the twenty-first century. In most cases, the temperature rise may be 2–4°C. The sea level rise is projected to be 18 to 59 cm.

#### IMPACT AND IMPLICATIONS OF CLIMATE CHANGE

9.2.4. Climate changes noted in the IPCC Assessment reports include recession of glaciers, thawing of permafrost, lengthening of mid- to high-latitude growing seasons, pole-ward and altitudinal shifts of plant and animal ranges, decline in some plant and animal populations, early flowering of trees, and changes in insect populations and egg-laying in birds. Associations between changes in regional temperatures and the observed changes in physical and biological systems have been documented in many aquatic, terrestrial, and marine environments.

- The water cycle is totally dependent on the temperature regime. Increasing global temperature and resultant faster retreat of most glaciers is expected to affect the snow fed perennial water regimes. Accordingly, the vegetation status of catchments, magnitude and frequency of floods, precipitation, runoff and groundwater recharge may all be affected. These changes may substantially affect hydropower generation, and may also require an increase in irrigation due to higher crop evaporative demand.
- Through the twentieth century, the average rate of

global sea level rise has been  $1.7 \pm 0.5$  mm/yr. The maximum rise since 1992 has been observed in the Western Pacific and the Eastern Indian Ocean. This trend could result in loss of land due to inundation, erosion, floods, and salt-water intrusion, adversely affecting coastal agriculture, tourism, fisheries and aquaculture, human settlements, and health.

- Changing environmental attributes are sure to affect the species spectrum and the profile and composition of forests is also likely to change. The degree to which terrestrial ecosystems will continue to be net sinks for carbon is uncertain. In arid or semi-arid areas, productivity is expected to decrease. Trends of drying up of wetlands and degradation of ecosystems have been observed.
- Estimated crop yield responses to climate change vary widely, depending upon species, cultivation practices and soil properties; pests, and pathogens; the direct effects of carbon dioxide (CO<sub>2</sub>) on plants; and interactions between CO<sub>2</sub>, air temperature, water stress, mineral nutrition, air quality, and adaptive responses. Even though increased CO<sub>2</sub> concentration can stimulate crop growth and yield, this benefit may not always overcome the adverse effects of excessive heat and drought. The AR4 projects a decline in global rice production by 3.8% by the end of the twenty first century.
- Changes in the severity and frequency of extreme heat and cold, and of floods and droughts, coupled with local air pollution and aero allergens may result in changes in infectious disease occurrence, in local food production and also cause under nutrition, leading to impaired child development. There will also be health consequences of population displacement and economic disruption. For India, the risks of malaria and heat stress related mortality have been projected by IPCC. Increase in flooding and droughts are associated with increased risk of drowning, diarrhoeal and respiratory diseases, and hunger and malnutrition. Adaptive options like health-oriented management of the environment (including air and water quality, food safety, urban and housing design, and surface water management), and appropriate medical interventions are normally related to income levels. Therefore, the poor are more vulnerable. Human settlements are also expected to be affected by changes in resource productivity or market demand for goods and services causing structural and functional adaptations leading to migration, which in turn would result in changes in living conditions.

9.2.5. Global warming will affect us seriously. For South Asia, warming has been projected to be above the global mean and in South East Asia, equal to the global mean. The impact projections for India indicate a rise of 0.68°C in the twentieth century with an increasing trend in the annual mean temperature. Precipitation is likely to increase and extreme rainfall and other climatic events may occur more frequently. Extreme rains in the South West monsoon and fewer rainy days along the East Coast have been projected. An increase in temperatures of 0.5°C to 1.5°C could produce a decline of between 2.5% in wheat and maize production in India.

9.2.6. Existing research based on formal modeling suggests that a scenario of warming between 2–3°C would lead to a permanent loss of up to 3% in the global output. In countries with predominantly agrarian economies, the projected increase in temperature and reduction in precipitation could, in the absence of adaptive responses such as increased irrigation, related agricultural research and related infrastructural interventions, dampen economic growth by reducing agricultural productivity. These impacts can be moderated by efforts at adaptation but these are expected to be costly and will impose a burden on both producers and consumers. Climate change would therefore result in lower incomes of the vulnerable populations and increase in the absolute number of people at risk of hunger unless these outcomes can be countered through the development of cost effective technologies.

## RESPONSES TO CLIMATE CHANGE

9.2.7. The serious consequences of climate change, including especially the consequences for India, lead naturally to the question of what should be our response. Two types of responses need to be considered. The first relates to adaptation, i.e., measures that have to be taken given the very high likelihood that climate change will occur and will have adverse effects. The second relates to mitigation, i.e., steps to be taken that might reduce the extent of climate change.

9.2.8. Recognizing the importance of climate change issues, the Prime Minister established a Council on Climate Change under his chairmanship in June 2007 to co-ordinate national action for assessment, adaptation, and mitigation of climate change. Earlier, the government had set up an expert committee to study the impact of climate change. One of the important decisions taken by the Prime Minister's Council is that a National Action Plan

will be prepared compiling action taken by India for addressing the challenge of climate change and the action that needs to be taken in the future.

## Adaptation

9.2.9. Since a substantial adverse change in climate appears unavoidable even with the optimal mitigation response, the process of adaptation to climate change must have priority. The most important adaptation measure is development itself. A stronger economy is more able to adapt both in terms of the cost of adaptation and technological capability. Achieving rapid economic growth as targeted in the Eleventh Plan is therefore a key element in adaptation. As mentioned earlier, the Prime Minister's Council on Climate Change has decided that a National Action Plan on Climate Change compiling action taken by India for addressing the challenge of climate change and the action that it proposes to take, should be prepared as India's National Report on Climate Change. The Action Plan will deal with key vulnerabilities of India to Climate Change and, in particular, the impact on water resources, forests, coastal areas, agriculture, and health. An action plan for adaptation to climate change would require (i) action in the area of agricultural research to evolve varieties that can cope with likely climate changes, (ii) action to cope with likely increases in water stress, (iii) action to be able to cope with a greater frequency in natural disasters. The institutional network created at the time of preparation of India's initial National Communication to United Nations Framework Convention on Climate Change (UNFCCC) exists and is currently engaged in the preparation of information on India's second National Communication.

9.2.10. In the changing temperature and water regimes, improvement of productivity potential and water use efficiency of agricultural crops, specifically in regimes of water shortage and extreme variations of temperature, will be priority areas of research.

9.2.11. The adaptation response needs to be incorporated in the relevant programmes, including those relating to watershed management, coastal zone planning and regulation, forestry management, agricultural technologies and practices, and health.

9.2.12. Work on the potential impact, forecasting systems and adaptations in response to Climate Change will be the key concerns for future development. For projections and early warning systems, understanding of the

processes which could show discernible changes well before the actual impact starts is essential.

### Mitigation

9.2.13. Recognizing the need for international co-operation in devising an effective mitigation strategy, in 1992, the international community established the UNFCCC which established the principle of 'common but differentiated responsibility' between the industrialized countries (Annex 1 countries) and the developing countries (non-Annex 1 countries), taking account of the respective capacities. The Annex 1 countries were required to bring down their GHG emissions to 1990 levels by 2000. In 1997, the Kyoto Protocol under the UNFCCC was adopted, which set legally binding targets for GHG reduction by individual industrialized countries totaling 5.2% below their aggregate 1990 emissions during the 'first commitment period', 2008–12. Under the provisions of the Kyoto Protocol, non Annex I Parties (India is in this category) are not obliged to reduce emissions of GHG. So far, 176 countries, including India (and the regional economic organization EEC), have ratified the Protocol. The US and some other countries have not ratified the Protocol till now. Most of the industrialized countries thus far have not achieved significant progress in reducing their GHG emissions in the manner required in the first commitment period.

9.2.14. An optimum approach to mitigation from a global perspective is only possible if all countries cooperate to facilitate collective action. This is because mitigation actions are characterized by the classic problem of externality—the benefits of the action of any one country do not accrue only to the country itself but to the entire global community, while the costs of mitigation are fully internalized. Without co-operative action, all countries taken together will do less mitigation than is collectively optimum. The challenge lies in determining a basis for collective action which is fair, provides equitable entitlement to the global environment space with burden sharing in a manner which recognizes the very different levels of development and also the very different degrees of historical responsibility for causing the problem in the first place. Such differentiation among the countries of the world has been accepted by the UNFCCC and the Kyoto Protocol. This must be effectively operationalized to create an environment of trust and co-operation.

9.2.15. The first commitment period of the Kyoto Protocol is 2008–2012 and as per the provisions of the Kyoto

Protocol and discussion at the 13th Conference of Parties at Bali in December 2007, Bali Action Plan was commenced which intends to enable the full, effective, and sustained implementation of the Convention through long-term co-operative action, now, upto and beyond 2012. As part of the Bali Action Plan, a process has also been initiated to determine the GHG reduction commitments of industrialized countries (Annex 1 countries) under the Kyoto Protocol, beyond 2012. The precise nature of the outcomes of this process would be determined in a two year negotiating time table ending in 2009.

9.2.16. There is no doubt that the accumulation of GHG, which is the cause of global warming, has occurred overwhelmingly due to the emissions of industrial countries and it is therefore entirely appropriate that the burden of mitigation must fall on them. It is for this reason that the first commitment period in the Kyoto Protocol entailed commitment for reduction only by the industrialized countries.

9.2.17. With a share of just 4% of global emissions, any amount of mitigation by India will not affect climate change. A substantial commitment to reduce emissions by the major industrialized countries will be required. Nevertheless, as contribution to the global emissions reduction effort, the Eleventh Plan would focus on efforts to ensure that the emissions intensity of India's GHG continues to decline. The correct approach in mitigation is to define the obligations of different parties on the basis of common but differentiated responsibility and differences in respective capabilities. India's view on burden sharing is based on this approach. Our National Environmental Policy of 2006 requires 'equal per capita entitlements of global environmental resources to all countries'. At the meeting of the G 8 +5 in Heiligendamm in July 2007, Prime Minister Manmohan Singh indicated that we are determined to see that India's per capita emissions never exceed the per capita emissions of the industrialized countries. This formulation focuses on per capita emissions rather than total emissions as the relevant variable, and also provides industrial countries with an incentive to reduce their level of emissions as quickly as possible.

9.2.18. While optimal mitigation strategies will no doubt evolve in time from the ongoing international negotiations, India is already taking a number of initiatives in clean energy including renewable energy and action to increase energy efficiency and conservation.

One of the objectives of the Eleventh Plan is to reduce the energy intensity per unit of GHG by 20% from the period 2007–08 to 2016–17. We will also initiate action to increase our access to cleaner and renewable energy by fully exploiting existing resources (e.g., hydropower and wind power) developing nuclear power, and also supporting research in newer areas such as biofuels from agro-waste, solar energy, etc.

9.2.19. The CDM is a flexible arrangement under the Kyoto Protocol which enables industrialized countries to meet their emission reduction obligations by encouraging adoption of sustainable and environmentally friendly technologies in developing countries. India's CDM potential is a significant component of the global CDM market. Till 14 February 2008, out of a total of 871 projects accorded Host Country Approval, 314 projects in India have been registered by the CDM Executive Board, so far the highest in any country. However, in terms of the corresponding Certified Emission Reduction (CERs), India is second to China.

#### ALLOCATIONS IN THE ELEVENTH PLAN

9.2.20. The total projected GBS in the Eleventh Plan for the MoEF is Rs 8842 crore (at 2006–07 price) and Rs 10000 crore (at current price).

### 9.3 DISASTER MANAGEMENT

#### OVERVIEW

9.3.1. Many regions in India are highly vulnerable to natural and other disasters on account of geological conditions. About 60% of the landmass is susceptible to earthquakes and over 8% is prone to floods. Of the nearly 7500 kilometers long coastline, approximately 5700 kilometers is prone to cyclones. 68% area is susceptible to drought. All this entails huge economic losses and causes developmental setbacks. Disasters are no longer limited to natural catastrophes. Man-made emergencies often cause bigger disasters in terms of fatalities and economic losses. With urbanization and concentration of population in metropolitan cities, more and more people are becoming vulnerable to locational disasters. So, the development process needs to be sensitive towards disaster prevention, preparedness and mitigation. Disaster management has therefore emerged as a high priority for the country. Going beyond the historical focus on relief and rehabilitation after the event, there is a need to look ahead and plan for disaster preparedness and mitigation in order to ensure that periodic shocks to our development efforts are minimized.

9.3.2. Disaster risk reduction has not been highlighted in the policies and programmes of various plan schemes. The country's commitment to mainstreaming disaster risk reduction into the process of development planning at all levels so as to achieve sustainable development is yet to be carried forward across sectors through actionable programmes for achieving the desired result.

#### TENTH FIVE YEAR PLAN STRATEGY AND APPROACH

9.3.3. The Tenth Five Year Plan (2002–07), prepared in the backdrop of the Orissa super cyclone, Gujarat earthquake, and end of the International Decade of Natural Disaster Reduction, recognized disaster management as a development issue for the first time. The Plan devoted a separate chapter to disaster management and made a number of important prescriptions to mainstream disaster risk reduction into the process of development.

9.3.4. The Tenth Plan prescriptions on disaster management can broadly be divided into three categories:

- (i) Policy guidelines at the macro level that would inform and guide the preparation and implementation of development plans across sectors;
- (ii) Operational guidelines for integrating disaster management practices into development plans and programmes, and
- (iii) Specific developmental schemes for prevention and mitigation of disasters.

9.3.5. At the macro level, the Plan emphasized that 'while hazards, both natural or otherwise, are inevitable, the disasters that follow need not be so and the society can be prepared to cope with them effectively whenever they occur' and called for a 'multi-pronged strategy for total risk management, comprising prevention, preparedness, response and recovery, on the one hand, and for initiating development efforts aimed towards risk reduction and mitigation, on the other'. It stated that only then could we look forward to 'sustainable development'.

9.3.6. At the operational level, the Plan made a number of very important suggestions, as given below:

- Streamlining institutional arrangements for disaster response by an integrated approach involving civilian and military resources; setting up a modern, permanent national command centre or operations room with redundant communications and data links to all State capitals; establishing a quick response team particularly



for search and rescue operations; developing standard operating system for dealing with humanitarian and relief assistance from non-government sources; and formulating a unified legislation for dealing with all types of disasters.

- Building disaster prevention and preparedness in development planning by introducing a rigorous process of vulnerability analysis and risk assessment, maintaining comprehensive database and resource inventories at all levels, developing state-of-the-art infrastructure for mitigation planning, and establishing a Disaster Knowledge Network for the use of disaster managers, decision makers, community, and so on.
- Developing a nation-wide culture of prevention by introducing disaster management in the school curriculum, including relevant aspects of disaster management in professional courses, enhancing the capacity of disaster managers by better training facilities and creating a massive awareness at all levels.
- Encouraging community level initiatives for disaster preparedness by involving people at the grass roots, particularly those who are more vulnerable, for better preparedness and response.
- Developing appropriate zonal regulations, design standards, building codes, and performance specifications for safe construction.
- Inclusion of disaster mitigation analysis in all development schemes in vulnerable areas through which the feasibility of a project is assessed with respect to vulnerability of the area.
- Building disaster mitigation components into all development projects financed under the Plan.

9.3.7. The Tenth Plan felt that planned expenditure on disaster mitigation and prevention measures was required in addition to a Calamity Relief Fund. The Plan, however,

stopped short of recommending any specific plan scheme for prevention, mitigation or preparedness for disasters nor did it allocate any amount for such scheme, except making a general recommendation that ‘*Creation of faculties in disaster management in all 28 states is proposed to be taken up in the Tenth Plan in addition to community mobilization, human resource development, establishment of Control Rooms and forging international cooperation in disaster management. There is also an urgent need for strengthening the disaster management pedagogy by creating disaster management faculties in universities, rural development institutes and other organizations of premier research.*

#### IMPLEMENTATION OF SCHEMES IN THE TENTH PLAN

9.3.8. A Central Sector Plan Scheme, the National Disaster Mitigation Programme (NDMP), has been implemented since 1993–94. The scheme mainly provided for training and capacity building of government functionaries and other stakeholders to manage disasters in an effective manner. This scheme was transferred from the Ministry of Agriculture to the Ministry of Home Affairs in June 2002. The allocation for this scheme was raised from Rs 6.30 crore in the Eighth Plan to Rs 16.32 crore in the Ninth Plan and to Rs 30.77 crore in Tenth Plan. The annual allocations under various components of the scheme during the Tenth Five Year Plan are in Table 9.3.1.

9.3.9. Out of the eight components of the above scheme, only two components namely ‘Grants-in-Aid’ and ‘Professional Services’ were developmental in nature, while the remaining components were on revenue expenses. The major activities under the grants-in-aid include the setting up of the National Centre for Disaster Management at the Indian Institute of Public Administration, now upgraded as a statutory organization

**TABLE 9.3.1**  
**National Disaster Mitigation Programme—Year-wise Allocation of Funds in the Tenth Five Year Plan**

							(Rs in lakh)
S. No.	Head	2002–03	2003–04	2004–05	2005–06	2006–07	Total
1.	Grants-in-aid	262.00	349.00	474.00	505.00	600.00	2190.00
2.	Professional Services	20.00	29.00	54.00	110.00	150.00	363.00
3.	Machinery & Equipments	2.00	20.00	30.00	15.00	10.00	77.00
4.	Foreign Travel	80.00	30.00	25.00	40.00	50.00	225.00
5.	Contribution	20.00	20.00	20.00	17.00	20.00	97.00
6.	Office Expenses	2.50	3.00	2.00	2.00	2.00	11.50
7.	Advertisement & Publicity	20.00	10.00	25.00	1.00	1.00	57.00
8.	Other Charges	0.50	26.00	10.00	10.00	10.00	56.50
	<b>Total</b>	<b>407.00</b>	<b>487.00</b>	<b>640.00</b>	<b>700.00</b>	<b>843.00</b>	<b>3077.00</b>

Source: Disaster Management Division (MHA).

known as National Institute of Disaster Management (NIDM), creation of 29 disaster management faculties/Centres in 28 States, research and consultancy services, and documentation of major disaster events. The faculties did not have sufficient back-up from the States with the result that only limited activities are undertaken by the Centres. Even meagre allocations provided by the Central Government as grants-in-aid were not fully utilized in many of the States. The allocation of Rs 21.90 crore to the training institutes during the Tenth Five Year Plan was mainly used on NIDM which incurred an expenditure of Rs 11.56 crore. Nearly 71000 persons have been imparted training under the programme (Table 9.3.1).

9.3.10. The National Cyclone Risk Mitigation Project is another Plan Scheme proposed to be implemented with World Bank assistance. The project is presently at the stage of preparation of Detailed Project Report. It covers all 13 cyclone prone coastal States and UTs. Investments are to be made in upgradation of cyclone forecasting, tracking and warning systems, construction work of cyclone shelters, road linkages, plantation, retro-fittings of vital lifeline installations, strengthening of national and regional training institutions, setting up a techno-legal regime for cyclone mitigation and for strong management and monitoring system. As regards upgradation of cyclone forecasting, tracking and warning systems, this activity is proposed to be taken up either as part of the project or independently by the IMD.

9.3.11. The Ministry of Home Affairs is also implementing Phase II of a Community based Disaster Risk Mitigation (DRM) Programme in 169 multi hazard districts in 17 States/UTs with the support of UNDP under a multi-donor programme at a total estimated cost of Rs 153 crore (US\$ 34 million). Under this programme, disaster management plans are being prepared from village to district; village volunteers are being trained in first-aid, search and rescue, evacuation and relief and shelter management; disaster management teams are being constituted at the district and sub-district levels and mock drills are being conducted at all levels. This 100% externally funded programme is, however, outside the framework of the Plan and is being implemented on the non-Plan side. It is the largest community based DRM programme in the world. Phase I of the programme was implemented in the three States of Gujarat, Orissa, and Bihar during 2002–06 and has been rated well in a recent evaluation conducted by a team of consultants. While the general feedback on Phase II of the programme is

good, there is a definite need to increase the scope to cover other deficient areas too, in order to draw the full benefit from this.

## INSTITUTIONAL AND OTHER INITIATIVES IN THE TENTH PLAN

9.3.12. The following significant initiatives on disaster management were taken during the Tenth Five Year Plan period:

- The Disaster Management Act, 2005 has been enacted for establishing requisite institutional mechanisms for drawing up and monitoring the implementation of disaster management plans, ensuring measures by various wings of the government for prevention and mitigating the effects of disasters, and for undertaking a holistic, co-ordinated, and prompt response to any disaster situation.
- The National Disaster Management Authority (NDMA), under the Chairmanship of the Prime Minister, has been set up in terms of the Act. NDMA is an apex body responsible for laying down of policies, plans and guidelines on disaster management so as to ensure timely and effective response to disasters. The Authority has prepared a Draft National Policy on Disaster Management and has taken up preparation of guidelines on prevention, mitigation, response, and recovery in regard to various types of disasters such as earthquake, flood, landslides, industrial disaster, and so on. The guidelines on management of earthquake, chemical disasters, and chemical (industrial) disasters have been finalized and circulated.
- The State Governments are in the process of setting up State and district Disaster Management Authorities. The provisions of the Act relevant to the States/UTs have been brought into force w.e.f. 1 August 2007. While Arunachal Pradesh, Goa, Gujarat, Himachal Pradesh, Kerala, Mizoram, Puducherry, Punjab, and Uttar Pradesh are reported to have constituted SDMAs as per the Act, the other States/UTs are in the process of constituting the same.
- An eight battalion-strong National Disaster Response Force has been set up comprising of 144 specialized response teams on various types of disasters of which 72 teams are for nuclear, biological, and chemical (NBC) disasters.
- The Civil Defence set-up in the country is proposed to be revamped to strengthen local efforts for disaster preparedness and effective response. Similarly, the Fire Services are also proposed to be strengthened/

modernized to convert them into a multi-hazard response force.

- The National Institute of Disaster Management has been set up for training, capacity building, research, and documentation on various natural and manmade disasters. A comprehensive Human Resource Plan for Disaster Management has also been developed.
- Disaster Management has been included in the curriculum of middle and secondary school education. The subject has also been included in the post-induction and in-service training of civil and police officers. Modules have also been identified to include disaster management aspects in the course curriculum for engineering, architecture, and medical degrees.
- A committee of experts has finalized the Model building by-laws for town and country planning legislations, land use zonation, and development control legislations. The municipalities and city development authorities all over the country have been advised to make necessary changes in their respective by-laws and regulations in accordance with the model laws.
- The Bureau of Indian Standards has issued building codes for construction of different types of buildings in different seismic zones in the country. The National Building Code has also been revised, taking into consideration the natural hazards and risks of various regions of the country.
- The National Programme for Capacity Building of Engineers in Earthquake Risk Management to train 10000 engineers and 10000 architects on safe construction techniques and architectural practices is under implementation.
- A Web-enabled centralized inventory of resources has been developed to minimize response time in emergencies. Over 110000 records from 600 districts have been uploaded.
- Safe construction practices and dos and don'ts for various hazards are being disseminated for creating public awareness.

## ELEVENTH PLAN

### Vision and Strategy

9.3.13. The Tenth Plan has set into motion the process of shift in focus from response-centric disaster management covering rescue, relief, rehabilitation, and reconstruction to laying greater emphasis on the other elements of disaster management cycle—prevention, mitigation, and preparedness—as a means to avert or soften the

impact of future emergencies. The Eleventh Plan aims at consolidating the process by giving impetus to projects and programmes that develop and nurture the culture of safety and the integration of disaster prevention and mitigation into the development process. The guidance and direction to achieve this paradigm shift will need to flow from NDMA, and in the true spirit of the Disaster Management Act, to all stakeholders including State Governments and UTs, right up to the PRIs. Communities at large will need to be mobilized to achieve this common objective as they are the first responders. Even the best of isolated efforts will not bear fruit unless they are part of an overall, well-considered approach, and responsibilities of all stakeholders are clearly spelt out and accountability and sustainability factored in.

9.3.14. Projects and programmes undertaken may be such that they address the felt national needs and with well acknowledged prioritization. With scarce resources, it will be imperative to put in place suitable mechanisms which will facilitate systematic project and programme appraisal. Support will have to be lent to programmes and projects that will lead to sustainable development, with assurance of disaster risk reduction built in. The question of vulnerability will also have to be considered, not only in the physical sense but in a comprehensive sense; vulnerability could also be social, ecological, organizational, educational, attitudinal, political, cultural, and economical.

9.3.15. For an objective screening and scrutiny of development projects in a speedy manner, it is essential that professionalism in project formulation is insisted upon. Well-considered and well-drafted, need-based project proposals with in-built disaster prevention and mitigation features, as brought out above, should usually sail through the decision making process. These projects would need to be based on sufficient studies, reliable assumptions, and have regard for the latest advances in science and technology.

9.3.16. To ensure thoroughness in project formulation, all the expected requirements need to be clearly articulated and the project appraisal procedure kept simple and straightforward. One set of standard guidelines may not be adequate in addressing all the complex set of issues and there is clearly a need to evolve a multi-pronged approach to address a host of interlinked issues.

9.3.17. For the assessment of impact of any major development scheme in a given zone of hazard, it is imperative that the proposal takes in its stride what all could go wrong (damage scenarios) and shows how the project design is fashioned to counter that likely damage scenario. Conceptualization of damage scenarios will require quality scientific studies in a multi-disciplinary environment, and generation of new data, besides filling data gaps.

9.3.18. The SoI needs to be entrusted with the responsibility of generating large-scale maps which will form the basis for disaster management studies. They will also need to generate a Digital Elevation Map (DEM) of high resolution (1/2m interval along vertical) for the purpose of 3D terrain modelling. There will be a need to carry out prioritization of the areas on which the SoI will carry out the 1:10000 mapping for the whole country and map all towns and cities on 1:2000 scales. Coastal zones and flood prone areas of the country will need to get priority in the preparation of DEM. NDMA, in consultation with National Informatics Centre (NIC), National Spatial Data Infrastructure, National Remote Sensing Agency, and DoS is actively promoting the use of GIS in all institutions concerned with disaster management. Priority will have to be given to highly vulnerable areas for generating the database for mapping as well as hazard vulnerability and risk assessment related to disasters like cyclone, flood earthquake, chemical and industrial, etc.

9.3.19. Data-sharing among the various data generators is an even more important aspect and needs to be addressed. All such schemes getting Plan funds will be treated as national asset and data would be made available without any pre-condition for use for disaster management authorities and others.

9.3.20. The national emergency communication network, involving the contemporary space and terrestrial-based technologies, in a highly synergistic configuration and with considerable redundancy, needs to be developed and deployed countrywide. With almost a 100% reliability, this network must ensure real-time dissemination of warnings and information direct to the affected community and local authorities.

9.3.21. Research on all aspects of disaster mitigation which has the potential to save lives and property needs to be encouraged. NDMA could provide the necessary policy

direction to Science related ministries and departments both at the Central and State levels to foster, promote, and sustain research and development work through need-based disaster mitigation and management projects.

9.3.22. A well sensitized and prepared community forms one of the most important links in the process of better management of disasters. For that reason, 'Extended Disaster Risk Mitigation Project' has been identified for being taken up for preparation of a Project Report during the Plan. This will be supplemented by activities under various other national/State level mitigation projects. As far as Community Based Disaster Management is concerned, a degree of convergence is required to be brought into community mobilization, participation, awareness, and capacity building aspects of all concerned social sector schemes like women and child development, rural development, drinking water, sanitation, and so on. The concerned ministries may consider inclusion of disaster management content into their plans and make provision of funds in their respective schemes.

9.3.23. It is essential that while clearing plans for State Governments, there is an integrated approach, particularly for creation of adequate capacity for relief and rescue operations.

9.3.24. There is need for evolution of a broad classification of anticipated projects that would come up for clearance by the Planning Commission. One possible classification could be:

- Projects specifically designed in response to the NDMA Strategy, Guidelines and Action Plan, and
- Development projects with built-in environmental preservation and disaster mitigation features in tune with the philosophy of mainstreaming mitigation measures into development projects.

9.3.25. Assistance is needed for State level mitigation projects, especially drafting of State, district, and panchayat level disaster management plans and in continuous sustenance, modernization, and upgradation of disaster management capacity.

9.3.26. In view of the focus on disaster mitigation of projects, institution building, aimed at training a new breed of disaster managers, and establishment of centres/ institutes fully equipped to carry out specialized investigations and

post-disaster studies, would need to be encouraged. The training and skills of the 72 teams for NBC disasters in the eight battalions of the National Disaster Response Force have to be improved and sharpened.

9.3.27. Out of the eight battalions of the National Disaster Response Force already sanctioned by the government, two Battalions already have the basic infrastructure. While the existing infrastructure has to be upgraded for these two Battalions, completely new infrastructure has to be created for the remaining six Battalions.

### Mainstreaming Disaster Management into Development Planning

9.3.28. Mainstreaming disaster management into the development planning process essentially means looking critically at each activity that is being planned, not only from the perspective of reducing the disaster vulnerability of that activity, but also from the perspective of minimizing that activity's potential contribution to the hazard. Every development plan of a ministry/department should incorporate elements of impact assessment, risk reduction, and the 'do no harm' approach. Examples of this approach are urban planning and zoning, upgradation of building codes and their effective enforcement, adoption of disaster resilient housing designs and construction of school and hospitals, flood proofing, response preparedness planning, insurance, establishment of early warning systems for various types of disasters, generating community awareness, creating technical competence and promoting research among engineers, architects, health experts, and scientists.

9.3.29. State governments need to give priority in their plans for schemes regarding hazard identification and risk assessment once they have prepared the project paper, completed preliminary work, and drawn up the details of the scheme. Hazard identification and risk assessment across the country must be bound by uniformly followed procedures, fine-tuned to local conditions. In the absence of such procedures, any sporadic activity based on some ad hoc procedure carries the potential of doing more harm than good. It will be essential that while clearing plans of State Governments, there is an integrated approach particularly for creation of adequate capacity for relief and rescue operations, for example, for funding projects for construction of school buildings. Some school buildings need to be identified which will be used as relief centres and buildings designed so that they withstand the impact of disasters and also have adequate capacity to provide

space as relief centres. Such schools should be equipped with essential services which become important at the time of a disaster.

9.3.30. State governments will need to make comprehensive Management Action Plans for achieving long-term results in a phased manner. To make these plans more meaningful, workshops and training programmes are to be organized at local/regional/national levels for capacity building and awareness generation/community participation.

9.3.31. Outside the framework of Plan schemes, many innovative measures can be adopted to encourage disaster risk reduction measures by the corporate sector, non-government organizations, and individuals. Fiscal measures like rebates on income and property tax for retrofitting unsafe buildings, compulsory risk insurance for bank loan on all types of properties, and so on, shall definitely help to mobilize resources for safe construction and retrofitting of existing constructions in all disaster prone areas. Similarly, many innovative measures may be taken for promoting public-private-community partnership for disaster risk reduction.

### Principles for Project Appraisal from the Disaster Management Perspective

9.3.32. To assist the Planning Commission in appraisal of projects, broad and generic guidelines which are not disaster or theme specific have to be adopted. Conceptualization of hazard scenarios and associated vulnerability and risk assessments in a given situation will necessarily have to depend on available maps, Master Plans and building and land use regulations, National Building Code of India, and the various safety Standards and Codes of the Bureau of Indian Standards. The guidelines will have to cover the following aspects:

- The location of the project is to be carefully considered, especially if this is in a multi-hazard prone area/district recognized by the NDMA. Multi-hazard prone districts are reported in the latest National Building Code of India of the Bureau of Indian Standards. The listing has been revised by the Building Materials Technology Promotion Council of India, currently under the consideration of NDMA.
- The project/scheme should be based on a detailed hazard and risk assessment; wherever required, environmental clearance will also be taken. The risk assessment will usually involve the following factors:

- Assessment of degree of hazard, based on high resolution single/multiple hazard maps interpreted in the light of all available historic records, publications, site-specific information, and studies. For all major projects/schemes, where such maps are presently unavailable, the project/scheme should be supported by adequate site-specific seismotectonic, geological, geo-physical, and geotechnical studies and analyses. Data gaps, assumptions made, and their implications should be brought out. Where high resolution multi-hazard maps are not available, multi-hazard assessment is to be made by coalescing the information on single hazards.
- All such site specific risk assessment studies should be referenced to a national high resolution geospatial database so as to facilitate temporal analysis of future assessment impact studies in the area and also enable integration of all other assessment studies carried out in the vicinity. Through such a process it will be possible to evolve a national database of assessment studies which, in turn, will facilitate refinement of National Hazard and Vulnerability Mapping.
- Assessment of vulnerability against a hazard of a given magnitude should be carried out. The vulnerability of an individual or a group of individuals or of any element or an infrastructure like a flyover or a bridge, for a hazard of a given magnitude, will vary from 0 to 1 depending on the degree of mitigation built into the design. For example, an earthquake of magnitude 7 on the Richter scale may render very unsafe school children in a poorly built school (vulnerability = 1) whereas the residents of an earthquake-resistant neighbouring house for the same magnitude of earthquake, may be safe (vulnerability = 0). This distinction is essential because existence of hazard does not automatically mean vulnerability, and vulnerability does not necessarily have to be 1. The question of vulnerability has to be considered not only in a physical sense but in a comprehensive sense. Vulnerability could be physical, social, ecological, organizational, educational, attitudinal, political, cultural, or economical. Vulnerability assessment may also take note of medical care and casualty management that would be possible in the vicinity in case of natural or man-made disaster.
- Assessment of risk against a given hazard will be a function of hazard and vulnerability.
- Identification of elements at risk like population, properties, economic activities, public services, is

to be brought out. By overlaying the infrastructure map of an area on the corresponding hazard map of the same scale, elements at risk can be identified.

- Particularly while carrying out hazard identification and risk assessment for industrial estates, issues like release scenario, consequences in terms of heat generation over pressure and toxicities, identification of hazardous chemicals, processes and operations, identification of important receptors, both environmental and physical, classification of units which have potential for creating an off site emergency, and so on, need to be addressed.
- The reliability of hazard, vulnerability, and risk assessments will depend upon the quality of maps and other investigational data and various uncertainties involved due to inadequacy of data and other factors. It is therefore important that all major stages of project/scheme development, namely, planning, site investigations and designs, are subject to a process of rigorous peer review and accordingly certified.

9.3.33. Where projects specifically identified and designed for disaster management are to be appraised, the following factors would need to be considered:

- The proposed project or scheme (i) is to be need based and demand driven; (ii) must fall within the high priority bracket, linked with the development plan of the area; (iii) should have well stipulated goals, clearly identified stakeholders and beneficiaries; (iv) should be fully backed with analyses of risks and quantified benefits in terms of disaster safety; and (v) should clearly reflect implications of not taking up the project in terms of disaster related risks, environmental protection, and economic development.
- Projects/schemes which yield multiplier effect for the greatest good of the largest number will deserve priority. For example, a well drafted practical disaster emergency plan for a school or disaster management plan for a district can inspire other schools and districts to yield the snow-balling (multiplier) effect. Similarly, development of a knowledge based, multi-media disaster mitigation product when translated in different vernacular languages may at once multiply benefits.
- Project merit rating should also depend on the following factors:
  - *Breaking new ground in terms of scientific, technological or management innovation, including peoples' participation.* For instance, development

of an innovative early warning system against a particular type of disaster using simple, readily monitored indicators.

- **Delivering ‘Best Practices’ for others to emulate and getting inspired by them.** For example, best practices of engineered constructions in a given earthquake-affected hilly area.
- **Choice of appropriate technology.** For example, partially prefabricated construction technology will be more appropriate than the cast-in-place construction technology in a post-disaster reconstruction programme in a given situation.
- **Employment generation.** For example, a judicious man-machine mix in the construction of flood prevention works may help generate employment in an area without unduly compromising on efficiency of work.
- **Sustainable capacity building.** It is the key to empowering a village, district, State, or a region so that each one of them can, as far as possible, manage their own affairs in the event of a disaster. For example, water sampling and testing capacity at local level when post-disaster situations threaten epidemics.
- **Pro-active engagement of communities and spreading the culture of safety in communities and other levels.** Disaster education and community leadership development, public awareness development, gender mainstreaming, special focus on the needs of women and children, vocational training of unemployed youth, and concern for physically challenged persons will add weight to the project/scheme.
- Since disasters know no district or State boundaries, projects of interest to two or more districts or States may score over those yielding localized benefits. By the same logic, national level mission-mode projects/schemes should get preference over others.

### Financial Provisions for Disaster Management

9.3.34. It is important that a portion of the Plan funds is earmarked for efforts that directly or indirectly help in disaster management. Ideally, each project should provide adequately for the disaster mitigation and management expenditure that is identified by the appraisal process described in the previous section as being necessary. In addition, Central and State Governments may, depending upon their own hazard assessments, earmark a suitable

and adequate amount for disaster mitigation schemes that are implemented over a definite time period.

9.3.35. The projects to be taken up should include:

- All schemes for generating basic input data for hazard and vulnerability impact analysis.
- Stand-alone disaster management projects such as mitigation projects, awareness programmes, capacity building projects, community based disaster management projects, upgrading early warning systems, failsafe disaster management communication network, micro-zoning, and so on.
- Mainstreaming disaster reduction into already approved projects in sectors of education, housing, infrastructure, urban development, and the like. For example, projects already under implementation such as the SSA, which caters to the construction of school buildings, could be reviewed. The design of the school building under the programme could include hazard resistant features, at least in multi-hazard prone (earthquake, cyclone, flood), high-risk areas so that these are safe. Similarly, existing infrastructure like bridges and roads will need to be strengthened and upgraded to mitigate disaster at a subsequent stage.

### Schemes/Programmes Identified/Proposed to be taken up in the Eleventh Five Year Plan

9.3.36. National level initiatives/projects for disaster management, identified and recommended by the Working Group on Disaster Management and the NDMA for being taken up during the Eleventh Five Year Plan are indicated at Annexure 9.3. However, details of these projects/schemes will have to be worked out through preparation of project reports. Thereafter, such schemes as are approved for implementation during the Eleventh Five Year Plan will have to be accommodated within the sectoral allocations of the ministries concerned.

9.3.37. Apart from the projects/schemes mentioned above, a number of ongoing and proposed schemes of various ministries and departments of the GoI have a direct or indirect bearing on disaster management as these add to preparedness for responding to disasters or constitute the efforts towards recovery from the impact of disasters. Similarly, many developmental projects/schemes take care of the vulnerability to different kinds of disasters and provide for mitigation of their effects.

**ANNEXURE 9.1**  
**Financial Performance in the Tenth Plan**

S. No.	Schemes/Programmes	Financial Performance Tenth Plan (Rs in crore)			
		Outlay	BE	RE	Actual Exp.
<b>Environment</b>					
1	Central Pollution Control Board (CPCB)	100.00	147.90	138.90	140.06
2	Industrial Pollution Abatement through Preventive Strategies	5.00	4.60	4.48	1.48
3	Common Effluent Treatment Plants (CETP)	25.00	20.27	20.25	20.10
4	Environmental Management in Heritage Pilgrimage and Tourism Centres, including Taj Protection	170.00	59.02	25.03	25.00
5	Establishment of Environment Protection Authorities and Environment Commission and Tribunal	15.00	18.80	18.22	13.83
6	Assistance for Abatement of Pollution and Environment Policy and Law	19.67	21.00	24.69	25.00
7	Environmental Health	10.00	2.00	0.05	1.03
8	Clean Technologies	25.00	12.50	9.19	5.18
9	Environmental Impact Assessment (EIA)	13.00	11.80	11.07	12.35
10	Industrial Pollution Prevention Project (EAP)	10.00	10.00	13.54	13.55
11	Hazardous Substances Management	70.00	37.00	32.91	30.71
12	Botanical Survey of India (BSI)	85.00	61.50	49.54	47.89
13	Zoological Survey of India (ZSI)	45.00	49.37	50.87	45.51
14	G.B. Pant Institute of Himalayan Environment and Development	35.00	34.00	36.96	37.00
15	Biosphere Reserves	35.00	37.20	37.87	36.62
16	Conservation and Management of Mangroves, Coral Reefs, and Wetlands	54.00	55.00	57.55	57.11
17	Assistance of Botanical Gardens	15.00	9.50	7.25	6.96
18	Biodiversity Conservation	12.00	15.00	17.00	15.51
19	Taxonomy Capacity Building Project	10.00	8.50	8.34	8.96
20	Institute of Biodiversity	16.00	1.00	0.00	0.00
21	Research and Development	24.00	20.07	20.83	20.78
22	Environment Education, Training, and Awareness	125.00	143.00	125.25	118.16
23	National Museum of Natural History (NMNH)	40.00	31.50	28.56	26.71
24	Centres of Excellence	45.00	38.00	36.56	33.28
25	Environmental Information System (ENVIS)	14.00	17.50	20.03	19.55
26	National Natural Resource Management System (NNRMS)	7.00	23.50	22.50	22.74
27	Environment Management Capacity Building Project (EMCB) (EAP)	48.98	80.00	48.29	46.14
28	Indo-Canada Environment Facility (ICEF) (EAP)	35.00	0.05	0.04	0.00
29	GoI-UNDP-CCF Programme (EAP)	3.00	13.00	9.50	9.06
30	Global Environment Facility (EAP)	0.05	0.01	0.01	0.00
31	International Co-operation Activities	8.00	9.20	9.92	10.13
32	Canada Assisted Centre for Excellence in Environmental Science, Technology, and Policy (EAP)	1.00	0.11	0.02	0.00
33	Indo-German Technical Co-operation Project (EAP)	6.00	0.50	0.01	0.00
34	State of Environment Project	6.00	6.15	7.26	6.26

(Annexure 9.1 contd.)



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(Annexure 9.1 contd.)

S. No.	Schemes/Programmes	Financial Performance Tenth Plan (Rs in crore)			
		Outlay	BE	RE	Actual Exp.
35	Information Technology (IT)	25.00	46.73	29.96	29.69
36	Adaptation and Capacity Building Project on Climate Change (ACPCC)	30.00	21.83	28.05	26.99
37	Strengthening of Plan Coordination	0.30	0.06	0.01	0.00
38	Civil Construction Unit (CCU)	12.00	8.98	9.71	8.75
<b>NEW SCHEMES</b>					
39	EPCO-Madhya Pradesh and Strengthening Natural Resource Management and Farmers Livelihood in Nagaland (EAP)		1.59	0.94	0.90
40	Strengthening of Environment Information Centre		0.10	0.00	0.00
41	National Coastal Management Programme		0.10	0.00	0.00
42	Capacity building EIA and Revised Environmental Clearance Process		0.10	0.00	0.00
43	Promotion of Bilateral Cooperation		0.00	0.00	0.00
<b>Total Environment</b>		<b>1200.00</b>	<b>1078.04</b>	<b>961.16</b>	<b>919.99</b>
<b>NRCD</b>					
44	NRCD	33.00	27.00	27.00	24.35
45	NRCP	1342.00	1199.96	1207.27	1134.89
46	NRCP (EAP)	75.00	337.00	185.76	218.91
47	NLCP	220.00	250.00	202.37	164.62
<b>Total NRCD</b>		<b>1670.00</b>	<b>1813.96</b>	<b>1622.40</b>	<b>1542.77</b>
<b>FORESTRY &amp; WILDLIFE</b>					
48	Indian Council for Forestry Research and Education (ICFRE)	210.00	226.86	228.57	227.95
49	Grant-In-Aid to Indian Plywood Industries Research and Institute (IPIRTI)	10.00	12.10	14.20	14.15
50	Indian Institute of Forest Management (IIFM)	20.00	21.00	22.77	23.46
51	Training to IFS Officers	6.00	6.75	6.25	5.94
52	Indira Gandhi National Forest Academy (IGNFA)	30.00	27.25	26.68	23.61
53	Directorate of Forestry Education (DFE)	10.00	11.73	12.69	15.06
54	Gregarious flowering of Muli ( <i>Melocanna baccifera</i> ) Bamboos		60.00	43.00	42.82
55	Forest Survey of India (FSI)	35.00	29.50	26.97	27.15
56	Integrated Forest Protection Scheme	445.00	279.84	224.47	208.01
57	Strengthening of Forestry Divisions	34.00	31.50	32.94	33.79
58	Afforestation through PRIs (NCMP—related scheme)	0.00	0.10	0.10	0.00
59	Strengthening of Wildlife Divisions and outside Protected Areas	10.00	15.00	14.51	11.23
60	Development of National Parks and Sanctuaries	350.00	230.50	240.11	234.65
61	Wildlife Institute of India (WII)	50.00	45.00	49.47	46.07
62	National Zoological Parks (NZP)		2.50	4.80	4.37
63	Project Tiger	150.00	149.00	160.96	160.44

(Annexure 9.1 contd.)

(Annexure 9.1 contd.)

S. No.	Schemes/Programmes	Financial Performance Tenth Plan (Rs in crore)			
		Outlay	BE	RE	Actual Exp.
64	Biodiversity Conservation and Rural Livelihood Improvement Project (EAP)		4.00	3.33	2.03
65	Eco-development around Protected Areas (EAP)	45.00	80.25	58.05	56.59
66	Project Elephant	60.00	67.25	66.00	63.83
67	Central Zoo Authority (CZA)	75.00	76.00	83.85	86.38
68	Protection of Wildlife outside Protected Areas	60.00	10.11	0.01	0.00
<b>Total Forests &amp; Wildlife</b>		<b>1600.00</b>	<b>1386.24</b>	<b>1319.73</b>	<b>1287.53</b>
69	<b>Animal Welfare</b>	<b>175.00</b>	<b>70.50</b>	<b>81.02</b>	<b>75.22</b>
	<b>NAEB</b>				
70	National Afforestation and Eco-development Board (NAEB)	80.00	106.00	86.19	71.60
71	National Afforestation Project (NAP)	1115.00	1224.10	1164.42	1179.07
72	National Action Programme to Combat Desertification	30.00	3.00	0.02	0.00
73	Eco-development Forces	75.00	42.00	41.04	42.96
<b>Total NAEB</b>		<b>1300.00</b>	<b>1375.10</b>	<b>1291.67</b>	<b>1293.63</b>
<b>Grand Total</b>		<b>5945.00</b>	<b>5723.84</b>	<b>5275.98</b>	<b>5119.14</b>

Source: Ministry of Environment and Forest (MOEF).

**ANNEXURE 9.2**  
**Physical Performance of Important Plan Schemes of the Tenth Plan**

S. No.	Schemes/Programmes	Physical Performance	
		Targets	Achievements
1	Central Pollution Control Board (CPCB)	National Ambient Air Quality Monitoring Program (NAMP)	Ambient air quality monitoring at 321 locations; water quality monitoring at 1019 locations.
2	Environmental Management in Heritage Pilgrimage and Tourism Centres Including Taj Protection		Moratorium due to court case.
3	Clean Technologies	Life Cycle Assessment (LCA) studies and demonstration projects	Ten projects on Clean Technologies for food preservation, arsenic removal, bio-remediation of lakes, recycling of marble slurry, development of natural dyes; adhesives from forest waste; development of bamboo composites; utilization of anode muds and chips; air pollution control package for medium-scale lime kilns and development of eco-friendly welding machines.
4	Hazardous Substances Management	Management of chemical emergencies and hazardous substances	6 TSDFs set up.
5	Environment Education, Training and Awareness	Assistance to 100000 eco-clubs and 10000 organizations	33778 eco-clubs created (total 91378); 9784 organizations.
6	National River Conservation Plan (NRCP)	Projects for 34 polluted river stretches in 160 towns for treating 5435 MLD sewage.	308 projects completed; creating treatment capacity for 2055 MLD sewage.
7	National Lake Conservation Plan	Conservation of 35 lakes, 28 projects	Approved works in 42 new lakes; projects for 10 lakes completed.
8	Indian Council for Forestry Research and Education (ICFRE)	Co-ordinating research, education in institutes/universities	414 research projects initiated; 23 universities supported.
9	Integrated Forest Protection Scheme	Assistance to States and UTs for identified activities	Assistance for fire protection (196819 km) and forest boundary (219418 nos) consolidation.
10	Development of National Parks and Sanctuaries	Assistance to States and UTs for national parks and sanctuaries (total 606)	Assistance to 342 national parks and sanctuaries being provided.
11	Project Tiger	Funding support to 28 Tiger Reserves	Funding support to 28 Tiger Reserves covered in the area of 37761 sq km.
12	Project Elephant	Assistance to 15 States for elephant conservation.	Funds released for 25 Elephant Reserves in 15 States.
13	Central Zoo Authority (CZA)	Assistance for management of zoos	293 zoos evaluated; 42 supported.
14	Animal Welfare	Animal Welfare Board and construction of National Institute of Animal Welfare.	Animal Welfare Board and National Institute of Animal Welfare functioning.
15	National Afforestation and Eco-development Board (NAEB)	Evaluation of projects and assistance to NGOs for afforestation.	650 projects evaluated.
16	National Afforestation Project (NAP)	Afforestation project-based assistance to JFMCs.	729 projects involving 6.45 lakh ha in 29 States taken up.
17	Eco-development Forces	Support to 4 Eco Task Force battalions	4 Eco Task Force battalions supported.

Source: MOEF.

**ANNEXURE 9.3**  
**Projects/Schemes Identified by the Working Group/ NDMA for being taken up by NDMA/MHA for Implementation during the Eleventh Plan**

S. No.	Name of the Project/Programme/Scheme	Objective
1	National Cyclone Risk Mitigation Project (with World Bank Assistance )	For mitigating hazard risks in the country & enhancing capabilities at various levels.
2	National Earthquake Risk Mitigation Project	Strengthening structural & non-structural earthquake mitigation efforting and reducing risk and vulnerability in high risk districts.
3	National Flood Mitigation Project	Multi-objectives including effective preparedness and improved promptness and capability, strengthening community capacity, and reduction in consequences of floods.
4	National Landslide Mitigation Project	Strengthen the structural and non-structural landslide mitigation efforts and reduce the landslide risk and vulnerability in the hilly districts prone to landslides and mudflows.
5	Expanded Disaster Risk Mitigation Project	Strengthen the structural and non-structural disaster preparedness and mitigation efforts to reduce the risk and vulnerability in the disaster-prone districts with community participation.
6	National Disaster Communication Network (NDCN)	Dedicated communication & IT support for pro-active disaster support functions including for early warning & forecasting.
7	Information, Education, and Communication (IEC) Programme	Disaster risk and vulnerability reduction, disaster preparedness, structural and non-structural mitigation efforts and disaster response by developing ICT materials, print and electronic media products, campaigns, exhibitions, etc.
8	Micro-zonation of Major Cities	To carry out micro-zonation of High Risk Cities in Seismic Zones IV and V to prepare strategies to reduce earthquake risk and vulnerability in the high risk districts.
9	Project Preparation Facility/Research Programme Studies	Take up mitigation projects for disaster risk reduction and also undertake special studies and research programmes.
10	Vulnerability Assessment Schemes	Gujarat has undertaken vulnerability analysis of different parts of the State to different forms of disasters. Such an analysis is urgently required to be carried out by other States too.
11	International Co-operation	India needs to adopt a proactive approach for providing necessary support to the neighbouring countries through multilateral co-operation and involvement of regional organizations.
12	Infrastructure of 8 NDRF Battalions	Completely new infrastructure has to be built for 6 battalions @ Rs 80 crore per bn and existing infrastructure has to be upgraded for the 2 battalions @ Rs 25 crore per bn.
13	Upgradation of NIDM and other Institutes	The institute requires space and equipments for state-of-the-art emergency operations centre, disaster mitigation workshop, mock drill exercise, library, GIS laboratory, etc.

**ANNEXURE 9.4**  
**Tenth Plan Outlay and Actual Expenditure in Environment and Forest Sectors (States and UTs)**

(Rs lakh)

S. No.	State/ UT	State Plan Outlay	Forestry & Wildlife			Ecology & Environment		
			Projected Outlay	Agreed Outlay	Actual Expenditure	Projected Outlay	Agreed Outlay	Actual Expenditure
1	Andhra Pradesh	4661400	123779	113262.86	80076.85	620	203.72	316.29
2	Arunachal Pradesh	388832	7700	9529.87	8403.42	42	208.91	38.46
3	Assam	831522	7736	11235	9076.1	65	79	29.45
4	Bihar	2100000	4514	7953.92	6267.25	0	0	0
5	Chhattisgarh	1100000	32718	39180	46844.04	783	679.5	370.13
6	Goa	320000	2500	2908.95	2880.93	300	795.45	799.33
7	Gujarat	4000700	93634	75445.7	66076.37	2766	2196	1010.44
8	Haryana	1028500	12733	32125	30612.03	283	407	277.46
9	Himachal Pradesh	1030000	42377	36748.49	36344.2	50	27	82.59
10	Jammu & Kashmir	1450000	36358	23794.13	23096.74	3619	465.42	288.4987
11	Jharkhand	1463274	46277	49802	46875.73	0	0	0
12	Karnataka	4355822	73396	51408.83	46677.84	1285	5535	2417.584
13	Kerala	2400000	17500	22789	21348.75		0	0
14	Madhya Pradesh	2618993	35275	64458.82	81330.29	5112	9663.63	8388.896
15	Maharashtra	6663200	68279	10997.81	10729	1200	627.71	500
16	Manipur	280400	1744	3704.66	3560.81	495	1714	556.75
17	Meghalaya	300900	5250	6596	6093.89	275	300	174.34
18	Mizoram	230001	2846	4285	4515.88	19	20	11.04
19	Nagaland	222765	2250	2535	2828.24	100	178	272
20	Orissa	1900000	69446	22899.95	6083.94	2030	2482.29	2561.305
21	Punjab	1865700	28075	40800.6	30500.46	572	203.1	26.08
22	Rajasthan	2731800	115320	52592.87	31584.73	464	100.95	35.8972
23	Sikkim	165574	3500	3564.2	3510.45	500	160	125.97
24	Tamilnadu	4000000	134810	63561.93	64601.18	11305	1578.16	486.2261
25	Tripura	450000	4835	4273.65	4113.03	446	209	243.3531
26	Uttar Pradesh	5970800	120800	49784	48642.5	235525	24979	2628.58
27	Uttaranchal	763000	20693	56223.18	62063.17	5902	2900	1505
28	West Bengal	2864100	16443	12908.12	6823.73	1688	1259.99	2487.03
<b>Total (States)</b>		<b>56157283</b>	<b>1130788</b>	<b>875369.54</b>	<b>791561.55</b>	<b>275446</b>	<b>56972.83</b>	<b>25643.7</b>
<b>UTs</b>								
29	Andaman & Nicobar	248300	7243	6369	6097.71	0	40	32.88
30	Chandigarh	100000	1733	2455	1916	270	323	188.13
31	Dadra & Nagar Haveli	30400	1200	1657	1733.87	0	0	0
32	Daman & Diu	24500	278	200	173.38	0	5	13.1
33	Delhi	2300000	2600	2300	14791.16	4800	2705	998.6
34	Lakshadweep	43700	92.3	91.7	46	400.3	163.3	102.52
35	Pondicherry	190649	500	859	819.54	176	244	257.13
<b>Total (UTs)</b>		<b>2937549</b>	<b>13646.3</b>	<b>13931.7</b>	<b>25577.66</b>	<b>5646.3</b>	<b>3480.3</b>	<b>1592.38</b>
<b>Total (States/UTs)</b>		<b>59094832</b>	<b>1144434.3</b>	<b>889301.24</b>	<b>817139.21</b>	<b>281092.3</b>	<b>60453.13</b>	<b>27236.08</b>
Percentage to Total		100	1.94	1.50	1.38	0.48	0.10	0.05

Source: Planning Commission.

**ANNEXURE 9.5**  
**State-wise and Scheme-wise Releases of Central Funds to Ongoing CSS under MoEF during the Tenth Plan**

(Rs crore)

Name of the State/Scheme	CETPs	Indus. Polln. Prevention	Taj Protection	Biosphere Reserve	Mangroves, Coral Reefs & Wetlands	NRCP	NLCP	Tiger Project	India Eco-development Project	Project Elephant	IFPS	Dev. of National Parks & Sanctuaries	NAP	Gregarious Flowering	Total 2002-07
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Andhra Pradesh	0.30	3.24			1.20	115.85	0.80	1.74		2.78	6.94	4.91	53.18		190.94
Arunachal Pradesh				1.13	0.00			5.49		3.05	10.34	5.91	14.18	0.75	40.84
Assam				0.89	2.88			3.15		4.95	11.67	8.24	33.07	3.25	68.10
Bihar						0.66		2.36		3.93	3.80	0.35	12.98		24.09
Chhattisgarh		1.58						2.65		0.64	12.08	13.53	44.55		75.03
Goa					1.20	8.56					0.99	0.93	0.64		12.33
Gujarat	4.28	1.01			8.40	42.54			13.67		9.46	9.71	48.80		137.87
Haryana						16.78				0.50	5.11	1.73	40.99		65.12
Himachal Pradesh					1.41						3.70	11.52	38.89		55.53
Jammu & Kashmir					2.26		70.00				3.78	5.89	31.01		112.94
Jharkhand								5.77	4.48		8.08	3.86	46.15		68.33
Karnataka		4.38		2.73	3.07	31.48	22.93	16.07	10.42	7.65	4.55	28.05	101.62		232.95
Kerala				3.64	2.18	0.75	4.30	5.61	2.35	8.07	7.51	12.73	25.09		72.23
Madhya Pradesh		1.21		3.78	0.30	39.90	4.58	41.47	8.56		11.93	21.82	71.08		204.63
Maharashtra	15.24				57.93	66.73	5.50	17.46		0.25	3.03	9.07	61.93		237.14
Manipur					0.86						6.78	4.31	26.99	5.44	44.39
Meghalaya				1.34						2.67	2.30	3.16	13.45	1.71	24.62
Mizoram					0.25			4.66		0.05	17.94	11.40	62.47	13.33	110.10
Nagaland										2.20	12.81	2.01	35.64	6.32	58.98
Orissa				2.53	6.53	28.99	1.21	5.92		5.85	4.27	13.07	67.54		135.91
Punjab					1.88	88.40					1.01	0.03	10.17		101.49
Rajasthan		0.37			2.04	0.44	15.00	9.86	8.64		2.70	12.28	27.69		79.02
Sikkim				2.64		1.79					6.82	5.75	27.80		44.80
Tamil Nadu	0.11			1.81	6.86	480.30	0.73	4.85		5.38	8.14	8.37	76.53		593.08
Tripura							0.50	0.50		0.36	10.40	4.28	21.26	11.32	48.61

(Annexure 9.5 contd.)

(Annexure 9.5 contd.)

(Rs crore)

Name of the State/Scheme	CETPs	Indus. Polln. Prevention	Taj Protection	Biosphere Reserve	Mangroves, Coral Reefs & Wetlands	NRCP	NLCP	Tiger Project	India Eco-development Project	Project Elephant	IFPS	Dev. of National Parks & Sanctuaries	NAP	Gregarious Flowering	Total 2002-07
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Uttar Pradesh			0.24		1.00	121.07	1.49	7.37		0.18	5.61	12.25	89.01		238.22
Uttaranchal				3.50	0.42	20.02	31.94	9.12		6.10	13.37	4.28	44.41		133.
West Bengal				3.52	7.53	135.56	5.11	9.10	4.14	6.97	8.45	14.26	27.79		222.42
Total States	19.93	11.79	0.24	27.50	108.21	1199.82	164.09	153.16	52.26	61.58	203.58	233.70	1154.91	42.12	3432.88
Union Territories															
Andaman & Nicobar				2.50	0.83							2.11			5.45
Chandigarh				0.95								0.14			1.09
Dadra & Nagar											0.52	0.70			1.22
Delhi						121.25						0.20			121.45
Lakshadweep					0.30										0.30
Total UTs				3.45	1.13	121.25					0.52	3.15			129.50
Total States/UTs	19.93	11.79	0.24	30.95	109.34	1321.07	164.09	153.16	52.26	61.58	204.10	236.84	1154.91	42.12	3562.38

Source: MOEF.

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## Governance

### INTRODUCTION

10.1. The Eleventh Plan vision of inclusive growth, reducing poverty and bridging the various divides that continue to fragment our society can only be achieved if there is a significant improvement in the quality of governance. There are many different definitions of good governance but it is generally agreed that good governance must be broadly defined to cover all aspects of the interface between individuals and businesses on the one hand and government on the other.

10.2. In our situation, good governance should cover the following distinct dimensions.

- As a democratic country, a central feature of good governance is the constitutionally protected right to elect government at various levels in a fair manner, with effective participation by all sections of the population. This is a basic requirement for the legitimacy of the government and its responsibility to the electorate.
- The government at all levels must be accountable and transparent. Closely related to accountability is the need to eliminate corruption, which is widely seen as a major deficiency in governance. Transparency is also critical, both to ensure accountability, and also to enable genuine participation.
- The government must be effective and efficient in delivering social and economic public services, which are its primary responsibilities. This requires constant monitoring and attention to the design of our programmes. In our situation, where the responsibility for delivery of key services such as primary education and health is at the local level, this calls for special attention to ensuring the effectiveness and efficiency of local governments.

- Governments at lower levels can only function efficiently if they are empowered to do so. This is particularly relevant for the PRIs, which currently suffer from inadequate devolution of funds as well as functionaries to carry out the functions constitutionally assigned to them.
- An overarching requirement is that the rule of law must be firmly established. This is relevant not only for relations between the government and individuals enabling individuals to demand their rights but also for relations between individuals or businesses. A modern economic society depends upon increasingly complex interactions among private entities and these interactions can be efficiently performed only if legal rights are clear and legal remedies for enforcing these rights are swift.
- Finally, the entire system must function in a manner which is seen to be fair and inclusive. This is a perceptual issue but it is real nonetheless. Disadvantaged groups, especially the SCs, STs, minorities and others, must feel they have an equal stake and should perceive an adequate flow of benefits to ensure the legitimacy of the State.

10.3. Achieving a successful outcome in all these dimensions is not easy, and the effects of initiatives taken today will take time to manifest themselves. Nor is it easy to measure the extent of progress achieved. It is also important to recognize that perceptions are important and perceptions of the state of governance depend upon the expectations of the people. These expectations are rising as indeed they should, and from this perspective, we need to recognize that while increased concern about inadequacies of governance may not reflect an absolute deterioration in the quality of governance, they do point to rising demands that need to be met.



## TENTH PLAN EXPERIENCE

10.4. The Tenth Plan drew attention to the implementation of good governance in the following terms:

‘Governance relates to the management of all such processes that, in any society, define the environment which permits and enables individuals to raise their capability levels on the one hand, and provide opportunities to realize their potential and enlarge the set of available choices, on the other. These processes, covering the political, social and economic aspects of life impact every level of human enterprise, be it the individual, the household, the village, the region or the nation. It covers the State, civil society and the market, each of which is critical for sustaining human development. The State is responsible for creating a conducive political, legal and economic environment for building individual capabilities and encouraging private initiative. The market is expected to create opportunities for people. Civil society facilitates the mobilization of public opinion and people’s participation in economic, social and political activities.’

10.5. A number of steps were taken in the Tenth Plan period aimed at improving the quality of governance.

- The RTI, 2005 was brought into force. This applies to Union and local agencies, local governments and societies which receive public funds, and empowers citizens.
- The All India Service Rules were amended, providing a certain fixed tenure for specified posts to be notified by the State and Central Government. It will help promote accountability.
- A new Value Added Tax regime was introduced which simplifies the tax systems and has enormous positive implications for major reforms in the tax structure.
- Electoral funding reforms were introduced, promoting transparency and fairness and creating tax incentives to donors and disclosure of antecedents of candidates contesting for public office.
- An e-Governance Plan for 27 major areas was adopted designed to assist, improve delivery of services and digitization of information.
- Initiatives on participatory governance were introduced under the NREGA, NRHM and other measures.
- A policy for VOs was announced by the Central Government, reflecting the importance of the voluntary sector in promoting participatory systems.

- A NDMA was established to bring more focused attention to this important area and to initiate preparatory work to make responses to disasters more effective.

10.6. In 2005, the Second Administrative Reforms Commission (ARC) was constituted to prepare a detailed blue print for revamping the public administration system. The First ARC, was constituted in 1966 and subsequently several committees and commissions have examined and given recommendations on various aspects of reforming governance. The Second ARC has been given very comprehensive Terms of Reference and it has been asked to suggest measures to achieve a proactive, responsive, accountable, sustainable and efficient administration for the country at all levels of government. The Commission has already submitted six reports on different aspects of administration. It is also working on several other areas including civil service reforms, citizen centric administration, and reorganizing the structure of the government.

10.7. The Department of Administrative Reforms and Public Grievances has proposed a framework for good governance in the form of a Code of Governance. The main components of this Code are: (i) improving service delivery; (ii) development of programmes for weaker sections and backward areas; (iii) technology and system improvement; (iv) financial management and budget sanctity; (v) accountability and transparency; (vi) public service morale and anti-corruption; and (vii) incentivizing reforms.

10.8. The federal structure of the country provides an opportunity for measuring different States on an index of good governance. It is important to measure the performance of the States on developmental schemes apart from the indicators mentioned above, give them appropriate weightage and index them on this basis. The process could be finalized by a high-level independent expert group and it is important that it be part of the discussions with the States so as to bring to the centre stage issues relating to governance which, otherwise, in the absence of any specific financial outlays, go unrecognized. The index can also be used for giving incentives to the States.

## CHALLENGES FOR THE ELEVENTH PLAN

10.9. The Eleventh Plan must build on the initiatives already taken and seek to achieve a decisive improvement in governance in the Plan period. Some of the major challenges are:

- The Plan accords priority to providing access to quality health care and education, particularly in the rural areas and for girls, minorities, SCs and STs, backward classes and BPL families. It also emphasizes programmes of employment under the Rural Employment Guarantee Programme. Access to clean and good quality water, sanitation, housing and electricity are also critical. These services are delivered at the local level and this calls for both empowerment and accountability of the relevant authorities and effective monitoring of service delivery, particularly for low income groups.
- Effective administration of the rule of law resulting in efficient criminal and civil justice system delivering swift decisions and, particularly, ensuring access to the poor is of extreme importance. An effective security and policing system is required for Naxalite affected and communally sensitive areas.
- The Plan relies heavily on a dynamic private sector to expand investment and create new employment opportunities. This requires developing a business-friendly environment, enabling setting up and exiting of business and promoting efficiency, matching world standards.
- Space must be provided to VOs for developing citizen initiatives, acting as a watchdog on government systems and strengthening group initiatives. This can only be done if full transparency is assured.
- Finally, it is necessary to tackle the problem of corruption which is widely perceived as being all pervasive and is a major source of complaint about the quality of governance.

10.10. To meet these challenges it is necessary to take initiatives on a broad range as discussed in the rest of this chapter.

### DECENTRALIZATION AND STRENGTHENING PANCHAYATI RAJ INSTITUTIONS (PRIs)

10.11. As pointed out earlier, a large part of Plan expenditure is now accounted for by development programmes and schemes for rapid eradication of poverty and delivery of various services that are mostly in the realm of local government functions. Some of these are State sector schemes and others are CSS which are part of the Central budget, but deal with areas which are in the realm of the States. In spite of the massive flow of funds, there is widely shared concern that the results have not been commensurate with the investments. A comprehensive reform of how these schemes are implemented is necessary.

### CENTRALLY SPONSORED SCHEMES (CSS)

10.12. A critical assessment of the performance of CSS reveals the following deficiencies:

- Most of them exist as silos planned and implemented as stand-alone schemes with little horizontal convergence or vertical integration, resulting in multiple sub-sectoral district plans, unrelated to each other. At times they are even mutually conflicting, prepared without any integrated vision or perspective of what is needed at the district level.
- The schemes are often too rigid and do not provide the flexibility needed for adaptation according to the different development needs at the local level. There is also too much micro management without any mechanism to understand the local situation and respond to it properly.
- There is no consistent approach in the design of delivery mechanisms. At times, independent structures are created for each scheme resulting in multiplicity of such structures at the local level with no interaction or coordination among them.
- The extent of professional support to the design, implementation and monitoring of these schemes is quite weak at the national, State and local levels. Often, line departments with generalist approaches control the implementation process without having the necessary competence.
- In spite of stated objectives aiming at the quality of outputs and outcomes, there is not enough outcome-based evaluation and the programmes are mostly monitored on an expenditure basis.

10.13. The architecture of the continuing and new CSS will need to be radically altered and the instrumentality of implementation fundamentally changed. In this context, there are a number of arguments in favour of giving local governments a pivotal place in CSS in keeping with their constitutional mandate of economic development and social justice.

- By their very nature, local governments are democratic systems, especially at the level of Gram Sabhas and Ward Committees. They are laboratories of multi-level pluralist democracy, facilitating the achievements of consensus on development issues at the lowest level of government. At the local level, groups learn to co-exist, cooperate, negotiate and arrive at acceptable decisions and even marginalized groups can gain confidence and

move on from token participation to higher forms of direct social action for the collective good.

- Local governments are in a better position to appreciate problems holistically and come out with cross-sectoral solutions. They are better suited to exploit local production possibilities and adopt technologies which can be handled locally. They also have quicker outreach and can provide faster feedback.
- As local governments are closer to the people, they are capable of identifying local priorities and entering into partnership with communities for the management of assets and facilities.

10.14. These arguments show that there is a strong case for strengthening PRIs so that they could bring about the desired results through effective planning and implementation of CSS. This, however, does not mean that things would happen naturally. Assiduous preparation is called for and a conscious strategy of capacity building is needed, accompanied by intense monitoring.

#### DISTRICT PLANNING

10.15. In order to achieve the best outcome in terms of balanced development with convergence of resources and enforcement of inter-sectoral priorities, it is necessary to shift to integrated planning at the grass roots level leading to the preparation of District Plans. The CSS which lend themselves to effective grass roots level planning are:

- Poverty reduction programmes like the SGSY, SGRY, National Rural Employment Guarantee Scheme (NREGS).
- Human Development schemes like SSA, Mid-day Meals, Literacy, Rural Health Mission and ICDS.
- Social Assistance Schemes like the NSAP and National Old Age Pension (NOAP).
- Schemes for provision of minimum needs like Accelerated Rural Water Supply Programme and Swajaladhara, TSC, IAY, PMGSY and RGGVY.
- Area development schemes like BRGF, Hariyali, National Watershed Development Project for Rainfed Areas, WGDP, DDP and Drought Prone Areas Programme.
- Schemes in the productive sectors like agriculture, horticulture, and animal husbandry.

10.16. These and other sector schemes need across the board restructuring to facilitate the following:

- Assignment of responsibilities to different levels of PRIs for planning, implementation and monitoring.
- Harmonization of existing planning and implementation arrangements and institutions with the Panchayati Raj setup.
- Evolution of criteria for allocation of funds to different levels of PRIs as may be appropriate.
- Introducing enabling provisions to make available technical support for planning and implementation.
- Introduction of a common planning process facilitating an integrated approach to the identification of problems and preparation of plans for tackling them by pooling resources from the relevant schemes. This has to be attempted in the Eleventh Five Year Plan.

10.17. Typically, the process of decentralized planning would involve the following steps:

- Needs assessment and priority setting through participatory fora like Gram Sabhas and SHG networks.
- Situation analysis using locally available data through simple methods supplemented by Participatory Rapid Appraisal techniques.
- Resource assessments from the various sources of funds available to them, including from various CSS.
- Formulation of a vision of development as well as strategies for attaining the vision by PRIs through a process of interaction with stakeholders and local experts.
- Development of project ideas based on need assessment and situation analysis by expert Working Groups at different levels of PRIs.
- Consolidation of development proposals of the Working Groups.
- Prioritization of proposals and allocation of resources to the prioritized proposals.
- Preparation of project reports in detailed formats.
- Vetting of project reports on technical and financial aspects by Technical Advisory Groups of DPC.
- Integration of projects into plans by PRIs.
- Consolidation of PRI Plans into District Plans
- Clearance of the Plan by the DPC.

10.18. In order to ensure that the proposals of different PRIs merge into a District Plan, it will be necessary to develop a framework, both sectoral and cross-sectoral, at the district level through a multi-level and iterative planning process with assessment and prioritization being

made at the lowest level and then consolidated at higher levels. There will be areas where differences may arise on relative priorities but it is possible to evolve a reasonable consensus through dialogues and discussions which are then reflected in actual plan preparation. For decentralized planning to happen the following are essential:

- DPCs, which are a constitutional requirement, need to be fully strengthened. They need to function not just as Committees but as full-fledged institutions.
- DPCs should be assisted by Technical Advisory Groups for different sectors consisting of professionals from Government, academic institutions and non-government organizations as well as civil society.
- DPCs should be encouraged to network with academic and research institutions within the district.
- The Planning Commission, with the approval of line Ministries, should issue common guidelines for preparation of plans in a converged manner, utilizing the resources of CSS in the functional area of local governments.
- State governments should issue detailed guidelines for decentralized planning leading to District Plans within the framework stipulated in the report of the Expert Group.

10.19. To support decentralized planning, the Planning Commission would consider the following:

- Provide assistance to States to set up offices of the DPC as well as to provide technical support.
- Over a period of time, generate a local statistical system by increasing the sample size of National Sample Surveys so that interpretation is possible at least at the level of the Block, if not the village.
- Identify one expert institution in each State as was done for the preparation of the State Development Report, and assign it the task of preparation of pilot District Plans through action research, in partnership with the States and local governments.

#### EMPOWERING PANCHAYATI RAJ INSTITUTIONS (PRIS)

10.20. For the PRIs to meet their obligations, they need to be adequately empowered through the devolution of functions, finances and functionaries. They also need to be answerable to the Gram Sabhas. Empowerment along these lines is the single most significant reform of governance that could change for the better, the relationship between

government and its interaction with the ordinary citizen. Several steps to ensure the centrality of Panchayats in planning and implementation of key CSS have been taken in the period leading up to the Eleventh Plan.

- The NREGA provides guaranteed employment in rural areas, with PRIs as the principal authorities for planning and implementation.
- The ambitious plans for universal elementary education and primary health care are to be delivered with full involvement of the local community through PRIs.
- BRGF is planned for and implemented by the Panchayats and Nagar Palikas in 250 backward districts.
- In the Eleventh Plan, in the agriculture and allied sectors, preparation of district and local level agriculture plans have been mandated for utilization and resources available under all new programmes and schemes. To fulfil this ambitious mandate, Panchayati Raj will require substantial, enhanced backing by the Central Government, in association with State Governments, for training and capacity building of PRIs, as also the provision of attractive incentives to States for the empowerment of PRIs

10.21. States can no longer delay or sidestep the devolution of functions, funds and functionaries to the Panchayats. Activity mapping, resulting in the assignment of activities relating to a function to each level of the Panchayats, is a critical trigger for effective devolution. There are two central principles that underlie a good activity mapping exercise. First, is the principle of subsidiarity, in terms of which tasks are placed at that level alone where it is best performed and no other. Second, is that activity mapping should touch all levels of the government and not merely the three levels of Panchayats. Constitution of the DPCs is mandatory under the Constitution. States must therefore quickly meet the obligations of completing activity mapping and constituting DPCs.

10.22. Unfortunately, a major weakness thus far is that the devolution through legislative or executive order of functions to Panchayats is not matched by a concomitant transfer of funds to them. Panchayats have also not utilized effectively whatever limited powers of taxation they possess. The key to ensuring effective devolution of States and Central Plan Funds to Panchayats at all levels lies in the creation of a Panchayat sector in the plans and budgets of both the State and Union Governments. This

will provide a repository within the accounting structure which makes clear the financial resources that are placed with the Panchayats for them to efficiently perform the functions devolved upon them. The demarcation of a Panchayat sector in State and Central budgets will make it easier to ensure that there is no mismatch between functional and fiscal devolution.

### PARTICIPATION AND HARMONIZING COMMUNITY-BASED ORGANIZATIONS WITH PRIs

10.23. Decentralization allows direct citizen participation in different aspects of development and governance. The Gram Sabha is, in a sense, the fourth tier of governance facilitating direct democracy and face-to-face accountability. This critical institution of Panchayati Raj has to be further strengthened through action, research and semi-structured processes of developmental dialogue, needs assessment, priority setting, oversight monitoring and social audit.

10.24. In addition to Gram Sabhas, several other fora such as SHGs, management committees, anganwadis and similar stakeholders' institutions enhance participation and accountability. In addition, the mechanism for securing transparency and accountability at all levels needs to be strengthened and made a critical component in implementation

10.25. For PRIs to be effective, they have to reach out to communities, especially the poor, and involve them in the development process. So their relationship with various people's groups becomes important. Over the last two decades, several CBOs have sprung up, sometimes as spontaneous people's groups for developmental action or as consciously organized ones as part of a development project or programme. The objectives behind setting up such groups include:

- Participatory planning
- Local resource mobilization
- Efficiency in implementation
- Inculcating a culture of self help
- Facilitating NGO involvement
- Ensuring sustainability through takeover of operation and maintenance functions
- Potential to develop as interest groups
- Empowerment of communities

10.26. It is important to be clear about the relationship between community-based organizations, which includes

SHGs and user groups, and PRIs as people's institutions. Community-based organizations cannot be equated with PRIs, nor should they be viewed legally as people's institutions. These are as 'efficient' substitutes of 'weak' or 'partisan' PRIs. Project-based CBOs are largely uni-dimensional, socio-economic groups focused on benefits from a particular project. They can certainly be efficient delivery vehicles for development programmes. But PRIs have a broader reach as local governments performing a range of governance and developmental functions. They are political entities and their function entails reconciling and satisfying the development aspirations of different groups of people. As such they are accountable to the entire population within their jurisdiction and not to a small circle of beneficiaries of a project or a programme.

10.27. It is often not understood that CBOs can perform their stated objectives even more efficiently without devaluing their social capital or reducing their capacity for public action, if they are seen as thematic and functional sub-systems of PRIs and conceptualized as community wings of PRIs. The creation and strengthening of CBOs could become the next step in democratic decentralization, after the strengthening of PRIs.

10.28. Conceptually, structurally and procedurally, CBOs should draw their powers and resources from PRIs, not in a relationship of subordination or agency functioning but in a spirit of social contract. This would ensure accountability to PRIs even while protecting the autonomy of CBOs; in such a scenario, CBOs could complement and strengthen PRIs even while carrying on their social action to retard negative tendencies like partisanship and corruption.

10.29. For achieving the linkages between PRIs and CBOs, massive capacity building efforts are required. The PRIs should be trained on the role and mode of functioning of CBOs, especially entry norms, procedures of functioning, MIS norms and accountability systems. The CBOs should be sensitized on the legal and functional role of PRIs and on the need to work closely with them.

### REHABILITATION AND RESETTLEMENT

10.30. Problems related to land acquisition for development projects and rehabilitation and resettlement of those displaced have been a source of considerable dissatisfaction, and perceived unfairness of past policies and practices has been an important example of perceived weakness in governance. There is an obvious need for striking a fair balance between those whose land is being

acquired and are thereby affected vitally, and the need for land for development. The issues relating to the Sardar Sarovar Project in Gujarat and more recently, on Nandigram in West Bengal and in the Posco Plant in Orissa, have reinforced the need for a policy based on a comprehensive consideration of various issues.

10.31. The National Policy on Resettlement and Rehabilitation was effective from February 2004 after it was notified by the government. This laid down immediate provisions for resettlement and rehabilitation of project-affected families and the States, public sector undertakings or public bodies were free to offer better packages. The entire issue has subsequently been considered in pursuance of the Common Minimum Programme (CMP), which called for a 'more effective' system of resettlement and rehabilitation for tribal and other groups displaced by development projects. A new rehabilitation policy has, therefore, been formulated. In order to further strengthen this process, proper amendments in the Land Acquisition Act are to be undertaken.

10.32. Some of the salient features of the new Policy are:

- The Policy, which was notified in October 2007, aims to promote, as far as possible, non-displacement or least displacement alternatives;
- Adequate rehabilitation package, and acceptance and implementation of the rehabilitation process with the active participation of affected persons.
- Special care for protecting the rights of and ensuring affirmative State action for the weaker sections of society, especially the members of SCs/STs along with an obligation on the State for their treatment with concern and sensitivity.
- Providing a better standard of living than before and sustaining their income above poverty-line, to the affected families. It also aims to integrate the rehabilitation concerns into the developmental planning and implementation process.

10.33. Other salient features of the Policy are:

- A social impact assessment of projects involving physical displacement of 400 or more families or 200 or more families in tribal or hilly areas, desert development programme blocks or other Schedule I and II areas. Public hearing in the affected areas will be mandatory and the report will be examined by experts in the field, including social sciences and rehabilitation.

- Special concern for vulnerable populations by having lifetime monthly pension to affected persons above 50 years or age, disabled, orphans, unmarried girls, and so on.
- Special provisions for SCs and STs.
- People's participation right from the mandatory public hearing stage to consultation with Gram Sabhas and public hearing at the social life assessment stage.
- The benefit of allotment of land for all those who propose to become marginal farmers. However, this benefit has been made subject to the availability of government land.
- House sites and at least one job for each affected families.

10.34. Implementation of the new policy will protect the interests of those whose property is being acquired and provide more generous compensation and rehabilitation. The policy will be monitored effectively during the Plan, and based on the experience of its functioning and inputs from various stakeholders, such changes would be considered as may be appropriate.

## SHIFT IN FOCUS FROM INPUTS TO OUTCOMES

10.35. Traditionally, government schemes are evaluated in terms of expenditure incurred and adherence to process requirement. It is necessary to shift the focus from vertical input controls to horizontal coordination and monitoring of outcomes. The need for horizontal coordination is evident from the fact that interventions in one area, say, rural drinking water and sanitation, affect outcomes in health, which affect outcomes in education. These examples can be multiplied. Given the manner in which government structures are organized at the Centre and States, horizontal coordination is very necessary to achieve the desired outcomes. Mechanisms for this coordination, convergence and synergy at all levels have atrophied or are non-existent. Reinstating dynamic coordination, to break through excessive hierarchy and securing teamwork and mechanisms for vertical coherence and horizontal coordination to achieve outcomes is a major challenge at all levels of government. Emphasis will be laid on effective monitoring on outcome at all levels. The district level and other functionaries will need to be strengthened with authority and powers so that they are made fully accountable for the outcomes.

## MONITORING AND EVALUATION

10.36. Since the Eleventh Plan substantially increases public investment in many critical sectors, a major concern would be that of monitoring the quality of expenditure. A

Committee with representations of both the Centre and States would be set up to formulate a plan of action to improve the quality of public expenditure in key result areas and enable its public monitoring. This Committee would have a time frame of three months to give its report and would be part of the Eleventh Plan monitoring.

10.37. Ever since the concept of planning was introduced in India, the task of evaluating development schemes and programmes for improved and effective implementation has been recognized. Accordingly, the Programme Evaluation Organization (PEO) was established in 1952 and functioned relatively independently for about four decades. However, since then, the capacity of PEO has suffered even though the need for proper evaluation of plan programmes has grown and is likely to grow further for the Eleventh Plan. Keeping this in mind, the Eleventh Plan will need to substantially strengthen monitoring and evaluation capacity. While monitoring is an internal activity of programme management carried out by the implementing department, evaluation is the assessment of the appropriateness of design and implementation of ongoing projects and programmes which can be done concurrently during implementation of a programme by the agency involved, but also requires independent agencies like PEO to conduct studies from time to time. Given the current weakness of PEO and the even worse State of State Evaluation Organizations, it is necessary during the Eleventh Plan to rejuvenate the existing organizations and also network with evaluation capacity that exists outside the government. For this, the following need to be addressed:

- **Lack of Baseline Data**

The baseline data for many schemes/programmes are not available, which becomes a serious bottleneck in measuring the performance indicators of the programme's outcome and impact. New schemes should, as far as possible, be approved only after the baseline has been determined.

- **Identification of Inappropriate Indicators**

In almost all the cases, the process and outcome indicators of the programmes are not appropriately identified for collection of relevant information, which makes it difficult to attempt the meaningful analysis of the monitored data. New schemes should indicate clearly the indicators that could be monitored.

- **No follow-up Action on M&E of Results**

There is an in-built mechanism introduced in each of the flagship programmes for earmarking a certain percentage of total allocation of funds annually for monitoring and evaluation. Yet, there is a complete lack of follow-up action on the results of monitoring and evaluation of these programmes. There should be a transparent data depository of results of in-house monitoring which could also be utilized by independent evaluators.

- **No Mechanism for Data Analysis**

There is no in-built mechanism introduced in the programmes for making an analysis of the monitored information. This aspect, including proper impact analysis of programme components utilizing results of pilots for the purpose, needs to be emphasized during the Eleventh Plan. For this, the outside government would need to be harnessed.

10.38. With the renewed importance attached to evaluation, a new Central plan scheme, namely, Strengthening Evaluation Capacity in government, was introduced in 2006–07. The allocation for the scheme in 2007–08 was Rs 26 crore. To enable PEO to undertake evaluation of prioritized programmes and schemes at the behest of the Planning Commission as well as various ministries of the GoI, this outlay will be stepped up substantially in Eleventh Plan. Quality evaluation of various programmes and projects would not only bring improvement in public sector performance, but would also address a broad range of issues relating to economy, efficiency, sustainability and relevance of public sector funding and development intervention.

## E-GOVERNANCE FOR BETTER SERVICE DELIVERY AND PROGRAMME DESIGN, IMPLEMENTATION AND MONITORING

10.39. Since good governance is about all aspects of governments' interface with (i) Citizens (G2C) and (ii) Businesses (G2B), e-Governance aims at the use of technology and process re-engineering for more efficient service delivery to both citizens and business, and also for more effective delivery of various programmes, projects and schemes.

10.40. In an increasingly connected virtual world of knowledge in cyberspace and with increasing spread of

Internet and web-based information systems, time and distances have shrunk, and service delivery is now possible on 'anytime, anywhere' basis. Sequential steps in service delivery can in some cases be processed in parallel, making simultaneous delivery possible. Government interface with people can be re-engineered in a manner that human discretion is minimized. In programmes like e-seva, government functionaries do not interface with the public and private providers man the front-end service-delivery kiosks. The service provider does not have authorization to alter government records and those who manage the records do not interface with the people. In the process, corruption gets minimized and the entire service delivery process becomes more transparent.

10.41. If attributers of good governance are transparency, efficiency, responsiveness cost effectiveness and accountability, e-Governance is the means to attain these attributers through application of technology.

10.42. The National Knowledge Commission had, in the context of e-Governance, suggested that to make an immediate impact on citizens, it is critical to identify and simplify important processes and services, say 15 to 20 to begin with, which are currently cumbersome, bureaucratic and prone to unnecessary delays and corruption. Initially these services could include providing online record of land rights, computerized land registration, computerized transfers, computerization of social security schemes, birth and death certificates, proof of residence, issue of ration and ID cards, and so on.

### PROCESS RE-ENGINEERING

10.43. The first and most crucial element of this agenda has to be a change in the procedures of various government departments. Over a period of years, very few of these procedures has been reviewed. Recently, when the review of procedures applicable for passports was undertaken, it was observed that for ordinary citizens, availing passport facilities is well night impossible unless they take the help of intermediaries. The form for getting a passport was quite complicated. Further, the procedures which were prescribed envisaged verification by police at various places where the persons were staying in the past few years. This led to enormous delays and harassment. Similar, complicated procedures for issue of ration cards, caste certificates, driving licences or depositing taxes are

also in vogue. There is a strong need to revise them and make these more citizen-centric.

10.44. While the above processes could be prioritized, it will be necessary to have a comprehensive review of all those deliverables which impact on the availability of services to the common citizen.

## E-GOVERNANCE INFRASTRUCTURE

### (i) Unique Identifiers

10.45. In a citizen-centric system of governance, the citizen's satisfaction becomes the measure of success of both service delivery as well as programme delivery. A citizen's identity, therefore, becomes important both in developmental as well as regulatory administration. The absence of a reliable system for such purposes has been an impediment to improving targeting of developmental schemes and reducing leakages in the delivery system. Many major individual-oriented government programmes incorporate a provision for collection of information at the individual/family level. In most cases, this is undertaken as a de novo exercise without reference to similar exercises undertaken in the past by other government departments and sometimes even by the same department. The absence of a system of updation of such purpose-specific databases and the lack of a system for corroboration among such departments are also factors leading inevitably to expensive, time consuming and error-prone de novo surveys for data collection for each scheme. To create a common platform for service/programme delivery, it is proposed to create a unique ID (UID) in the G2C domain and Corporate Identity Number (CIN) in G2B domains as unique identifiers of citizens and businesses, respectively.

#### • UID FOR INDIAN RESIDENTS

It is important for both service delivery and programme delivery in the G2C domain.

10.46. The long-term objective of the UID Project is to create a Core Database (CDB) for all residents, each having a unique identification number, which is regularly updated and is easily accessible to, and is used by, all departments for identification of residents in the country. This CDB would be used as the basis for identifying a person and enabling cross-linkage of major databases in the country. It is envisaged that the UID could significantly reduce identity related fraud, reduce leakages



and allow for better targeting of government schemes. The implementation strategy involves creation of Central and State UID authorities who would be responsible for implementation and maintaining the UID.

- **UID FOR INDIAN CORPORATES/BUSINESS ENTITIES—MCA 21:**

In the G2B domain.

10.47. The Ministry of Company Affairs (MCA) is implementing an e-Governance initiative called 'MCA 21 e-Governance Project'. The objective of the MCA 21 programme is to improve speed and certainty in the delivery of MCA services. All available services from MCA—including filing of documents, registration of companies and public access to corporate information—are provided through a secure portal with the help of secured electronic filing through e-Form. The use of digital signatures has been mandated to carry out e-filing in conformity with the Information Technology Act, 2000.

10.48. At the time of registration of a company, they are given a CIN, which works as a unique identifier of a company, in the case of an Indian Company. To facilitate better outreach, the Ministry has introduced a scheme of Certified Filing Centres (CFC) wherein the practicing professionals (Chartered Accountants, Company Secretaries and Cost Accountants) have been authorized to set up the CFCs and provide services to the stakeholders on a user charge basis.

10.49. The concept of a Director Identification Number (DIN) has also been introduced for the first time with the insertion of Sections 266A to 266G of the Companies (Amendment) Act, 2006. As such, all the existing and intending Directors of Corporate entities have to obtain a DIN.

- **SMART CARDS**

10.50. The UID Project will eventually become the underpinning of the Citizens Smart Card Project of the Ministry of Home Affairs—both are aimed at identifying citizens, providing them a unique identity and in case of the MHA project, also will provide a Smart Card which has all this information.

10.51. The smart card would have a memory partitioned into distinct modules representing different entitlement groups for which free services or implicit/explicit subsidies

are given. These include food and nutrition, energy (kerosene, LPG, electricity), education services, health services, civic amenities and services (drinking water, latrines/sanitation), employment (National Rural Employment Guarantee) and economic/farming (fertilizer, irrigation water, MSP). These separate modules could, in principle, be managed by the ministry/department under which the group falls. They would be responsible for setting up and maintaining the back-end financial and database system that is vital to eliminating errors of omission and commission and improving delivery efficiency. These departments/ministries would control the entry of data into their own module of the smart card.

10.52. Any subsidy received by any individual would be entered on his/her smart card when the goods or service is delivered/charged for by the authorized supplier (for example, the fair price shop, kerosene/LPG dealer, fertilizer outlet). The rules and regulations for delivery of subsidy and its reimbursement to the goods/service supplier would be defined by the concerned department. The data entered on the smart card should, however, be accessible by all monitoring/evaluating agencies so that they can put together a picture of what subsidies are being received by whom, as well as those who are not receiving a subsidy for which they are eligible.

10.53. The smart card initiative for service delivery may encounter many initial teething problems. It will be necessary to conduct pilot studies before extending it to all parts of the country.

## (ii) Service Delivery Infrastructure

10.54. While the Mission Mode Projects (MMPs) would enable the back-end computerization of various departments, thereby e-enabling them for 'any time, any where' service delivery, to achieve the vision of providing government services at the doorstep of the citizen, a common service delivery platform is being created. The three important elements that form the basis of this effective service delivery framework are, State-Wide Area Networks (SWANs), the front-end outlets for the service delivery, that is, the CSCs and the SDCs, as discussed in the following sections.

- **STATE-WIDE AREA NETWORKS (SWANS)**

The government has approved the scheme for establishing SWANs in 29 States and six UTs across the country at a total cost of Rs 3334 crore. This scheme

envisages the establishment of an intra-government network with a minimum of 2 Mbps connectivity from the State headquarters to block headquarters through the District headquarters. The SWAN project provides the connectivity to facilitate the rolling out of citizen-centric services under various MMPs under the National e-Governance Plan (NeGP). The SWAN Scheme is at an advanced stage of implementation and it is expected that the SWAN would be ready in most States by end 2008.

#### • COMMON SERVICE CENTRES (CSCS)

The government has approved the scheme of establishing CSCs across the country. The CSC scheme envisages the establishment of 100000 broadband Internet enabled kiosks in rural areas which would deliver government and private services at the doorstep of the citizens. An additional 10000 CSCs would be set up in semi-urban/urban areas. Visualizing a honeycomb pattern with one village surrounded by six villages, this implies that each village would have a CSC either within its own area or in an adjoining village. The CSC Scheme would be a bottom-up model for delivery of content and services like e-Governance, education, entertainment, tele-medicine, agriculture, and so on, and is being implemented in an entrepreneur driven, PPP mode. CSCs are also expected to be operational in most States by end 2008.

#### • CONNECTIVITY FOR THE LAST MILE

The CSC Scheme is the first step towards ubiquitous broadband reaching up to the village level. The connectivity infrastructure is being created through three distinct initiatives. The first two seek to use the infrastructure already created by BSNL for last mile connectivity, and the third seeks to use the resources available under Universal Service Obligation Fund (USOF).

##### *Leveraging BSNL rural exchanges*

Existing BSNL rural OFC exchanges (approx. 20000) are being upgraded to allow them to provide broadband (512 Kbps) connectivity to about 25000 CSCs, with partial funding support from the Department of Information Technology (DIT). These exchanges, once upgraded, would also be able to provide connections within a radius of 4–5 km to other users as well.

##### *Wireless Connectivity from BSNL*

In those areas where there are no other existing telecom service providers, BSNL towers are being used to provide wireless broadband connectivity, with partial funding

support from DIT. It is expected that a further 25000 CSCs would be able to be connected in this manner.

##### *Last mile connectivity through USOF*

The USOF will be inviting existing TSPs to provide last mile connectivity with funding provided by the USOF. This initiative would provide connectivity to the remaining 50000 CSCs.

#### • STATE DATA CENTRES (SDCS)

State Data Centres are proposed to be established across 29 States and six UTs in the country, along with Disaster Recovery (DR), in order to provide shared, secured and managed infrastructure for consolidating and securely hosting State-level data and applications. SDC would provide better operations and management control and minimize the overall cost of data management, IT management and deployment. SDCs would ordinarily be located at the State headquarters and help the State Government, State line ministries and departments in providing central repository (database consolidation), application consolidation, State Intranet/Internet portal, State messaging infrastructure, remote management and business continuity site needed for their G2G, G2C and G2B services. The various MMPs, both at the Central level, State level and also the integrated services of the NeGP are expected to use SDCs to deliver their services. This infrastructure would be created during the Eleventh Five Year Plan.

#### NATIONAL E-GOVERNANCE PLAN FOR BETTER SERVICE DELIVERY AND MISSION MODE PROGRAMMES

10.55. The Government approved the National e-Governance Plan (NeGP) in May 2006 with the following vision: ‘Make all Government services accessible to the common man in his locality, throughout common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man.’ As can be seen, the one major difference from the ‘computerization’ initiatives of the past is the focus on delivery of services to citizens.

10.56. The architecture for e-Governance envisaged in NeGP aims to leverage e-Governance optimally to radically change the way government delivers services to citizens; addresses developmental challenges in key areas like education, health and agriculture; implements major programmes; and even the way it conducts its own business. In fact, key governance objectives like citizen-

**TABLE 10.1**  
**List of Mission Mode Projects**

S. No.	Central Government Category	State Government Category	Integrated Services Category
01.	Income Tax	Land Records	EDI (e-Commerce)
02.	Passport Visa and Immigration	Road Transport	e-Biz
03.	MCA21	Property Registration	CCSs
04.	Insurance	Agriculture	India Portal
05.	National Citizen Database and UID Project	Treasuries	EG Gateway
06.	Central Excise	Municipalities	e-Courts
07.	Pensions	Gram Panchayats	e-Procurement
08.	Banking	Commercial Taxes	
09.	e-office	Police (UTs initially)	
10.		Employment Exchanges	
11.		e-district	

Source: DIT/GoI.

centricity, transparency and efficiency cannot be achieved without extensive and pervasive use of technology.

10.57. The NeGP currently consists of 27 MMPs and eight support components to be implemented at the Central, State and local government levels. The full list of MMPs and components may be seen in Table 10.1.

10.58. The NeGP seeks to lay the foundation and provide impetus for the long-term growth of e-Governance in the country. It also seeks to create the right governance and institutional mechanisms, lay down appropriate policies and set up the core infrastructure, all of which would facilitate implementation of various programmes and projects of the government. A body under the Chairpersonship of the Prime Minister has been constituted to prescribe deliverables and milestones, and monitor periodically the implementation of NeGP.

#### ICT APPLICATIONS FOR BETTER PROGRAMME IMPLEMENTATION AND MONITORING

10.59. ICT interventions are a pre-requisite for effective implementation and delivery of flagship programmes. The proposed NREGS stipulates the provision of employment for a minimum of 100 days a year for at least one adult per rural household. For this scheme to be properly implemented, it will be necessary for every village Panchayat to maintain a register enumerating eligible adult individuals in every family. This would need to be converted into a workers' register. All government departments with works programmes in rural areas would

have to create village-wise works registers, which would then have to be centrally aggregated and catalogued village-wise at the district/block headquarters.

10.60. Each potential worker would have to be given a UID and would have to be assigned to the aggregated village-wise works register so that an account can be kept for 100 days of employment for one member from each family. In a nutshell, this would require works and workers inventories to be created and stored in a central data depository at the district headquarters. ICT solutions are all the more needed to plug the following loopholes:

- Inflated Schemes
  - Inflated quantity of work, depressed productivity, inflated person day estimates
  - Bogus registrations
  - Registration of dead persons, minors and medically unfit persons, duplicate and/or proxy registration, fictitious registrations
- Fraudulent Requisition of Funds
  - False measurement, inflated progress of works, omitting an operation or work item
- Inflated Muster
  - Ghost workmen, bogus attendance
- Fraudulent Wage Payment
  - Under payments, dependant fraudulent payments

10.61. The following schematic diagram depicts a possible technology enabled delivery system for implementation of the NREGP.

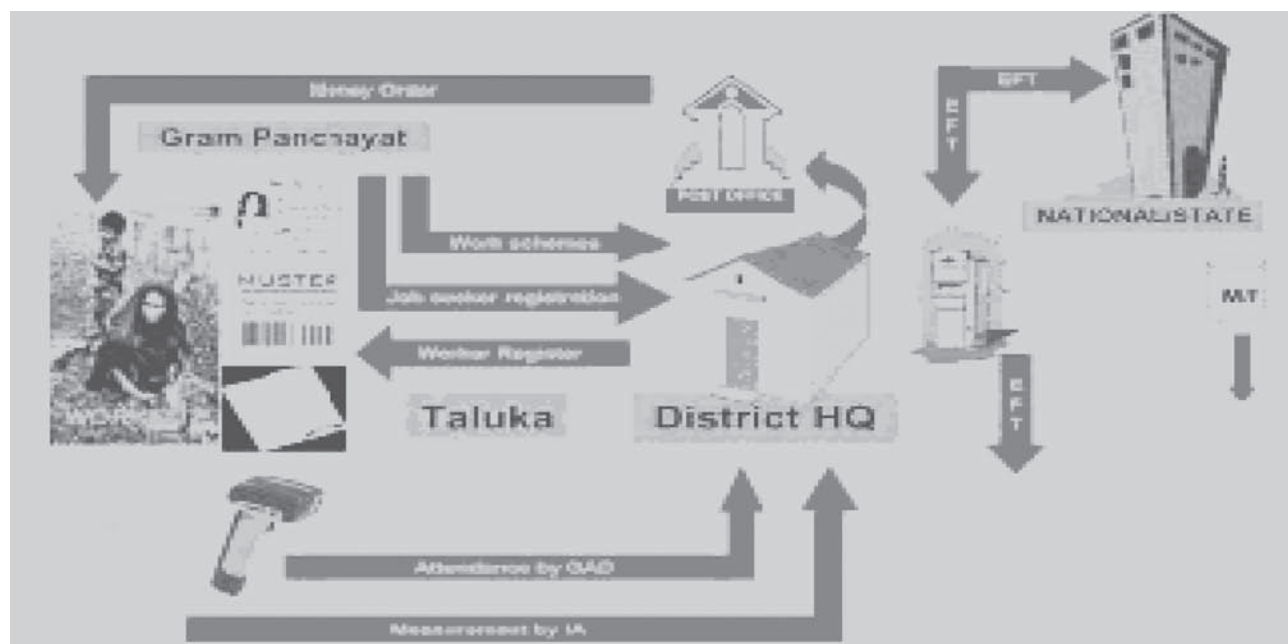


FIGURE 10.1: Delivery System for Implementation of NREGP

#### • Use of ICT in Major Flagship Programmes

While approving the NeGP, the government directed that for major projects like Bharat Nirman and Rural Employment Guarantee Schemes, the concerned line Ministry concerned should make use of e-Governance and automation techniques in implementation from the inception stage. Significant steps have been taken by the Ministry of Rural Development to use ICT in the implementation and monitoring of the NREGA and PMGSY, through its NREGASoft and Online Management Monitoring and Accounting System (OMMAS) applications developed by the NIC.

#### • NREGASoft and OMMAS

The MoRD, with the assistance of NIC, is capturing information related to NREGA right from the stage of registration of the worker. This information is also linked to the Rural Household Survey database of the concerned State. Information relating to worker registration, demand for work, payment of wages, and so on, can be captured through this application. Similarly, information relating to fund transfer and payments made, as well as information relating to the status of various works can also be captured. Currently, at the national level, information on the status of works under NREGA is being captured and is available on the Web.

Similarly, information relating to road data, district rural road plan, proposal formulation and submission to the Ministry and clearance/sanction/release of funds is being captured through OMMAS. All districts are carrying out data entry using the online package from district HQs.

#### • Smart Technologies and Flagship Programmes

The use of Global Positioning Systems in the construction industry, Radio-frequency Identification for logistics and biometrics and smart cards for identification and security purposes is now well established. Handheld devices as a means of delivering real time information from the field has also come of age on account of the telecom revolution in the country in the private domain and the explosive growth and innovation in the handheld devices sector, making them affordable on a mega scale.

#### LOCATION-SPECIFIC PLANNING USING GEOGRAPHICAL INFORMATION SYSTEM

10.62. Planning for sustainable development has been a challenge, as it requires substantial amount of data on all aspects of development. In emerging technology paradigm, GIS has emerged as a powerful tool which has the potential to organize complex spatial data into layered information with tabular relationships.

10.63. The Planning Commission has put in place a Web-enabled 23-layered GIS database to facilitate location specific planning by creating hierarchical spatial database and application services. The multi-layered GIS database provides comprehensive data village wise—geographical data, river basin/watersheds/micro watersheds data, physical infrastructure (roads/electricity/rail roads), social infrastructure (education and health facilities), urban and rural settlements, demographic data, amenities data, soil/forest cover data, and so on.

10.64. The Planning Commission has also taken up a project, being implemented by the NIC, for creating computer aided digital utility mapping for six mega cities—Ahmedabad, Bangalore, Chennai, Hyderabad, Kolkata, and Mumbai. The project envisions collating information from all concerned organizations and analysing the same for each utility, for example, water, sewerage, electricity, roads, communication, gas pipeline, and so on, by creating large-scale digital maps for the concerned cities, with an aim to help in urban planning, disaster preparedness and infrastructure management. The database is expected to be a major aid to planning, development and management of urban utilities. It will also provide the GIS information base for a vehicle navigation/tracking system based on GPS. The Ministry of Urban Development has a project for carrying GIS to other cities of India. Both these projects will help decision makers in effective planning by making a paradigm shift in resource allocation from the broadcast mode to a location specific, need based mode.

### VOLUNTARY ORGANIZATIONS (VOs)

10.65. A National Policy on VOs has been notified by the Central Government in July 2007, which aims to further strengthen, promote and develop such institutions. The Policy has the following objectives:

- To create an enabling environment for VOs that stimulate their enterprise and effectiveness and safeguard their autonomy.
- To enable VOs to legitimately mobilize necessary financial resources from India and abroad.
- To identify systems by which the government may work together with VOs on the basis of the principles of mutual trust and respect, and with shared responsibility.
- To encourage VOs to adopt transparent and accountable systems of governance and management.

10.66. In a democracy, VOs act as public ‘watch dog’ and a major check on arbitrary exercise of power by the Executive and other organs. Many such organizations are also doing remarkable work in implementing certain projects, some of which are funded by the government. During the course of the Plan, efforts will be made to strengthen such institutions and integrate their vigilance supervision over many of the programmes which affect the common citizen. Effective measures must be taken to implement the policy for improving governance.

### CORRUPTION

10.67. One of the biggest challenges in improving governance is to act against corruption, which is widely seen as having seeped into the administrative fabric. This is a stupendous task but if a nation wishes to move forward rapidly, provide efficient services to all its citizens and especially aim at inclusive growth, it must address this question quickly and seriously. Some international agencies have rated India among nations with a high degree corruption. For example, the Transparency International Index for 2006 ranks India at 70th position (Index 3.3) along with Brazil, China, Egypt, and Mexico. This is an improvement over 2005 when it was rated at the 88th rank (Index 2.9), but the scale of the problem is too large to allow any complacency. Corruption in public services has today assumed serious dimensions. In the last few decades, its scale, growth and spread have significantly increased. Different levels of governments have become implicated in corrupt practices in mutually reinforcing ways. At each of these levels, corruption has tarnished the image of government functionaries. Serious introspection and decisions are required to meet the challenge.

10.68. It is necessary to act on two fronts. First, the punitive approach of identifying those guilty and punishing them must be strengthened. Second, and as important, is the need to make concerted efforts to develop systems which are less vulnerable to corruption. Reduced administrative discretion of greater transparency at all levels, combined with a vigilant civil society and Press can make a substantial difference.

10.69. Corruption not only undermines the moral fibre of the society but can have serious and irreversible practical consequences for politics, economic development and governance. In an overwhelmingly corrupt society, value-based politics loses its meaning. The legitimacy of government based on impartial application of the rule

of law no longer holds. Resources which ought to be available to the exchequer for welfare and development are diverted into the private coffers of certain individuals. Honest public servants are demoralized while the corrupt are rewarded. Corruption is a major factor in the wastefulness, inefficiency and inequities we find in public administration today. It particularly affects the poor who cannot afford to pay. The burden of corruption saddles the private sector, and ultimately the consumer, with high costs and an inefficient infrastructure. Many more ramifications of corruption can be identified, but what is important to appreciate is that as corruption intensifies and accelerates, it tends to perpetuate itself in even widening and deeper forms. No time can, therefore, be lost in efforts to arrest and roll back this pernicious process.

10.70. There is widespread concern in India about the scale, spread and consequences of corruption. However, the daunting nature of the problem has generated a feeling of helplessness and apathy in the public mind, resulting in cynicism, fatalism or in arguments that rationalize corruption. Alternatively, escape is sought in sweeping solutions such as, for example, radical constitutional changes, wholesale deregulation and privatization of the economy and decentralization of most governmental activities. An agenda for removing corruption will thus far have to be worked upon in the Plan.

10.71. Some suggestions which need to be seriously worked upon are:

- The Prevention of Corruption Act, 1988 and other related laws need to be reviewed with an effective role assured for the Central and State Vigilance Commissions. They should have wide powers with independent budgets and staff so as to be able to initiate and pursue investigations on their own.
- Strengthening the 'watch dog' role of the Comptroller and Auditor-General of India and his establishment in order to ensure probity, transparency and accountability in all public financial transactions. This will involve, inter-alia: (i) wider powers for audit, (ii) prompt publication and discussion of audit reports, (iii) follow-up by the vigilance machinery of financial irregularities brought to light by audit, and (iv) provision for audit based on references from citizens and investigative reports in the media.
- Tackling corruption in public utilities and in municipal and other services provided by the State and its agencies.

This will involve (i) the adoption of clear and verifiable standards for performance, (ii) institution of transparent practices and systems and (iii) adequate mechanisms—such as Ombudsman—for the redressal of public complaints and grievances.

- A thorough and systematic review of all legislations, rules and executive orders which involve discretionary decisions, thereby creating financial stakes and inducements for the giving and taking of bribes. The objectives will be to eliminate, or considerably reduce the role for discretion in governmental actions, discipline the exercise of discretion, where inescapable, through objective and transparent guidelines, and provide public access to information relating to discretionary decisions having direct or indirect financial implications.
- Formulation and enforcement of a code of conduct to regulate relations between government and private enterprises, domestic and multi-national. Enterprises which violate the code of conduct should be blacklisted with due publicity.
- Appropriate self-policing arrangements should be developed by independent authorities and professions such as the judiciary, lawyers, doctors, media persons, chartered accountants, architects and contractors.

10.72. In addition to the above suggestions, it is also necessary to consider initiatives, which would address aspects of the political system, which often encourage corruption. These include the following:

- To provide State funding for candidates to an appropriate extent and subject to appropriate criteria, drawing upon practices followed in a number of other democracies.
- To tighten the anti-defection law to ensure that legislators are not bought and sold. No split in the legislature parties should be recognized unless it is followed by a split in the parent political organization on the basis of issues. There should also be a bar on defectors being rewarded with political office.

### CIVIL SERVICE REFORMS

10.73. A serious effort will have to be made to protect honest civil servants. Protecting the public services from political interference and abuse of power on the part of politicians will involve: (i) enforcement of objective and transparent criteria and procedures for appointments and promotions; (ii) definite tenure for civil servants holding

senior positions. The abridgement of tenure through transfers should be for objective reasons to be recorded in writing; (iii) Public Service Commissions/Administrative Tribunals should have a role in monitoring tenure, transfers and promotions; (iv) no civil servant should be suspended without the prior concurrence of the Public Service Commission; (v) rules of business in government should be strictly enforced, particularly the recording of reasoned orders in writing; and (vi) protection for civil servants who expose corrupt practices.

10.74. An important question today is developing a climate of probity in public life. Codes of ethics, therefore, need to be developed for civil servants and other public functionaries. A number of countries, like the UK and Spain, have developed their code of ethics. The ARC has made extensive recommendations on these issues.

10.75. Some of the values which a civil servant could be mandated, to follow are objectivity, integrity, neutrality, dedication to public service, transparency, exemplary conduct, accessibility and efficiency.

10.76. These values have also been studied in the context of developing an Act for the Civil Services. Some principles which they should observe in their functioning are:

- Allegiance to the various ideals enshrined in the preamble to the Constitution;
- Apolitical functioning;
- Good governance for the betterment of the people to be the primary goal of civil service;
- Duty to act objectively and impartially;
- Accountability and transparency in decision making;
- Maintenance of the highest ethical standards; and
- Ensuring economy and avoidance of wastage in expenditure.

#### **RULE OF LAW: POLICE AND JUDICIARY**

10.77. Rule of Law requires equality before law and equal protection of the law. The sine qua non of fairness of Criminal Justice Administration is that law should be enforced by Police without fear or favour. Furthermore, the judicial system must protect innocents and punish the guilty. Even though the police and judiciary are conventionally considered as non-developmental and regulatory arms of the State, the Eleventh Plan takes these to be upholders of the rule of law, which is the bedrock of democracy and development. Respect for human rights and equality for all social groups are the preconditions

for political participation and a peaceful society. Viable institutions based on the rule of law improve the chances of settling conflicts peacefully. The legal system provides certainty and the necessary framework for sustainable economic and social development. For instance, establishing and enforcing property rights clears the way for capital formation and a market economy. In addition, a reliable legal and judicial system reduces uncertainties and related investment risks. Thus, transparent predictable legal provisions lay the foundation for vigorous economic activity, investment and growth. Accordingly, capacity building in the police and judicial system has been accepted as a legitimate activity for Plan funding in the Eleventh Plan.

10.78. The police is the instrument of coercive power of the State and this power has to be exercised transparently, with maximum restraint but with telling effect. The effectiveness of the beat constable, as well as the station house officer, has only declined progressively since Independence. Over the years, increasing politicization and corruption, overstretched duty hours and low policing intensity (that is, ratio of police personnel to population) have only contributed to the decline in their credibility. In the 1950s, a single beat constable used to effect the arrest of several offenders, but today a posse is needed for the same task. If this trend is to be reversed, the majesty of law must be re-established and public perception will have to be changed so that a policeman is seen as the person responsible for the public safety, an ace investigator and a professional crime-buster. His achievements will have to be rewarded and misconducts punished relentlessly. Once this is done, it will be necessary to change the legal system so that it gives greater credence to the policeman deposing in a court of law. In special circumstances, his solitary evidence should be relied upon for securing convictions. Conversely, it will be necessary to hold the police officer fully accountable for the depositions made by him. Any falsification of evidence should make him liable to the severest punishment. This change is fundamental to realigning the criminal justice administration system.

10.79. Once this is achieved, the conviction rate will increase, perpetrators of crime will get punished and judicial processes will start buttressing the deterrent effect of law. The current vicious circle of poor policing, poor investigation, half-hearted prosecution, hostile witnesses and high acquittal rate will get converted into a virtuous cycle of greater professionalism in investigation, more responsible prosecution, higher conviction rate and

lesser crime. A more orderly society is the bedrock of planned development.

10.80. The police need to stay ahead of crime and criminals and counter the threats posed by destabilizing forces. Police also need to be equipped to effectively handle emergent challenges of newer criminal and economic offences. Increased reliance on science and technology will also be central to contemporary developments in policing. Today, technology enables us to view crime perpetration, detection, registration, investigation, prosecution, adjudication and incarceration as a seven-stage continuum. It is possible to follow and monitor the crime and the criminal from the time of the perpetration of crime to the time of its adjudication and resultant conviction.

10.81. This requires a unified database on a shared network to monitor the progress of each case till the delivery of the punishment. It will also enable evaluation of the performance of investigators and prosecutors more systematically and enable High Courts to supervise the subordinate courts more effectively. State governments should be encouraged to establish an integrated portal for crime and punishment. The portal will have two tracks:

- The Crime and Punishment Tracking System will monitor crime from the time of its detection, through registration, investigation, prosecution and adjudication.
- The Criminal Tracking System will create a nation-wide system of biometric data capture relating to criminals at the time of arrest, with digital equipment for lifting, recording and storage of fingerprints at the police station level and a powerful search engine for matching fingerprints with those in the database across the country. This will help in creating comprehensive criminal history sheets of individual criminals, habitual offenders and perpetrators of repeat-crimes. Subsequently, more sophisticated databases could be built based on DNA fingerprinting and other biometric identifiers, such as retinal image identification system and Lambdoid Sutures. These could be handled by suitable equipment at district HQs. Fingerprint data capture should be provided for in each police station, as well as in jails.

10.82. It is proposed to provide Rs 2000 crore towards a scheme for Technology Upgradation of the Investigation and Prosecution function, Crime and Criminal Tracking Network, which will establish a secured database on a

Web-based, secured network containing information on crimes and criminals and will provide extensive infrastructure for biometric data capture. In all, Rs 7000 crore has been provided in the Plan for various schemes of the Ministry of Home Affairs.

10.83. Wide-ranging reforms in the field of police administration at senior levels are already on the anvil after the Supreme Court had intervened in matters of transparency relating to the appointment of Director Generals of Police and other police functionaries and their tenures. The recommendations of the Soli Sorabjee Committee on some of the issues would form an important input in further strengthening reforms in this area.

10.84. There is today a serious problem posed by Naxalism. A number of districts in the States of Bihar, Jharkhand, Chhattisgarh, Orissa, Maharashtra, and Andhra Pradesh are afflicted by it. The delivery of public services in many of these areas is a serious issue. Resources will be provided to the States to supplement their efforts and ensure access to the people who are suffering from the effect of Naxalism. It is not merely a law and order problem but also a developmental challenge, and the affected States require a combination of political, developmental and perception management responses as part of a holistic strategy. Some of these could be in the field of education and health. Employment of more resources for them for development for the region would be a key issue during the Plan to gradually change the environment in such regions. A new initiative on the Plan side is proposed with an outlay of Rs 500 crore for improving village connectivity and meeting critical gaps in physical and social infrastructure and addressing unmet livelihood concerns in the Naxalite-affected areas.

10.85. Though India has a robust judicial system based on the Anglo-Saxon legal tradition, the process of delivery of justice to the common man is long and tortuous. The long list of pending cases in courts, frequent adjournments, dilatory tactics by some counsels and the practice of charging the client per court hearing/per diem and not on the outcome, are resulting in interminable litigation and unacceptable delays in adjudication.

10.86. As per the Supreme Court newsletter of July–September 2007, 44819 cases are pending in the Supreme Court and 3712715 cases are pending in the High Courts. Special attention will be paid to reforms that would speed up the judicial process. The Mid Term Appraisal had



suggested certain initiatives, which need to be pursued. Briefly, these were:

- Empowering the presiding officers of the courts to exercise better control over their case-lists or Lists of Business in a transparent manner. The List of Business Information System developed by the NIC can help courts monitor whether hearings are getting fixed with predictable periodicity and are beyond manipulation of court staff.
- More courts should be opened to tackle the large backlog of cases.
- Laws need to be reviewed for facilitating out-of-court settlements in civil cases and plea-bargain in criminal cases.
- The counsel–client relationship and counsel fee payment system need to be brought under some principled regulation to make the judicial process more client-friendly, creating an incentive for counsels to ensure early delivery of decisions.
- There is also a need to provide greater finality to adjudicatory processes. Currently, judicial processes meander through an interminable process of interlocutory injunctions and appeals against interlocutory orders. This can be simplified by enhancing the power of the court to review its own orders, to enable it to bring about a self-correction at the interlocutory stage.
- There is a strong case for moving from a two-appeal system to a single appeal system to give finality to judicial pronouncements. Furthermore, frivolous recourse to filing appeals can be discouraged by imposing a heavy fee.

10.87. The application of information technology can bring about a sea change in the quality of management of casework and can substantially reduce the time taken in the disposal of cases. Under the directions of the Supreme Court and the Conference of Chief Justices, NIC has initiated COURTSIS (Courts Information System) covering all 18 High Courts. The Supreme Court has also started the use of e-signature. This has already enabled them to improve the court–litigant interface, with prompt delivery of copies of judgments, daily orders, case status information, and so on.

10.88. In the Tenth Plan, an ambitious target had been set to computerize all 14948 subordinate courts in the

Districts (including 1734 fast track courts). The actual expenditure during the Tenth Plan was Rs 519 crore and the entire amount spent was on computerization of the courts. In the Eleventh Plan, it is proposed to provide Rs 1470 crore to the Department of Justice. Of this, Rs 740 crore is being assigned for computerizing and networking of district and subordinate courts and for establishing e-courts and video-conferencing facilities in courts and jails, and Rs 700 crore for capacity building and infrastructure for Judiciary. An e-Committee has been set up for this purpose, which has prepared an ambitious computerization project to be implemented in three phases over the Five Year Plan period. The Department has also prepared a new scheme on the ‘Study of Judicial Reforms and Assessment of Status’ that will address the needs of capacity building and training of judicial officers, at all levels.

10.89. While computerization and networking of all courts will enable better administrative supervision and control by High Courts over the disposal of cases in subordinate courts on a daily basis, the full benefits of IT will be realized when the judicial processes start getting re-engineered in the following manner:

- Allowing e-filing of complaints, written statements, affidavits, counter-affidavits and rejoinder affidavits.
- E-filing of examination-in-chief is made admissible in evidence.
- Permitting cross-examination of witnesses in remote locations (that is, outside courts) through video-conferencing and making it admissible in evidence.
- Providing touch screens in witness boxes to enable witnesses to draw site-plans of scenes of occurrence in complicated sessions cases.
- Allowing audio-recorded/audio-video-recorded versions of evidence in order to reduce the time of the court in recording evidence. Once the technology is perfected, speech to text transcripts can also be made admissible in evidence.
- Video-conferencing can be deployed by courts more effectively as an aid to judicial processes in following situations:
  - Securing evidence of witnesses in remote locations or those not able to attend the court.
  - Securing evidence of vulnerable witnesses like rape victims, who may want to avoid the public gaze.

- Conducting identification proceedings.
- Physically distancing the witnesses from the criminals in the identification parade. This will enable the witness to identify the offender fearlessly.
- Dispensing with the transportation of undertrials to and from jail for periodic appearances before magistrates. This will reduce instances of custodial escapes.

10.90. In order to implement these proposals, the judicial processes will need to be re-engineered and amendments made in the Evidence Act, 1872; Criminal Procedure Code (CrPC) and Civil Procedure Code (CPC). This should not be difficult, considering that Singapore, which had similar legislation/regulations in place because of the shared British colonial past, has successfully re-engineered its judicial processes to enable e-courts in order to bring about expeditious disposal.

## NEW REGULATORY STRUCTURES

10.91. A new area, which is relevant to determine the quality of governance, is the growth of independent regulators who now perform some of the functions earlier performed by governments. Their role is particularly evident in the infrastructure sectors where the economic policy changes of the past ten years or so have led to a shift from the earlier system, where infrastructure was provided almost exclusively by the public sector to a system where private suppliers of infrastructure services are actively encouraged. The reasons for the shift and its potential benefits have been extensively discussed elsewhere in the Plan document. In this chapter we focus on the fact that the shift has involved the development of new regulatory structures which perform some of the functions earlier performed by governments and which, therefore, have governance implications. The emergence of the regulatory State in the area of infrastructure is the natural consequence of the fact that infrastructure sectors have an element of natural monopoly. Consumers do not always have the choice of choosing alternative service suppliers (there is usually only one airport or road servicing an area) and when they do, as in the case of telecommunications, each service provider must be part of a network where access and connectivity become important. For these reasons, it is necessary for sectors which have opened up to private suppliers, to have regulators who can ensure that the interests of the consumers are adequately protected and

also that the producers are fairly treated. Competing suppliers have to be assured a level playing field, and where government entities are also suppliers only regulators independent of government can carry credibility.

10.92. Economic regulation in such situations should be designed to achieve the effective functioning of competitive markets and, where such markets are absent, to mimic competitive market outcomes to the extent possible. Regulation can also be used to achieve a range of non-market objectives, which include ensuring universal and equitable access, consumer protection and maintaining safety and health standards.

10.93. The regulatory framework that has emerged in the infrastructure sectors is characterized by the establishment of independent regulatory commissions. However, the system has developed autonomously within each sector, with relatively little coordination or cross fertilization of ideas. Box 10.1 captures the broad legislative and institutional framework currently prevailing in different sectors. It is evident that there are significant differences across sectors. An issue that needs to be addressed is whether a fresh look is needed at the regulatory structures that have evolved, taking account of the experience gained thus far.

## CONSTITUTIONAL AND LEGAL FRAMEWORK

10.94. The three general principles which are critical to regulatory institutional design are discussed below.

### Separation of Power

10.95. The separation of powers principle is complied with when rule-making and administration of rules are vested in the regulatory institution without combining judicial functions, which are reserved for a differently constituted body. Such a regulatory institution would essentially perform the erstwhile role of the government in making rules and enforcing them through licensing and other mechanisms. The administration of these rules would require the regulator to function in a quasi-judicial manner in conformity with the principles of administrative law. However, the adjudicating tribunal must be headed by a judicial member whose appointment and conditions of service are comparable to those holding similar positions in the Judiciary. This adjudication tribunal must be insulated from the rest of the regulatory system and must adopt a process of the highest judicial standards to

resolve the disputes before it. The institutional framework that has emerged in the telecom and electricity sectors broadly conforms to the doctrine of separation of powers with the regulators functioning as quasi-judicial bodies

while appeals against their orders are heard by Appellate Tribunals that resemble judicial bodies in form and character. This principle has also been applied to the competition and securities regulatory regimes.

### Box 10.1 Legislative and Institutional Framework

Sector	Relevant Statutes	Regulatory Authority
<i>Transport</i>		
<ul style="list-style-type: none"> <li>• Roads</li> <li>• Rail</li> <li>• Airports</li> <li>• Ports</li> </ul>	<ul style="list-style-type: none"> <li>– National Highways Act of India, 1998</li> <li>– Central Road Fund Act, 2000</li> <li>– The Control of National Highways (Land and Traffic) Act, 2002</li> <li>– Indian Railway Board Act, 1905</li> <li>– Railways Act, 1989</li> <li>– Aircraft Act, 1934</li> <li>– Airports Authority of India Act, 1994</li> <li>– Air Corporations (Transfer of Undertakings and Repeal) Act 1994</li> <li>– Indian Ports Act, 1908</li> <li>– Major Port Trusts Act, 1963</li> </ul>	<p>No transport sector regulatory authority.</p> <ul style="list-style-type: none"> <li>• National Highways Authority of India acts as the regulator as well as the operator.</li> <li>• States have floated their own corporations or agencies.</li> <li>• Investors have no recourse to an independent roads regulator.</li> <li>• Indian Railways act as the operator as well as the regulator.</li> <li>• Investors have no recourse to an independent railways regulator.</li> <li>• Airports Authority of India is the operator as well as the regulator. Director General of Civil Aviation and the Bureau of Civil Aviation Security (BCAS) regulate safety and technical aspects only.</li> <li>• Investors have no recourse to an independent airports regulator.</li> <li>• Proposal to set up the Airports Economic Regulatory Authority (AERA).</li> <li>• Tariff Authority for Major Ports (TAMP) has the sole function of tariff setting.</li> <li>• Investors and users have no recourse to an independent ports regulator on other matters such as dispute resolution, performance standards, consumer protection and competition.</li> </ul>
<i>Energy</i>		
<ul style="list-style-type: none"> <li>• Power</li> </ul>	<ul style="list-style-type: none"> <li>– Electricity Act, 2003</li> </ul>	<p>No energy sector regulator</p> <ul style="list-style-type: none"> <li>• Regulatory commissions at the Centre and States with very extensive functions and powers.</li> <li>• Track record not as yet convincing.</li> </ul>
<ul style="list-style-type: none"> <li>• Oil and Gas</li> <li>• Coal and Lignite</li> </ul>	<ul style="list-style-type: none"> <li>– Petroleum and Natural Gas Regulatory Board Act, 2006.</li> <li>– Petroleum Act, 1934</li> <li>– Oilfields (Regulation and Development) Act 1948</li> <li>– Petroleum and Minerals Pipelines (Acquisition of Right of User in Land) Act, 1962</li> <li>– Coal Bearing Areas (Acquisition and Development) Act 1957</li> <li>– Mines and Minerals (Regulation and Development) Act 1957</li> <li>– Coal Mines Nationalization Act, 1973</li> <li>– Coal Mines Conservation and Development Act, 1974</li> </ul>	<ul style="list-style-type: none"> <li>• The Petroleum and Natural Gas Regulatory Board regulates the refining, processing, storage, transportation, distribution and marketing of petroleum, petroleum products and natural gas.</li> <li>• Director General of Hydrocarbons licenses and regulates the exploration and optimal exploitation of hydrocarbons.</li> <li>• No regulatory authority for coal. Control by Ministry (Coal Controller) and through nationalized corporations.</li> </ul>

(Box 10.1 contd.)

(Box 10.1 contd.)

Sector	Relevant Statutes	Regulatory Authority
<i>Communication</i>		No communication regulatory authority.
• Posts	– Communication Convergence Bill, 2001	• The draft Bill proposes a sectoral regulator to promote, facilitate and develop the carriage and content of communications (including broadcasting, telecommunications and multimedia). It is currently being reviewed in consultation with stakeholders.
• Broadcasting	– Indian Post Office Act, 1898	• No posts regulatory authority. Proposal to create a new regulatory body. A draft amendment bill is open for consultation.
• Cable TV	– Prasar Bharati (Broadcasting Corporation of India) Act, 1990	• Private participation allowed in the FM radio sector through licensing. No regulatory authority exists for radio and TV broadcasts. A draft bill is currently being subjected to consultations with stakeholders.
• Telecom and Internet	– Sports Broadcasting Signals (Mandatory Sharing with Prasar Bharati) Act 2007	• Draft Broadcasting Services Regulation Bill, 2007, is open for consultation. It proposes setting up a Broadcast Regulatory Authority of India.
	– Cable Television Networks Regulation Act, 1995	• TRAI has the responsibility of tariff setting and interconnection for cable operators.
	– Telecom Regulatory Authority of India Act, 1997	• TRAI has been given the responsibility to regulate telecom and Internet service providers.
	– Indian Telegraph Act 1885	• Provides for the regulation of carriage and content of cable TV broadcasts.
	– Indian Wireless Telegraphy Act 1933	
	– Information Technology Act 2000	

### Democratic Accountability

10.96. In the earlier model of public sector provision of infrastructure services, the Ministry was responsible for setting policy and for various aspects of the delivery of services by the suppliers and was accountable to Parliament for all these functions. With the emergence of private suppliers, the various functions have been unbundled. The Ministry is responsible for policy but the regulator is responsible for many of the functions earlier performed by the Ministry, especially on issues such as price caps, quality of service, etc. The Ministry is responsible for service delivery by the public sector suppliers but not by private sector suppliers. It is also not responsible for balancing the competition between suppliers, which is left to the regulator. This raises the question of the regulator's accountability. To be truly independent the regulator must not be accountable to the Ministry. However, if it is not accountable to the Ministry then perhaps it should be made responsible to the Legislature. This raises the issue of how precisely such accountability can be established. Legislative oversight cannot be absolute. In particular, it must be limited in one significant respect: those decisions of a regulator which are open to appeal before an appellate

tribunal or court should be exempt from legislative scrutiny to avoid a clash of jurisdictions. However, it would remain open to the Legislature to review the regulations or policies underlying such decisions.

10.97. Second, the regulator needs to be made responsible to the people at large. This is possible by adopting processes and systems whereby interested citizens or groups of citizens may seek and acquire information, make representations and be accorded full process and participation rights. This capacity of citizens must be extended to both the rule making and quasi-judicial aspects of regulatory functions. The role of CSOs should also be recognized and enhanced. Requiring the regulator to rest decision making on publicly articulated rationale and persistently making them engage with the people at large, is the most effective way for regulatory institutions to earn democratic legitimacy. Further, this is an effective safeguard against regulatory capture by special interest groups. However, it should be recognized that the requirement of engaging with CSOs would by itself fail to achieve the desired results unless the regulators are themselves made accountable to the Legislature.

### Federal Principle

10.98. The Constitution distributes legislative and executive power vertically between the Union, State and local government. As the subjects of economic regulation are often divided between Union and State competencies, the regulatory structure should reflect this distribution. An elementary glance at the different regulatory structures for telecom and power may suggest that, so far, the federal principle has been grasped and accommodated. However, problems remain in other areas. Wherever a multi-level regulatory framework is created, as in the electricity sector, a common policy approach backed by uniform enforcement and dispute resolution processes must be ensured. As domain knowledge and regulatory expertise is scarce, a centralized knowledge bank can be maintained in every sector so that all regulators are able to access sufficient information. These initiatives will help promote consistent and coordinated regulation of crucial sectors of the economy.

### UNIFORM REGULATORY FRAMEWORK

10.99. As indicated in Box 10.1, the creation of independent regulatory agencies in the last 15 years has proceeded on a sectoral basis, where each line ministry or State Government has constituted a regulator for a particular sector of the economy. This sectoral approach has resulted in an uneven regulatory environment. There is no regulator in some sectors (for example, roads and railways), partial regulators in others (ports and airports) and relatively comprehensive regulators in some (telecommunications and electricity). It is appropriate to review the experience in these sectors and benchmarking them against international best practices to see what changes, if any, are needed. Several issues arise.

### Objectives

10.100. There is need for clear articulation of the objectives of regulating the infrastructure sectors so that divergent mandates for sectoral regulators are eliminated. In particular it is important to emphasize that competition is the best safeguard for consumer interests and, therefore, regulation should aim at removing barriers to competition and eliminating the abuse of market power. In those segments of infrastructure services that are amenable to competition, regulation should be light handed and tariff-setting could be left to competitive markets whereas segments that have elements of monopoly should be subjected to close regulation. In all cases, performance standards should be regulated for ensuring quality of

service. Regulation should also extend to determination of tariffs for the supply of goods and services, like railways and coal, so long as the market structure remains monopolistic.

10.101. Competition can be promoted by operating on the assumption that each of the infrastructure sectors can be broadly divided into carriage and content segments, and while the carriage element may involve a natural monopoly, content lends itself to competition. Content normally refers to electricity, gas, data or voice. On the other hand, carriage refers to transmission lines, networks, exchanges, airports, ports, highways and other fixed assets. While carriage is typically regarded as a natural monopoly, content is eminently amenable to competition. In order to enable competition in the content segment, the carriage should be subjected to non-discriminatory open access under close regulatory oversight, including determination of tariffs. Where technology or market structure enables adequate competition in carriage, its regulation could remain light handed. These aspects must be clearly addressed in the overarching approach to regulation.

### Institutional Framework

10.102. To be effective, all regulatory institutions should normally be empowered to make regulations, issue licenses, set performance standards and determine tariffs. They should also have the powers to enforce their regulations, licence conditions and orders by imposing punitive measures, including suspension or cancellation of licences. They may adjudicate on disputes among licensees and between the licensees and government, subject to review in appeal before an Appellate Tribunal that is headed by a judicial person. In the discharge of their functions, the regulatory commissions should be governed by the principles of administrative law and should be expected to act as quasi-judicial entities.

### Independence and Autonomy

10.103. Efficient and credible regulation requires that the regulatory authority should be independent and that the regulators should be persons of competence and integrity. To achieve this, it is necessary to review the existing system from this point of view. This includes a review of the qualifications laid down for regulators and the procedures for selection, the remuneration of regulators and their terms of service to see whether they are capable of attracting the most suitable persons instead of naturally leading to the

appointment of retiring civil servants, the degree of autonomy which the regulator has from the administrative Ministry concerned, which is linked to the extent of financial autonomy they enjoy. The Planning Commission has consulted extensively on these issues and will come up with comprehensive proposals for change for the consideration of the government.

### Participatory Regulatory Process

10.104. An important aspect of the system of independent regulation is that it provides a structured method of participation. This requires the regulator to adopt a consultative process that ensures avenues for participation by stakeholders. Its proposed annual plan of action and its consultation papers should be freely available on the Internet. The two central functions of the regulator, rule making and the enforcement of rules, should be standardized across regulators to ensure that opportunities for intervention are made available at every stage of the regulatory process.

### Regulation and Competition

10.105. Defining a workable division of labour between the regulator and the competition authority is a key to predictability as also for eliminating the possibilities of forum shopping. Presently, competition and regulation laws ignore the potential jurisdictional overlaps between the two areas of law. Sections 3, 4, 5, and 6 of the Competition Act, 2002 which are the key substantive provisions of law, are not market specific and apply generically to regulated and unregulated markets. So it is inevitable that sectoral regulators and the competition authority will issue directives to the same market players, which are likely to conflict given the diverse perceptions of the respective authorities.

10.106. There is a minimal institutional interface between the regulator and competition authorities. Though Section 21 allows any statutory body, which includes a regulator, to refer matters that may potentially violate the competition law, this is optional and regulators may choose not to do so. Further, by creating an interface which is limited to dispute resolution, the statute leaves open a wide scope for disagreements, which may best be resolved before they have matured into legal disputes.

10.107. The Competition Commission of India (CCI) has conducted its own analysis of the interface between

regulation and competition in India and explored three possible modes of interaction. First, mandatory consultation between regulators and competition authorities before any action is taken in regulated industries may be a formal and effective technique. This may be institutionalized by allowing some members of each institution to participate in the decision-making processes of the other. Second, each authority must have the right to intervene in any dispute adjudication before the other. If such a participation right is prescribed by allowing each institution an intervention right in any dispute, this will allow for a reasonable degree of inter-institutional communication. Finally, the competition authority and regulator may be given precise roles in any regulated industry.

### Multi-Sectoral Regulators

10.108. Another important issue is whether we should consider establishing multi-sectoral regulators for (i) communications; (ii) electricity, fuels and gas; and (iii) transport. This would eliminate proliferation of regulatory commissions, help build capacity and expertise, promote consistency of approach and save on costs. In the case of States, a single regulatory commission for all infrastructure sectors may be more productive and cost-effective as compared to sectoral regulators for each sector. States should be encouraged to consider this approach and the scope of their existing electricity regulators could be extended to other sectors.

### Appellate Tribunals

10.109. The effectiveness of regulators can be severely compromised if their decisions get locked up in appellate courts. Constitution of appellate tribunals on the lines of the telecom and electricity appellate tribunals would help address this concern. These tribunals should be headed by eminent persons of judicial background and may consist of subject matter specialists. Separate appellate tribunals could be constituted for the three major segments, that is, energy, communication and transport. Another approach could be to constitute a single appellate tribunal for all regulatory commissions with regional benches. The respective merits of these two options could be evaluated before arriving at a conclusion.

## Consumer Protection and Competition Policy

### CONSUMER PROTECTION

11.1. Promotion of consumer welfare is the common goal of consumer protection and competition policy. At the root of both consumer protection and competition policy is the recognition of an unequal relationship between consumers and producers. Protection of consumers is accomplished by setting minimum quality specifications and safety standards for both goods and services and establishing mechanisms to redress their grievances. The objective of competition is met by ensuring that there are sufficient numbers of producers so that no producer can attain a position of dominance. If the nature of the industry is such that dominance in terms of market share cannot be avoided, it seeks to ensure that there is no abuse on account of this dominance. Competition policy also seeks to forestall other forms of market failure, such as formation of cartels, leading to collusive pricing, division of markets and joint decisions to reduce supply. Mergers and acquisitions also need to be regulated as they reduce competition.

### CONSUMER PROTECTION POLICY

11.2. The consumer movement in India is as old as trade and commerce. In Kautilya's *Arthashastra*, there are references to the concept of consumer protection against exploitation by the trade and retailer with respect to quality, short weight, measurement and adulteration of goods. Yet until the late 1970s, there was no systematic movement in the country for safeguarding the interest of consumers. But now it is widely acknowledged that the level of consumer awareness and protection is a true indicator of development of the country and progressiveness

of civil society. The main reason for this is the rapidly increasing variety of goods and services which modern technology has made available. In addition, the growing size and complexity of production and distribution systems, the high level of sophistication in marketing and selling practices and in advertising and other forms of promotion, mass marketing methods and consumers' increased mobility resulting in reduction of personal interaction between buyers and sellers, have contributed to the increased need for consumer protection.

11.3. Protection of consumer rights in modern times dates back to 1962. On 15 March 1962, the Consumer Bill of Rights was proclaimed by the United States President in a message to the Congress. The message proclaimed: (i) the right to choice, (ii) the right to information, (iii) the right to safety, and (iv) the right to be heard. Subsequently, the right to consumer education, the right to a healthy environment and the right to basic needs (food, clothing, and shelter) were added by Consumer International. In India, 24 December is celebrated as National Consumer Rights Day as the Consumer Protection Act, 1986 was enacted on that day. 15 March is observed as World Consumer Rights Day since 1983, when International Organization of Consumer Unions declared it so. In India, 15 March was also adopted as the National Consumers Day and has been observed since then. Another significant day in the history of world consumer movement is 9 April 1985, when the General Assembly of the United Nations adopted a set of guidelines for consumer protection and the Secretary General of the United Nations was authorized to persuade member

countries to adopt these guidelines through policy changes or law. These guidelines constituted a comprehensive policy framework outlining what governments need to do to promote consumer protection in the following areas: (i) physical safety, (ii) protection and promotion of consumer economic interests, (iii) standards for safety and quality of consumer goods and services, (iv) measures enabling consumers to obtain redressal, (v) measures relating to specific areas (food, water, and pharmaceuticals); and (vi) consumer education and information programme.

11.4. These guidelines provided an internationally recognized set of basic objectives, particularly for governments of developing countries, enabling them to identify the priorities and structure of their consumer protection policy and legislation. Subsequently, the guidelines were expanded to include 'sustainable consumption' which was an important subject in the changed social, political and economic scenario. The importance of 'sustainable consumption' is aptly highlighted in Mahatma Gandhi's words, 'the rich must live more simply so that the poor may simply live'. Sustainable development is crucially dependent on sustainable consumption. Article 21 of the Constitution requires the State, inter alia, to protect life, which must be construed as including the right to a healthy and safe environment. A healthy and safe environment is inalienably linked with sustainability and promotion of sustainable consumption.

11.5. The concern in the Indian Constitution for protection and promotion of an individual's rights, and for the dignity and welfare of the citizen makes it imperative to provide for the welfare of the individual as a consumer, a client and a customer. The rights under the Consumer Protection Act, 1986 flow from the rights enshrined in Articles 14 to 19 of the Constitution of India. The RTI, 2005 which has opened up governance processes of our country to the common public also has far-reaching implications for consumer protection.

11.6. The consumer protection policy creates an environment whereby the clients, customers, and consumers receive satisfaction from the delivery of goods and services needed by them. Good governance requires efficiency, effectiveness, ethics, equality, economy, transparency, accountability, empowerment, rationality, impartiality and participation of citizens. The concern of consumer protection is to ensure fair trade practices; quality of

goods and efficient services with information to the consumer with regard to quality, quantity, potency, composition and price for their choice of purchase. Thus, proper and effective implementation of consumer protection law promotes good governance.

11.7. Education is the most powerful tool for the progress of the country and is a social and political necessity. Education helps an individual—as a consumer—in making rational choices and protects him from trade and business-related exploitation. But more is needed for the effective functioning of the national market to create an increased level of awareness of consumer rights, and for this consumers have to be educated about rights and responsibilities through concerted publicity and awareness campaigns. In the awareness campaigns, special emphasis needs to be given to vulnerable groups such as women and children, students, farmers and rural families and the working class. The report of the study on the Consumer Protection Act commissioned by the Comptroller and Auditor General (C & AG) of India and conducted in July–August 2005, brought out that 66% of consumers were not aware of consumer rights and 82% were not even aware of the Consumer Protection Act. In rural areas, only 13% of the population had heard of the Consumer Protection Act.

11.8. Standards, which are the essential building block for quality, play a key role in consumer protection. Standards could be on technical requirements (specifications), standard terminology (glossary of terms), good practices (codes of practice) or test methods or management system standards. Developed countries generally rely on management system standards like ISO 9001 (Quality Management System), ISO 14001 (Environmental Management Systems) and hazard analysis and critical control points (HACCP) as an indicator of the ability of an organization to meet quality needs and address environmental concerns. These standards are set generally by governmental or inter-governmental bodies but there are some private initiatives as well, which are widely used such as OHSAS 18000 (Occupational Health and Safety), SA 8000 (Social Accountability) and WRAP (Worldwide Responsible Apparel Production).

11.9. Setting standards is not enough for assuring the consumer of quality. For this, governments need to establish the full quality infrastructure, embracing standardization,



conformity assessment and enforcement. The constituents of quality infrastructure are :

- Standardization
- Standard development
- Standard information
- Metrology
- Quality assurance/conformity assessment
- Testing
- Inspection
- Product certification
- Management Systems Certification (ISO 9000/14000/22000/27001/ OHSMS, etc.)
- Regulation and enforcement
- Accreditation

### CONSUMER PROTECTION IN INDIA

11.10. The Consumer Protection Act was enacted in 1986 based on United Nations guidelines with the objective of providing better protection of consumers' interests. The Act provides for effective safeguards to consumers against various types of exploitations and unfair dealings, relying on mainly compensatory rather than a punitive or preventive approach. The Act applies to all goods and services unless specifically exempted, and covers the private, public, and cooperative sectors and provides for speedy and inexpensive adjudication. The rights provided under the Act are:

- The right to be protected against marketing of goods and services which are hazardous to life and property
- The right to be informed about the quality, quantity, potency, purity, standard and price of goods and services, as the case may be, to protect the consumer against unfair trade practices
- The right to be assured of access to a variety of goods and services at competitive prices
- The right to be heard and assured that consumer interest will receive due consideration at appropriate fora
- The right to seek redressal against unfair or restrictive trade practices or unscrupulous exploitation of consumers
- The right to consumer education

11.11. Under the Consumer Protection Act, 1986 a three-tier, simple, quasi-judicial machinery has been established at the national, State, and district levels for hearing cases raised by consumers. The Act had been amended in 1991

and again in 1993. A comprehensive amendment was last made in 2002 for making the Act effective, functional and purposeful. The amended Act, inter alia, provides for the attachment and subsequent sale of the property of a person not complying with an order.

11.12. Although implementation of the Consumer Protection Act can be viewed as a success, there are still serious shortfalls in achieving consumer welfare because of the deficiencies in quality infrastructure in the country. First, there is a regulatory deficit in many products and services which impact on the health, safety and environment of the consumers and mandatory standards have not been prescribed for such products as electrical and electronic goods, IT and telecom equipment, industrial and fire safety equipment and toys. There is a multiplicity of regulatory/standardization/conformity assessment bodies and proliferation of certification and inspection bodies. At present, the Quality Council of India (QCI) is the main accreditation body for conformity assessment bodies taking up product or system certification or for inspection bodies, and the National Accreditation Board for Laboratories performs the same function for laboratories. However, there is no compulsion on the conformity assessment bodies, inspection bodies or laboratories to obtain accreditation, thus creating a lack of certainty about the existence of quality products, systems, inspections and laboratories. Laboratory infrastructure is weak in terms of international norms. Quality professionals lack the skills to guide quality improvement efforts in industry. There is apathy among businesses towards standardization in general, and lack of awareness among them about the impact of standards on quality, competitiveness, and profitability. There is absence of consumer demand for quality goods and services primarily because of lack of awareness among them regarding quality issues. In short, there is absence of a quality culture in the country. At a time when tariff barriers are falling worldwide as a result of multilateral trade negotiations and in the context of Foreign Trade Agreements (FTAs), and technical barriers to trade have become more significant as determinants of trade flows, urgent action has become necessary to correct the situation in the country as described above. If the quality of Indian products and their conformity with international standards is to be accomplished by Indian producers, the impulse must be generated from within the country. Nothing can have a more powerful

impact on the producers than the demand for quality products by quality-conscious domestic consumers.

## STRATEGY FOR THE ELEVENTH FIVE YEAR PLAN

### Establishment of National Quality and Standardization Authority

11.13. As of today, the Bureau of Indian Standards (BIS), set up under the BIS Act, 1986 functions as the National Standards Body. Apart from the BIS, there are other organizations which are formulating specifications for their own internal use. In some areas, regulators are also prescribing the standards to be observed by the industry concerned. There is need to have a mechanism for the declaration of a harmonized Indian standard in different areas. For this purpose, the establishment of a National Quality and Standardization Authority through appropriate legal framework to ensure uniformity of approach for setting of standards and ensuring regulation of conformity assessment, is necessary. The framework should provide for setting voluntary standards in all areas of economic and social activities, and mandatory regulations in areas that impact on health, safety, and the environment. A national system of conformity assessment and compliance should be established to bring in complete synergy in standardization, conformity assessment and enforcement. In sectors critical to health and safety like food or drugs, infrastructure upgradation should be supported for MSE sectors to attain national/international standards/regulations like GMP/Good Hygienic Practice (GHP)/HACCP. A National Regulatory System Database should be developed. More specifically, the following are the measures that need to be undertaken:

#### (I) STRENGTHENING REGULATION

11.14. Some of the priority elements that should be considered by the concerned ministries or their agencies (Regulatory Bodies) for strengthening the regulation are:

- Mandatory standards for products which impact on health and safety of the consumer and on the environment such as electrical appliances, electronic, IT and telecom products, medical devices, industrial safety and fire safety equipment, helmets, plastic and other material used for food packaging.
- GHP/GMP/HACCP being made mandatory as a rule under the PFA Rules/ Integrated Food Law for the food industry and for hotels and restaurants.

- Mandatory national standards for compliance by all water agencies—rural or urban.
- Introduction of law for product liability provisions including punitive damages as a deterrent for sub-standard goods.
- Laying down residue limits for contaminants for raw materials as well as food products.
- Mandatory compliance with Good Agricultural Practices or Good Animal Husbandry Practices (GAHP) by commercial farms.

#### (II) EXTENDING VOLUNTARY STANDARDS INTO THE SERVICES SECTOR

11.15. For consumer protection, voluntary standards should be extended to the area of services, in particular, medical and hospital services, financing and investor services provided by non-banking financial companies, real estate services, e-commerce, and so on.

#### (III) NATIONAL STANDARDS SYSTEM

11.16. The Bureau of Indian Standards (BIS) may be made the national standards body and repository of all voluntary national standards. Wherever voluntary standards are being formulated by other standards development organizations which are recognized as national (like Indian Roads Congress or Agmark), these may be published as national standards by BIS while these bodies continue to make these standards.

#### (IV) POLICY ON CONFORMITY ASSESSMENT

11.17. The policy should be laid down for the government recognizing only one National Accreditation Body for conformity assessment for each area of activity. All conformity assessment bodies should be required to obtain accreditation either from national or international accreditation bodies within a reasonable period. As a general rule, functions of regulation, standardization and conformity assessment should be performed separately. Similarly, there is need to enlarge consumer choice in the matter of certification. Appropriate mechanism would need to be evolved for this purpose.

### Setting up of National Consumer Protection Authority

11.18. There is need to deal effectively with deceptive practices, including misleading advertisements. Besides, there would be a gap in legislation to be caused by the proposed winding up of the Monopolies and Restrictive

Trade Practice Commission (MRTPC) with respect to unfair trade practices. The gap can be filled in by establishing a National Consumer Protection Authority through enactment of a National Consumer Protection Authority Act.

### Enhancing Consumer Awareness

11.19. There is necessity for continuing consumer awareness campaigns on a large scale to sensitize the population on basic aspects such as Maximum Retail Price (MRP), Gold Hall Marking, Indian Standard Institute (ISI) mark on products, and expiry dates. As and when voluntary standards are extended into the services sector or regulations are imposed for mandatory compliance with standards for reasons of health, safety or environment, the content of awareness campaigns would need to be expanded.

### COMPETITION POLICY

11.20. The Approach Paper to the Eleventh Five Year Plan recognized the need for creating a competitive environment to stimulate private investment. It emphasized the need for increased reliance on competitive markets subject to appropriate, transparent and effective regulations. A major objective of the Eleventh Plan is to recommend policies that spur private sector investment while ensuring fair competition by guarding against restrictive business practices.

11.21. A review of cross-country literature suggests that there is a positive association between GDP growth and competition. Empirical studies have suggested that competition enhances productivity at industry level, generates more employment and lowers consumer prices. A pro-competitive policy environment has been found to be positively associated with long-term growth. Competition-enhancing policies have pervasive and long-lasting effects on economic performance by affecting economic actors' incentive structure, by encouraging their innovative activities and by selecting more efficient ones from less efficient ones over time. The positive effects of competition are well illustrated by the recent experiences in India in several sectors such as telecommunications, automobiles, newspapers and consumer electronics, where there has been a fall in real prices/tariffs and marked improvement in the quality of goods/services. This experience demonstrates the benefits of ensuring competition in other sectors of the economy.

11.22. The reforms initiated since 1991 recognized the need for removing fetters on trade and industry with the view to unleash the competitive energies. The Industrial Policy Statement of 1991 emphasized the attainment of technological dynamism and international competitiveness. It noted that Indian industry could scarcely be competitive with the rest of the world if it had to operate within an over-regulated environment. To enhance competition in the domestic markets and to generate/promote a culture of competition in the country is part of this broader agenda on reforms. The economic reforms undertaken by the government have been generally on a sector by sector basis and the progress across sectors has not been uniform. While some sectors have successfully imbibed a strong competition culture, relatively weak competitive pressure exists in a number of sectors, such as electricity, in India. There are several policies and laws that can have significant bearing on competition. These should be made competition-friendly as far as possible.

11.23. To strengthen the forces of competition in the market, both competition law and competition policy are required. The two complement each other. The competition law prohibits and penalizes anti-competitive practices by enterprises functioning in the market; that is, it addresses market failures. Sector regulatory laws mimic competition in the areas of natural monopolies. Other regulatory laws, such as those for intellectual property or anti-dumping or even capital markets, too have an important interface with competition. The aim of the competition policy is to create a framework of policies and regulations that will inform other policies to facilitate competitive outcomes in the market. Competition policy is a critical component of any overall economic policy framework. Competition policy is intended to promote efficiency and to maximize consumer/social welfare. It also promotes creation of a business environment, which improves static and dynamic efficiencies, leads to efficient resource allocation and consumer welfare, and in which abuse of market power is prevented/curbed. It also promotes good governance by restricting rent seeking practices of economic actors.

11.24. During the Tenth Plan period, the Competition Act, 2002 was enacted. The Act established the CCI to eliminate practices having adverse effect on competition, promote and sustain competition in markets, protect the interest of consumers and ensure freedom of trade

carried on by other participants, in markets in India. The Competition (Amendment) Act, 2007 passed by the Parliament in September 2007 has incorporated some changes in the Competition Act, 2002 including the establishment of a Competition Appellate Tribunal to hear appeals from the orders of the CCI. Until recently, as the substantive provisions were not notified, CCI was engaged, *inter alia*, in promotion of competition advocacy and creating awareness about competition issues. This activity will continue, even after the operationalization of the Competition Commission, which should happen soon.

11.25. During the mid-term appraisal of the Tenth Plan, it was recognized that there is an urgent need for articulating a National Competition Policy (NCP) in India, which should fully reflect the national resolve to accelerate economic growth, improve both the quality of life of the people of the country, national image and self-esteem. It further noted that NCP would bring about a competition culture amongst economic entities to maximize economic efficiency, protect consumer interests and improve international competitiveness.

11.26. The Planning Commission, in the context of the formulation of the Eleventh Plan, constituted a Working Group on Competition Policy with wide representation of professionals from government and non-government organizations. As suggested by the Working Group, there is a need for the government to adopt a broad-based, overarching and comprehensive NCP to promote coherence in the reforms process, to establish uniform competition principles across different sectors and to harmonize all other policies keeping in view the competition dimensions.

11.27. The broad objectives of the NCP should be: (i) to preserve the competitive process and to encourage competition in the domestic market so as to optimize efficiency, (ii) promote innovation and maximize consumer welfare, (iii) to promote, build and sustain strong competition culture within the country; (iv) to achieve harmonization in policies, laws and procedures regarding competition dimensions at all levels of governance, (v) to ensure competition in regulated sectors and to establish an institutional mechanism for synergized relationship between the Competition Commission and sectoral Regulators, and (vi) to strive for a single national market.

11.28. The NCP should be based on the following principles: (i) there should be effective control on anti-competitive conduct which undermines competition in markets in India; (ii) there should be competitive neutrality or a level playing field among all players, whether these be private enterprises, PSEs or government departments engaged in non-sovereign commercial activity; (iii) the procedures should be rule bound, transparent, fair and non-discriminatory; (iv) there should be institutional separation between policy making, operations and regulation; (v) where a separate regulatory arrangement is set up, it should be consistent with the principles of competition; (vi) third party access to essential facilities on fair terms should be available; (vii) any deviation from the principles of competition should be only to meet desirable social, environmental, developmental or other national objectives which are clearly defined, transparent, non-discriminatory, rule based and having the least competition restricting effect. The above principles of competition should be applicable across all sectors of the economy and be incorporated in policies, which govern them.

11.29. Several existing policies, statutes and regulations of the Central Government restrict or undermine competition. A review of such policies, statutes and regulations from the competition perspective (this is referred to as 'regulatory impact assessment' in several countries) may be undertaken with a view to remove or minimize their competition restricting effects. Proposed policies, statutes, regulations that impact competition should also include a competition impact assessment through an internal mechanism which should form one of the inputs in any decision-making process in this regard. Regulatory impact analysis should be a pre-condition for introducing regulatory changes in any sector. Any disinvestment or privatization attempt should take into account the competition dimension. In a globalizing economy, incorporation of competition clauses in trade agreements will go a long way to check anti-competitive behaviour and potential anti-competitive cross-border transactions/mergers having an adverse effect in India.

11.30. The initiatives at the State Government level would require undertaking pro-competition reforms, keeping in mind the principles of NCP. There are many economic areas of State policies and regulations that impact or

inhibit competition in the market. These restrictions also tend to fragment the national market and undermine the freedom of economic actors. The State Governments should be encouraged to undertake a review of existing policies, laws or regulations from the competition perspective and also undertake a competition impact assessment of proposed policy, law and regulations before these are finalized; while seeking expert assistance of CCI and other expert agencies. Similarly, the statutes, laws and procedures which govern the sub-State authorities need to be reviewed so as to align them with the principles of NCP. All State Governments have, at the instance of CCI, established Nodal Points within their administrations to deal with the subject of competition; the State Governments are encouraged to give these Nodal Points an effective role in this regard.

11.31. Given the wide canvas of NCP, a suggestion has been made by the Working Group on Competition Policy for setting up an institutional arrangement for monitoring the progress of the implementation of the policy. A small and compact Competition Policy Council of about 25 members could be set up which would be advisory, non-statutory and autonomous in its functioning and be headed by an eminent non-official person and comprising key officials from economic Ministries/Departments, and non-officials from media, academia and civil society. The task of the Competition Policy Council would be to review the progress in the implementation of NCP such as reviews of policies, regulations and practices, and the competition impact assessment of new laws, regulations and policies.

11.32. An incentive scheme could be instituted by the government under which financial grants may be given to State Governments linked to the progress in aligning their policies and laws with the principles of NCP. The grants could be released based on the progress made by the various State Governments on the recommendations received from the Competition Policy Council.

11.33. The interface between the Competition Commission vis-à-vis sectoral regulators is critical. The basic premise to be recognized is that sectoral regulators have domain expertise in their relevant sectors. The Competition Commission, established under the Competition Act, 2002 on the other hand, has been constituted with a broad mandate to deal with competition for which certain

very specific parameters are laid down under the Act. A formal mechanism for coordination between the Competition Commission and the sectoral regulators is, therefore, of key importance. Coordination between sectoral regulators and Competition Commission should be made mandatory through suitable provisions in the Competition Act, 2002 and sectoral laws.

11.34. Regulation may be justified or warranted in sectors which have natural monopolies or network industries; more so where a universal service obligation exists. However, regulation may not be required where these features do not prevail. Such sectors should ideally be left to the forces of competition. Even in sectors where regulation is required, it should be competition based or competition driven. One of the objectives of the regulation should be to create a competitive market in so far as this is feasible. As competition in the regulated sectors expands, the regulation should ideally become lighter and ultimately economic regulation may not be necessary. Therefore, a sunset clause based on considered timelines appropriate to the regulated sector may be considered in all economic regulatory laws so as to leave the industry to market forces once effective competition is achieved. Any anticompetitive conduct can always be addressed by the Competition Act, 2002.

11.35. Successful implementation of competition policy and law largely depends upon its acceptance by the people. Competition advocacy buttressed by good enforcement plays a vital role in securing the willingness and acceptability of a competition policy and law. Competition advocacy can also be looked at as law enforcement without intervention. An important tool of advocacy is the ability of many competition authorities to give an opinion on proposed legislation and public policy on their own, so that the law makers and policy makers consider the competition dimension and give reasons for deviating from them for the benefit of the public. The assistance of CCI and other expert bodies could be utilized for conducting studies in this regard.

11.36. The concept and the role of competition are relatively new to the Indian business community. There is, therefore, a pressing need to increase the level of awareness about the benefits of competition and the contribution of the competition law in this respect among the public, more particularly among the business

community. The Commission has been given, under the Act, the mandate to generate public awareness; its efforts in this area may be further strengthened. The Commission should formulate, publish and post in the public domain, guidelines covering various dimensions related to competition law for enhancing public awareness. Such guidelines will help enterprises by bringing greater clarity about the provisions of the competition law and the manner of its enforcement. The Commission should also engage in Compliance Education for business.

11.37. There is strong commonality between competition policy and law on the one hand and consumer protection policy and law on the other. An effective competition policy lowers entry and exit barriers and makes the environment conducive to promoting entrepreneurship, which also provides space for the growth of small and medium

enterprises and consequent employment expansion. Competition law concentrates in maintaining the process of competition between enterprises and tries to remedy behavioural or structural problems in order to re-establish effective competition in the market. The consequence of this is higher economic efficiency, greater innovation and enhancement of consumer welfare. Thereby the consumer experiences wider choices and greater availability of goods at affordable prices. On the other hand, the consumer protection policy and law are primarily concerned with the nature of consumer transactions, trying to improve market conditions for effective exercises of consumer choice. Thus, the two disciplines focus on different market failures and offer different remedies, but are both aimed at maintaining well functioning, competitive markets that promote consumer welfare. The two disciplines are mutually re-enforcing.

## Development of Infrastructure

### INTRODUCTION

12.1. The fast growth of the economy in recent years has placed increasing stress on physical infrastructure such as electricity, railways, roads, ports, airports, irrigation, and urban and rural water supply and sanitation, all of which already suffer from a substantial deficit from the past in terms of capacities as well as efficiencies in the delivery of critical infrastructure services. The pattern of inclusive growth of the economy projected for the Eleventh Plan, with GDP growth averaging 9% per year can be achieved only if this infrastructure deficit can be overcome and adequate investment takes place to support higher growth and an improved quality of life for both urban and rural communities.

12.2. This chapter provides a broad picture of investment requirements in each subsector, as well as the split between the Centre and the States and the role of the private sector in meeting the investment targets in these sectors. For the purpose of this chapter, infrastructure has been defined to include electricity (including non-conventional energy), telecommunications, roads and bridges, railways (including MRTS), ports, airports, irrigation (including watershed development), water supply and sanitation, storage and gas distribution sectors.

### INVESTMENT IN INFRASTRUCTURE

12.3. The total investment in infrastructure, defined as above, in 2006–07 was estimated to be around 5% of GDP. From a macroeconomic perspective and taking account of investment in infrastructure in other relatively fast growing countries, it can be argued that the gross capital formation (GCF) in infrastructure should rise as a share

of GDP from 5% in 2006–07 to 9% by the end of the Plan period (see Table 12.1). The experience of many other emerging developing countries would suggest that GCF in infrastructure may need to be accelerated to an even higher level—around 11%—by the terminal year of the Eleventh Plan. However, an increase of this order cannot be achieved starting from a level of less than 5% of GDP observed in 2005–06. Moreover, it may not be a necessary condition for achieving a 9% growth in the Eleventh Plan period since many East Asian countries have invested more than is essential. The target of 9% by the end of the Eleventh Plan seems reasonable.

12.4. On the above basis, the aggregate capital formation in infrastructure required to achieve India's targeted annual average growth in GDP of 9% over the Eleventh Plan period, would have to rise from Rs 259839 crore in 2007–08 to Rs 574096 crore in 2011–12 at constant 2006–07 price. Over the Eleventh Plan period, as a whole, this estimate aggregates to Rs 2011521 crore or US\$ 502.88 billion (at an exchange rate of Rs 40/\$).

12.5. The aggregate investment target derived above is broadly consistent with estimates of investment requirements based on sector specific requirements emerging from reports of the Working Groups constituted by the Planning Commission and by Inter-Ministerial Committees under the aegis of the Committee on Infrastructure. The relevant quantitative targets for these sectors in the Eleventh Plan are presented in Box 12.1 and the resulting investment totals and sector-wise details are presented in Tables 12.3 and 12.4. Total investment in infrastructure on this basis during the Eleventh Plan

**TABLE 12.1**  
**GCF in Infrastructure Based on Growth Targets (Top-down Estimates)**

		(at 2006–07 price)					
Year		2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
		Eleventh Plan Period					
1.	GDP at market prices (Rs crore)	4145810	4518933	4925637	5368944	5852149	6378843
2.	Rate of growth of GDP (%)	9.00	9.00	9.00	9.00	9.00	9.00
3.	GCF in infrastructure as % of GDP	5.00	5.75	6.50	7.25	8.00	9.00
4.	GCF in infrastructure (Rs crore)	207291	259839	320166	389248	468172	574096
5.	GCF in infrastructure (US\$ billion)	51.82	64.96	80.04	97.31	117.04	143.52
6.	<b>Total GCF in Eleventh Plan</b>	<b>Rs 2011521 crore or US\$ 502.88 billion</b>					

Source: CSO for estimates for 2006–07, and computations of the Planning Commission.

**Box 12.1**  
**Infrastructure—Deficit and Eleventh Plan Physical Targets**

Sector	Deficit	Eleventh Plan Targets
Roads/Highways	65590 km of NH comprise only 2% of network; carry 40% of traffic; 12% 4-laned; 50% 2-laned; and 38% single-laned	6-lane 6500 km in GQ; 4-lane 6736 km NS-EW; 4-lane 20000 km; 2-lane 20000 km; 1000 km Expressway
Ports	Inadequate berths and rail/road connectivity	New capacity: 485 m MT in major ports; 345 m MT in minor ports
Airports	Inadequate runways, aircraft handling capacity, parking space and terminal buildings	Modernize 4 metro and 35 non-metro airports; 3 greenfield in NER; 7 other greenfield airports
Railways	Old technology; saturated routes; slow speeds (freight: 22 kmph; passengers: 50 kmph); low payload to tare ratio (2.5)	8132 km new rail; 7148 km gauge conversion; modernize 22 stations; dedicated freight corridors
Power	13.8% peaking deficit; 9.6% energy shortage; 40% transmission and distribution losses; absence of competition	Add 78577 MW; access to all rural households
Irrigation	1123 BCM utilizable water resources; yet near crisis in per capita availability and storage; only 43% of net sown area irrigated	Develop 16 mha major and minor works; 10.25 mha CAD; 2.18 mha flood control
Telecom/IT	Only 18% of market accessed; obsolete hardware; acute human resources' shortages	Reach 600 m subscribers—200 m in rural areas; 20 m broadband; 40 m Internet

is projected at Rs 2056150 crore (or US\$ 514.04 billion at Rs 40/\$).

12.6. The strategy for infrastructure development in the Eleventh Plan reflects the dominant role of the public sector in building infrastructure. However, it also recognizes that the total resources required to meet the deficit in infrastructure exceed the capacity of the public sector. It

is, therefore, necessary to attract private investment through appropriate forms of public private partnerships to meet the overall investment requirements.

12.7. The relative role of the public and private sectors will vary. In some sectors such as irrigation and water resources management, construction of rural roads, capital dredging at major ports, as well as in certain economically



or situationally disadvantaged regions, the bulk of the investment in infrastructure would have to come from the public sector. Available public sector resources must therefore be directed to these sectors as a matter of priority. Precisely for this reason, PPPs must be seriously explored in other areas.

12.8. In building infrastructure for the future, it is also necessary to develop capacity that comes up to world-class performance standards. Both the Centre and the States must keep their policies under close review to ensure that new infrastructure, whether built by the public sector or the private sector, comes up to these standards.

12.9. A beginning has been made in the public sector, by setting targets for various infrastructure sectors to address the gaps in quantity and quality. Going in to the Eleventh Plan, the strategy would entail strengthening and consolidating these infrastructure-related initiatives, such as Bharat Nirman for building rural infrastructure, and sectoral initiatives, such as the RGGVY, APDRP, Accelerated Irrigation Benefit Programme (AIBP), NHDP, National Maritime Development Programme (NMDP) and the JNNURM.

12.10. The strategy for the Eleventh Plan also encourages private sector participation directly as well as through various forms of PPPs where desirable and feasible. As shown in Table 12.4, the share of the private sector in infrastructure investment will have to rise substantially from about 20% anticipated in the Tenth Plan to around 30% in the Eleventh Plan. It is expected that as in the case of the telecommunications sector, competition and private investment will not only expand capacity but also improve the quality of service in Indian infrastructure.

12.11. Achieving high volumes of private investment in infrastructure is not easy. It is necessary to develop an environment which is both attractive to investors and also seen to be fair to consumers, especially since many (but not all) infrastructure projects have an element of monopoly. This calls for an environment in which either the market itself is competitive giving consumers a choice among different suppliers, as in the case with telecommunications or freight container carriers; or concessions are given to the most competitive bidders in an environment where regulatory system limits user charges to reasonable levels and regulations set appropriate standards of service as in the case of airports, ports and roads.

12.12. The approach to PPPs must remain firmly grounded in principles which ensure that PPPs are formulated and executed in public interest with a view to achieving additional capacity and delivery of public services at reasonable cost. These partnerships must ensure the supplementing of scarce public resources for investment in infrastructure sectors, while improving efficiencies and reducing costs. As noted in the Approach to the Eleventh Plan, PPPs must aim at bringing private resources into public projects, not public resources into private projects.

12.13. The government's current initiatives in the area of PPPs are designed to achieve these objectives. Private investment in infrastructure is being encouraged in an environment which ensures competition and transparent regulation. Protection of public interest is being ensured by institutionalizing the necessary frameworks and processes for due diligence, checks and balances. Unless governance issues, such as those related to competition in service provision, collection of user charges, institutional capacity, regulation and dispute resolution are adequately addressed, financing or mobilization of sufficient resources for the requisite infrastructure investment may not be possible.

## PROJECTIONS OF INVESTMENT IN INFRASTRUCTURE

12.14. The investment required by the Central and State Governments and the private sector in each of the ten major physical infrastructure sectors for sustaining a growth rate of 9% in GDP over the Eleventh Plan (2007–08 to 2011–12) and corresponding to the quantitative targets for the Eleventh Plan as presented in Box 12.1 is given in Table 12.4. The total investment amounts to Rs 2056150 crore. This level of investment amounts to an average of 7.6% of GDP (Table 12.2) during the Eleventh Plan as a whole.

12.15. A comparative picture of the sector-specific allocations in these two Plan periods is given in Table 12.3. Compared with investment levels achieved in the Tenth Plan period, the expected infrastructure investment in the Eleventh Plan is 2.36 times the amount of Rs 871445 crore or US\$ 217.86 billion at constant 2006–07 price.

12.16. The telecom, transportation (comprising ports and airports), and storage improve their share in the total investment in the Eleventh Plan as compared to their share in the Tenth Plan. Irrigation, electricity and the transportation sectors comprising roads and railways are expected to invest more than double the actual absolute

**TABLE 12.2**  
**Projected Investment as Percentage of GDP (Bottom-up Estimates)**

(Rs crore at 2006–07 price)							
Years	Base year (2006–07 of Tenth Plan) (BE/RE)	2007–08	2008–09	2009–10	2010–11	2011–12	Total Eleventh Plan
GDP	4145810	4518933	4925637	5368944	5852149	6378843	27044506
Public Investment	175388	192107	227327	273543	332355	411226	1436559
Private Investment	49858	78166	94252	115724	146762	184687	619591
<b>Total investment</b>	<b>225246</b>	<b>270273</b>	<b>321579</b>	<b>389266</b>	<b>479117</b>	<b>595913</b>	<b>2056150</b>
Investment as Percentage of GDP							
Public	4.23	4.25	4.62	5.09	5.68	6.45	5.31
Private	1.20	1.73	1.91	2.16	2.51	2.89	2.29
<b>Total</b>	<b>5.43</b>	<b>5.98</b>	<b>6.53</b>	<b>7.25</b>	<b>8.19</b>	<b>9.34</b>	<b>7.60</b>

Source: CSO for 2006–07, and computations of the Planning Commission.

**TABLE 12.3**  
**Sector-wise Investment Anticipated in the Tenth Plan and Projected for the Eleventh Plan**

(Rs crore at 2006–07 price)							
Sectors	Tenth Plan (Anticipated investment)			Eleventh Plan (Projected investment)			
	Rs	US\$ billion	Shares	Rs	US\$ billion @	Shares	
	crore	@ Rs 40/\$	(%)	crore	Rs 40/\$	(%)	
Electricity (incl. NCE)	291850	72.96	33.49	666525	166.63	32.42	
Roads and Bridges	144892	36.22	16.63	314152	78.54	15.28	
Telecommunication	103365	25.84	11.86	258439	64.61	12.57	
Railways (incl. MRTS)	119658	29.91	13.73	261808	65.45	12.73	
Irrigation (incl. Watershed)	111503	27.88	12.80	253301	63.32	12.32	
Water Supply and Sanitation	64803	16.20	7.44	143730	35.93	6.99	
Ports	14071	3.52	1.61	87995	22.00	4.28	
Airports	6771	1.69	0.78	30968	7.74	1.51	
Storage	4819	1.20	0.55	22378	5.59	1.09	
Gas	9713	2.43	1.11	16855	4.21	0.82	
<b>Total (Rs crore)</b>	<b>871445</b>	<b>217.86</b>	<b>100.00</b>	<b>2056150</b>	<b>514.04</b>	<b>100.00</b>	

Source: Annual Plans and other Planning Commission documents and CSO.

investment in the Eleventh Plan, but would register some decline as a proportion in the overall pie. The need for investment in the electricity sector is greater than what has been projected in this chapter. However, a realistic assessment suggests that even the projections made in this chapter would pose serious policy and implementation challenges. If these challenges can be overcome in time, actual investments could exceed these projections.

## PUBLIC PRIVATE BALANCE

12.17. Table 12.4 presents a breakup of investment in the public sector component showing the Centre and States

separately and the private sector component for each sector for the Tenth Plan and for the Eleventh Plan. The anticipated public sector share of investment in the Tenth Plan across the ten major sectors was 80% and the balance 20% was contributed by the private sector. In the Eleventh Plan, the private sector's contribution would have to grow to around 30% or Rs 619591 crore (US\$ 154.90 billion). Roads and bridges, telecommunications, ports, airports, storage and gas distribution are projected at higher than average private sector contribution ranging upwards of 30%, with over 60% in ports, airports and telecommunications. In the Eleventh Plan, private sector participation in asset

**TABLE 12.4**  
**Projected Investment in Infrastructure during Eleventh Five Year Plan**

Sector	Tenth Plan (Anticipated Expendr.)	2007-08	2008-09	2009-10	2010-11	2011-12	(Rs crore at 2006-07 price)	
							Total Eleventh Plan	Share (%)
<b>Electricity (incl. NCE)</b>	<b>291850</b>	<b>81954</b>	<b>101553</b>	<b>126380</b>	<b>158027</b>	<b>198611</b>	<b>666525</b>	
Centre	102463	37808	43469	49989	57631	66420	255316	38.31
States	97553	20978	29729	41357	56670	76963	225697	33.86
Private	91834	23168	28355	35034	43726	55228	185512	27.83
<b>Roads and Bridges</b>	<b>144892</b>	<b>51822</b>	<b>54789</b>	<b>59200</b>	<b>68370</b>	<b>79971</b>	<b>314152</b>	
Centre	71534	18318	19446	20673	22618	26304	107359	34.17
States	66354	17534	18150	18889	20613	24815	100000	31.83
Private	7004	15970	17193	19638	25140	28852	106792	33.99
<b>Telecommunications</b>	<b>103365</b>	<b>31375</b>	<b>38134</b>	<b>48593</b>	<b>61646</b>	<b>78690</b>	<b>258439</b>	
Centre	49013	13525	14037	16061	17728	19401	80753	31.25
Private	54352	17850	24098	32532	43918	59289	177686	68.75
<b>Railways (incl. MRTS)</b>	<b>119658</b>	<b>34225</b>	<b>40964</b>	<b>49525</b>	<b>60393</b>	<b>76701</b>	<b>261808</b>	
Centre	108950	25925	31176	37974	46685	59693	201453	76.95
States (MRTS)	10402	1575	1788	1979	2170	2489	10000	3.82
Private	307	6725	8000	9572	11537	14519	50354	19.23
<b>Irrigation (incl. Watershed)</b>	<b>111503</b>	<b>27497</b>	<b>35916</b>	<b>47189</b>	<b>62266</b>	<b>80433</b>	<b>253301</b>	
Centre	13617	3367	4006	4782	5726	6879	24759	9.77
States	97886	24130	31911	42407	56540	73554	228543	90.23
<b>Water Supply &amp; Sanitation</b>	<b>64803</b>	<b>19298</b>	<b>22781</b>	<b>27323</b>	<b>33266</b>	<b>41063</b>	<b>143730</b>	
Centre	42316	5152	6411	7991	9976	12474	42003	29.22
States	21465	13500	15558	18308	21995	26945	96306	67.00
Private	1022	646	812	1024	1295	1645	5421	3.77
<b>Ports</b>	<b>14071</b>	<b>12409</b>	<b>14822</b>	<b>17374</b>	<b>19980</b>	<b>23410</b>	<b>87995</b>	
Centre	2185	4898	5698	6243	6350	6700	29889	33.97
States	1530	598	658	724	796	850	3627	4.12
Private	10356	6913	8466	10407	12833	15860	54479	61.91
<b>Airports</b>	<b>6771</b>	<b>5208</b>	<b>5520</b>	<b>5904</b>	<b>6646</b>	<b>7690</b>	<b>30968</b>	
Centre	3823	1146	1369	1894	2205	2674	9288	29.99
States	12	50	—	—	—	—	50	0.16
Private	2936	4012	4151	4010	4441	5016	21630	69.85
<b>Storage</b>	<b>4819</b>	<b>3777</b>	<b>4098</b>	<b>4446</b>	<b>4824</b>	<b>5234</b>	<b>22378</b>	
Centre	577	755	820	889	965	1047	4476	20.00
States	866	1133	1229	1334	1447	1570	6713	30.00
Private	3377	1888	2049	2223	2412	2617	11189	50.00
<b>Gas</b>	<b>9713</b>	<b>2708</b>	<b>3003</b>	<b>3332</b>	<b>3700</b>	<b>4111</b>	<b>16855</b>	
Centre	8713	1714	1874	2049	2240	2450	10327	61.27
Private	1000	995	1129	1283	1460	1661	6528	38.73
<b>Total (Rs crore)</b>	<b>871445</b>	<b>270273</b>	<b>321579</b>	<b>389266</b>	<b>479117</b>	<b>595913</b>	<b>2056150</b>	
Centre	403189	112608	128305	148545	172123	204041	765622	37.24
States	296068	79499	99022	124998	160232	207186	670937	32.63
Private	172188	78166	94252	115724	146762	184687	619591	30.13

(Table 12.4 contd.)

(Table 12.4 contd.)

Sector	Tenth Plan (Anticipated Expendr.)	(Rs crore at 2006–07 price)					Total Eleventh Plan	Share (%)
		2007–08	2008–09	2009–10	2010–11	2011–12		
<b>Total (US\$ bn) @Rs 40/\$</b>	<b>217.86</b>	<b>67.57</b>	<b>80.39</b>	<b>97.32</b>	<b>119.78</b>	<b>148.98</b>	<b>514.04</b>	
Centre	100.80	28.15	32.08	37.14	43.03	51.01	191.41	37.24
States	74.02	19.87	24.76	31.25	40.06	51.80	167.73	32.63
Private	43.05	19.54	23.56	28.93	36.69	46.17	154.90	30.13
<b>Total (Rs crore)</b>	<b>871445</b>	<b>270273</b>	<b>321579</b>	<b>389266</b>	<b>479117</b>	<b>595913</b>	<b>2056150</b>	
Public	699257	192107	227327	273543	332355	411226	1436559	69.87
Private	172188	78166	94252	115724	146762	184687	619591	30.13
<b>Total (US\$ bn)@Rs 40/\$</b>	<b>217.86</b>	<b>67.57</b>	<b>80.39</b>	<b>97.32</b>	<b>119.78</b>	<b>148.98</b>	<b>514.04</b>	
Public	174.81	48.03	56.83	68.39	83.09	102.81	359.14	69.87
Private	43.05	19.54	23.56	28.93	36.69	46.17	154.90	30.13

Source: Annual Plans and other documents of the Planning Commission and CSO for the Tenth Plan period and computations of the Planning Commission for the Eleventh Plan period.

creation in roads and bridges, storage and gas distribution ranges between 34 and 50%, with electricity somewhat lower at 28% even as compared to the overall private sector average of 30%.

12.18. Central share in the overall infrastructure investment would decline from 46% in the Tenth Plan to 37.24% in the Eleventh Plan and the States' share will slightly decline to 32.63% compared to 34% anticipated in the Tenth Plan. Sector-wise, public and private shares as well as the shares of the Centre and States anticipated to be realized for the Tenth Plan are presented in Annexure 12.1. Comparable details for the projections of infrastructure investment for each year of the Eleventh Plan are shown in Table 12.4.

## RURAL INFRASTRUCTURE

12.19. Improvement in rural infrastructure is crucial for broad-based inclusive growth of the economy and for bridging the ruralurban divide. The government has launched in 2005, a special programme, Bharat Nirman, for upgradation of rural infrastructure which aims to provide electricity to the remaining 125000 villages and to 23 million households; to connect the remaining 66802 habitations with all weather roads and construct 146185 km of new rural roads network; to provide drinking water to 55067 uncovered habitations; to provide irrigation to an additional 10 million hectares; and connect the remaining 66822 villages with telephones. It is estimated that out of the total projected investment of Rs 1436559

**TABLE 12.5**  
**Projected Investment in Rural Infrastructure**

Sector	(Rs crore at 2006–07 price)	
	Projected Investment	
Electricity	34000	
Rural Roads	41347	
Telecommunications	16000	
Irrigation (incl. Watershed)	253301	
Water Supply and Sanitation	90701	
Total	435349	

Source: Computations of the Planning Commission.

crore to be incurred by the Centre and the states in the Eleventh Plan, Rs 435349 crore (or 30.3%) would be spent exclusively towards improvement of rural infrastructure. The distribution across sectors is indicated in Table 12.5.

## ROLE OF THE PUBLIC SECTOR

12.20. The public sector, including the public corporate sector, would continue to play a dominant role in investment for infrastructure. The total public sector investment envisaged in the Eleventh Plan is Rs 765622 crore by the Centre and Rs 670937 crore by the States. Investment by the private sector, which includes PPP projects, makes up the balance of Rs 619591 crore, which is 30% of the required investment during the Eleventh Plan a much higher share than the anticipated 20% during the Tenth Plan.

12.21. Of the projected investment of Rs 765622 crore by the Central Government, Rs 565622 crore is likely to be funded out of IEBR. In the case of States, Rs 444671 crore is expected from budgetary resources while about Rs 226266 crore is expected from their IEBR, as per details in Table 12.6. This would require a much higher scale of effort by the public sector undertakings, especially for raising debt on commercial terms.

### THE NEED FOR DEBT FINANCING

12.22. The total requirement of debt by the public and private sectors is likely to be Rs 988035 crore (US\$

247.01 billion). However, the availability of debt financing for infrastructure during the Eleventh Plan is estimated at Rs 825539 crore or US\$ 206.38 billion. There is a funding gap of Rs 162496 crore or US\$ 40.62 billion for the debt component, the details of which are given in Table 12.7. Measures would have to be taken for addressing this gap.

12.23. The required investment in infrastructure would be possible only if there is a substantial expansion in internal generation and extra-budgetary resources of the public sector, in addition to a significant rise in private investment. The share of the private sector in total

**TABLE 12.6**  
**Source-wise Projected Investment**

	(Rs crore at 2006–07 price)					
	2007–08	2008–09	2009–10	2010–11	2011–12	Total Eleventh Plan
<b>1. Centre</b>	<b>112608</b>	<b>128305</b>	<b>148545</b>	<b>172123</b>	<b>204041</b>	<b>765622</b>
Central Budget	29416	33517	38804	44963	53301	200000
Internal Generation (IEBR)	24958	28437	32922	38148	45222	169687
Borrowings (IEBR)	58234	66352	76819	89012	105518	395936
<b>2. States</b>	<b>79499</b>	<b>99022</b>	<b>124998</b>	<b>160232</b>	<b>207186</b>	<b>670937</b>
States Budgets	52689	65628	82844	106195	137315	444671
Internal Generation (IEBR)	8043	10018	12646	16211	20961	67880
Borrowings (IEBR)	18767	23376	29508	37826	48910	158386
<b>3. Private</b>	<b>78166</b>	<b>94252</b>	<b>115724</b>	<b>146762</b>	<b>184687</b>	<b>619591</b>
Internal Accruals/Equity	23450	28726	34717	44029	55406	185877
Borrowings	54716	65976	81006	102733	129281	433713
<b>4. Total Projected Investment</b>	<b>270273</b>	<b>321579</b>	<b>389266</b>	<b>479117</b>	<b>595913</b>	<b>2056150</b>
Non-Debt	138555	165875	201933	249546	312205	1068114
Debt	131718	155704	188333	229571	283709	988035

Source: Computations of the Planning Commission.

**TABLE 12.7**  
**Likely Sources of Debt**

	(Rs crore at 2006–07 price)					
	2007–08	2008–09	2009–10	2010–11	2011–12	Total Eleventh Plan
1 Domestic Bank Credit	49848	63207	80147	101626	128862	423691
2 Non-Bank Finance Companies	23852	31485	41560	54859	72415	224171
3 Pension/Insurance Companies	9077	9984	10983	12081	13289	55414
4 External Commercial Borrowing (ECB)	19593	21768	24184	26868	29851	122263
5 <b>Likely Total Debt Resources</b>	<b>102370</b>	<b>126444</b>	<b>156874</b>	<b>195435</b>	<b>244416</b>	<b>825539</b>
6 <b>Estimated Requirement of Debt (from Table 12.6)</b>	<b>131718</b>	<b>155704</b>	<b>187333</b>	<b>229571</b>	<b>283709</b>	<b>988035</b>
US\$ Billion	32.93	38.93	46.83	57.39	70.93	247.01
7 <b>Gap between Estimated Requirement and Likely Debt Resources (6–5)</b>	<b>29348</b>	<b>29260</b>	<b>30460</b>	<b>34136</b>	<b>39292</b>	<b>162496</b>
US\$ Billion	7.34	7.31	7.61	8.53	9.82	40.62

Source: Computations of the Planning Commission.

infrastructure investment of around 30% overall, is far higher in some sectors, for instance in telecommunications, ports and airports where over 60% of the investments would have to come from the private sector. As a pre-requisite, this would require large infrastructure projects to be structured on sound commercial principles in an enabling policy and regulatory environment. If these initiatives succeed, India would deliver a large programme of PPPs, even by international standards, details of which are given in the next section.

### COMMITTEE ON INFRASTRUCTURE

12.24. In order to provide direction to the effort to prioritize infrastructure development including, especially, the PPP effort, Government constituted a Committee on Infrastructure (CoI) in August 2004 under the chairmanship of the Prime Minister, with the objectives of initiating policies that would ensure time-bound creation of world class infrastructure, delivering services matching international standards, developing structures that maximize the role of PPPs and monitoring progress of key infrastructure projects to ensure that established targets are realized. The CoI is serviced by the Planning Commission through the Secretariat for the Committee.

12.25. CoI has identified several areas of reforms. The following Model Concession Agreements, Reports and Guidelines finalized under the aegis of CoI have been published by the Planning Commission:

- Guidelines for Financial Support to PPPs in Infrastructure.
- Guidelines on Formulation, Appraisal and Approval of PPP Projects.
- Scheme for Financing Infrastructure Projects through the India Infrastructure Finance Company Ltd. (IIFCL).
- MCA for PPPs in Highways.
- Report of the Task Force on the Delhi-Mumbai and Delhi-Howrah Freight Corridors.
- Report of the COS on Road Rail Connectivity of Major Ports.
- Report of the Core Group on Financing of the NHDP.
- Report of the Task Force on Financing Plan for Airports.
- Report of the Inter-Ministerial Groups on Customs Procedures and Functioning of Container Freight Station and Ports.
- Report of the Inter-Ministerial Group on Restructuring of National Highways Authority of India (NHAI).
- Report of the Task Force on Tariff Setting and Bidding Parameters for PPPs in Major Ports.
- Report of the Expert Committee on Road Safety and Traffic Management.
- MCA for Container Train Operation.
- Report of the Task Force on Financing Plan for Ports.
- Manual of Specifications and Standards for Two-Laning of Highways through PPPs
- MCA for PPPs in Ports.
- MCA for PPPs in the Operation and Maintenance of Highways.
- MCA for PPPs in State Highways.
- Guidelines for Pre-Qualification, including Model Request for Qualification (RFQ) of Bidders, for PPP projects.
- Guidelines for Invitation of Financial Bids, including Model Request for Proposal Document (RFP) for PPP projects.

### PUBLIC-PRIVATE PARTNERSHIP APPRAISAL COMMITTEE (PPPAC)

12.26. PPP projects typically involve transfer or lease of public assets, delegation of government authority for recovery of user charges, operation and/or control of public utilities/services in a monopolistic environment and sharing of risk and contingent liabilities by the government. With a view to conducting a thorough scrutiny and due diligence in the formulation, appraisal and approval of PPP projects, the Ministry of Finance in consultation with the Planning Commission has constituted a PPPAC consisting of the Secretary, Department of Economic Affairs, as chairman and Secretaries of the Planning Commission, Department of Expenditure, Department of Legal Affairs and the Administrative Department concerned, as members of the Committee.

12.27. PPP project proposals costing Rs 100 crore and above received from ministries/departments of the GoI are considered for approval by PPPAC. The PPP project proposals costing less than Rs 100 crore are considered for approval by the existing EFC mechanism.

12.28. A PPP Appraisal Unit (PPPAU) has also been set up within the Secretariat for CoI in the Planning Commission to appraise PPP projects received from Central and State/UT governments for VGF under the Scheme for Financial Support to PPPs in infrastructure.

### INDIA INFRASTRUCTURE FINANCE COMPANY LIMITED (IIFCL)

12.29. IIFCL was incorporated by the Ministry of Finance in consultation with the Planning Commission for providing long-term loans for financing infrastructure projects that typically involve long gestation periods. IIFCL provides financial assistance up to 20% of the project cost both through direct lending to project companies and by refinancing banks and financial institutions. IIFCL raises funds from both domestic and overseas markets on the strength of government guarantees, which are extended, if considered necessary.

### MODEL CONCESSION DOCUMENTS

12.30. Because of the nature of the risks and the involvement of many participants in PPPs including project sponsors, lenders, government agencies and regulatory authorities, the terms of the project agreements as well as the tendering arrangements are usually complex. Given the complexity of PPP contracts and the exposure of government in such contracts, standardized documents and arrangements that provide predictability and mitigate risk to private capital are regarded as the best option for implementing a PPP programme of the magnitude envisioned under the Eleventh Plan. The use of standard documents also simplifies and expedites decision-making by the authorities. The CoI has, therefore, mandated the adoption of model documents. Projects that are based on duly approved MCAs do not require in-principle clearance from PPPAC prior to inviting expressions of interest.

12.31. The MCA for PPP projects in national highways was approved by the CoI and published in 2006. The Planning Commission has also published MCAs for ports, state highways, and operation and maintenance of highways that will serve as best practice guidance for the ministries and State Governments undertaking

PPPs. Similarly, MCA for Operation of Container Trains has also been approved and adopted. MCAs for PPPs in other sectors, such as urban rail systems, airports, re-development of railway stations and public accommodation are under preparation. Standardized guidelines that incorporate key principles relating to the bid process for PPP projects have also been developed. Guidelines for the pre-qualification of bidders along with a Model Request for Qualification Document have been approved by CoI for application to all PPP projects. Guidelines for inviting financial bids on the basis of a Model RFP have also been approved and notified.

### FINANCING

12.32. Recognizing that externalities engendered by infrastructure projects cannot always be captured by project sponsors, the VGF Scheme was notified in 2006 to enhance the commercial viability of competitively bid infrastructure projects which are justified by economic returns, but do not pass standard thresholds of financial returns. Under the scheme, grant assistance of up to 20% of project capital costs can be provided by the Central government to PPP projects, thus leveraging budgetary resources to access a larger pool of private capital. An additional grant of up to 20% of project costs can be provided by the sponsoring ministry or State Government.

### CO-OPERATION OF STATE GOVERNMENTS

12.33. In a federal country like India, cooperation and support of State Governments is essential for development of world class infrastructure. The State Governments' support in maintenance of law and order, land acquisition, rehabilitation and settlement of displaced persons, shifting of utilities and obtaining environmental clearances is necessary. Many State Governments have also initiated several PPP projects to improve infrastructure.

**ANNEXURE 12.1**  
**Anticipated Plan Investment in Infrastructure in the Tenth Plan**

(Rs crore at 2006–07 price)

	2002–03 (Actual)	2003–04 (Actual)	2004–05 (Actual)	2005–06 (Actual/RE)	2006–07 (BE/RE)	Tenth Plan Anticipated	Share (%)
Electricity (incl. NCE)	47612	53485	56956	62268	71529	291850	
Centre	14219	17336	19708	22867	28332	102463	35.11
States	20467	20566	18819	18329	19372	97553	33.43
Private	12926	15583	18428	21071	23825	91834	31.47
Roads	26605	20564	21379	34278	42065	144892	
Centre	15869	8761	8442	17509	20953	71534	49.37
States	9724	9693	11321	16083	19534	66354	45.80
Private	1013	2111	1616	686	1578	7004	4.83
Telecommunication	21644	12924	18108	24599	26090	103365	
Centre	15690	8649	9508	7957	7208	49013	47.42
Private	5954	4274	8600	16642	18882	54352	52.58
Railways (incl. MRTS)	18260	20366	22327	26117	32589	119658	
Centre	16644	18671	20362	23626	29647	108950	91.05
States	1616	1695	1964	2327	2800	10402	8.69
Private	–	–	–	165	142	307	0.26
Irrigation (incl. Watershed)	17467	18651	24770	25548	25068	111503	
Centre	2303	2318	2911	2884	3200	13617	12.21
States	15163	16333	21859	22663	21868	97886	87.79
Water Supply and Sanitation	9616	11040	12681	13749	17716	64803	
Centre	6936	7292	8470	8370	11248	42316	65.30
States	2520	3391	3925	5217	6411	21465	33.12
Private	159	357	286	162	57	1022	1.58
Ports	823	1379	4013	4516	3339	14071	
Centre	573	350	377	434	451	2185	15.53
States	250	280	300	340	360	1530	10.87
Private	–	749	3336	3742	2529	10356	73.60
Airports	535	659	691	1858	3029	6771	
Centre	533	653	670	927	1040	3823	56.46
States	–	–	–	–	12	12	0.18
Private	2	6	21	931	1977	2936	43.36
Storage	1851	1906	64	149	850	4819	
Centre	511	240	(-) 143	(-) 128	96	577	11.97
States	767	360	(-) 214	(-) 192	144	866	17.96
Private	574	1305	421	469	609	3377	70.07
Gas	1051	3399	464	1826	2972	9713	
Centre	921	3239	254	1586	2712	8713	89.70
Private	130	160	210	240	260	1000	10.30
<b>Total (Rs crore)</b>	<b>145465</b>	<b>144372</b>	<b>161453</b>	<b>194909</b>	<b>225246</b>	<b>871445</b>	
Centre	74201	67508	70560	86033	104887	403189	46.27
States	50507	52318	57974	64767	70501	296068	33.97
Private	20757	24546	32918	44108	49858	172188	19.76

(Annex 12.1 contd.)



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(Annex 12.1 contd.)

	(Rs crore at 2006–07 price)						
	2002–03 (Actual)	2003–04 (Actual)	2004–05 (Actual)	2005–06 (Actual/RE)	2006–07 (BE/RE)	Tenth Plan Anticipated	Share (%)
<b>Total (US\$ bn)</b>	<b>36.37</b>	<b>36.09</b>	<b>40.36</b>	<b>48.73</b>	<b>56.31</b>	<b>217.86</b>	
Centre	18.55	16.88	17.64	21.51	26.22	100.80	46.27
States	12.63	13.08	14.49	16.19	17.63	74.02	33.97
Private	5.19	6.14	8.23	11.03	12.46	43.05	19.76
<b>Total (Rs crore)</b>	<b>145465</b>	<b>144372</b>	<b>161453</b>	<b>194909</b>	<b>225246</b>	<b>871445</b>	
Public	124708	119827	128535	150800	175388	699257	80.24
Private	20757	24546	32918	44108	49858	172188	19.76
<b>Total (US\$ bn)</b>	<b>36.37</b>	<b>36.09</b>	<b>40.36</b>	<b>48.73</b>	<b>56.31</b>	<b>217.86</b>	
Public	31.18	29.96	32.13	37.70	43.85	174.81	80.24
Private	5.19	6.14	8.23	11.03	12.46	43.05	19.76

Source: Annual Plans and other documents of the Planning Commission and CSO.

## External Environment

### Opportunities, Challenges, and Risks

13.1. The strategy for Eleventh Plan must take into account the fact that our economy is now much more open to foreign trade and capital flows than it was fifteen years ago and is therefore more linked to the global economy. A globalized world is clearly one in which individual countries are more influenced by what happens elsewhere in terms of world prices, changes in world trade patterns and prices, changes in global capital market conditions and associated investor perceptions, changes in technology etc. The impact of globalization on developing countries has been much discussed and it is generally accepted that it presents both opportunities and also poses challenges and risks. These challenges are not identical for each country, because individual country circumstances differ. In this chapter we review the experience with managing trade and capital flows in the Tenth Plan and discuss some of the critical challenges arising from the external environment which we are likely to face.

#### MANAGING TRADE AND CAPITAL FLOWS

13.2. Managing the balance of payments is obviously one important challenge and an assessment of prospects in this dimension has been one of the basic functions of macroeconomic planning. This challenge is particularly large because of the changes that have taken place in our system of economic management since the liberalization of the economy in the Eighth Plan. It is important to note that transition to the new liberalized system has not posed problems on the external front. We have not had a balance of payments crisis since 1991, despite the global slow down after the East Asian crisis of 1997 and the sharp rise in oil prices in 2005. Contrary to the traditional fears

that liberalization would exacerbate the scarcity of foreign exchange and make it difficult to manage the external of payments position, our actual experience has been a surfeit of riches.

13.3. Imports of goods and services have indeed increased as a percentage of GDP from about 10% in 1990–91 to 26% in 2006–07. However this increase has been paralleled by a corresponding increase in the exports of goods and services, particularly the latter, with the ratio as a percentage of GDP moving from 7.3% in 1990–91 to 22.8% in 2006–07. The current account deficit in recent years has varied from a small surplus, for example, 1.25% in 2002–03 and 2.31% in 2003–04 to a small deficit thereafter. The deficit is expected to be only –1.05 % of GDP in 2006–07. This compares with a deficit of –3.05% in 1990–91. Fortunately, managing deficit of this order will not present problems given the growing recognition of India’s potential attractiveness as an investment destination. However, openness to capital flows can present problems for policy which need to be carefully calibrated. As far as trade is concerned, we need to exploit export opportunities opened by access to global markets by expanding our export of goods and services thus generating high quality employment. Countries such as China have exploited these opportunities very well and we need to learn from their experience. On the import front we need to be aware of the potentially disruptive effect of exposing domestic producers especially small producers to competitive pressure without giving them time for adjustment and assisting them where possible to improve their competitive capacity. Fortunately, the graduated pace of change followed thus far has avoided serious negative effect but

much more needs to be done in this area to ensure that the benefits of trade expansion and access to global opportunities are more broadly shared and that special attention is paid to its gender aspects.

## REVIEW OF EXPORTS IN THE TENTH PLAN

13.4. The broad composition of exports during the Tenth Plan is shown in Table 13.1. Total exports grew at about 24% per year but this was largely because petroleum

growth during the terminal year of the Tenth Plan. Gems and jewellery, which has been a leading item in India's export basket sustained a reverse because of the decision of the US Government to withdraw the GSP benefit, whereby Indian exports have lost the preferential tariff advantage over some of the competing supplying countries that were not receiving the benefits earlier. The deceleration of manufacturing sector exports during the last two years is also a reflection of the fact that petroleum products are

**TABLE 13.1**  
**Composition of Exports during the Tenth Plan**

Commodity Group	2002–03		2003–04		2004–05		2005–06		2006–07*		CAGR
	% share	% growth	% share	% growth	% share	% growth	% share	% growth	% share	% growth	
Agri. and Allied Products	12.73	13.71	11.8	12.27	10.14	12.5	9.91	20.52	9.91	22.53	16.22
Ores and Minerals	3.78	58.12	3.71	18.67	6.08	114.4	5.98	21.36	5.57	14.11	40.99
Manufactured Goods	76.33	20.62	75.95	20.5	72.7	25.24	70.38	19.48	65.51	14.05	19.92
Petroleum Products	4.89	21.58	5.59	38.5	8.37	95.87	11.29	66.53	14.69	59.39	54.32
Others	2.27	1.15	2.95	57.37	2.71	20.28	2.44	11.15	4.29	115.43	35.60
<b>Total</b>	<b>100</b>	<b>20.29</b>	<b>100</b>	<b>21.1</b>	<b>100</b>	<b>30.85</b>	<b>100</b>	<b>23.41</b>	<b>100</b>	<b>22.54</b>	<b>23.58</b>

Note: \*Figures are provisional.

Source: DGCI&S.

products grew at 54.32%. Manufactured goods recorded an impressive compound annual growth rate of 19.92% and exports of agricultural and allied products also rose at a healthy rate of 16.22%. The share of petroleum products in the export basket rose substantially at the expense of manufactured and agricultural goods. Supported by strong commodity prices, the share of ores and minerals was stable around 6% during the last three years as compared to about 3.7% during first two years.

13.5. The growth rate of exports of agriculture and allied products picked up during the last two years of the Tenth Plan supported by a sudden and substantial spurt in the exports of raw cotton and continued good performance by the 'agriculture and allied products' group. The share of manufactured products in the export basket was affected by the slowing down of exports in two major sectors, that is, textiles and clothing and gems and jewellery. The textiles and clothing sector grew at a healthy pace of 12.14 % during the four years of the Tenth Plan but the growth slowed down to 3.65% during the final year when the industry was adversely affected by the exchange rate movement. The gems and jewellery sector recorded only a negligible

not classified as a manufactured product. If these products are added to manufactured goods, as they should be, the share of manufactured goods has been retained at over 80% throughout the Tenth Plan period.

13.6. The direction of India's exports may be seen in the Table 13.2. America and Europe continued to be important destinations of Indian exports although their combined share declined from 48.62 to 42.12%. There was a marginal decline also in the already low share of Commonwealth of Independent States (CIS) countries. On the other hand, the share of Asia and ASEAN steadily increased during the Tenth Plan and the region accounted for nearly half of India's exports during the last three years of the Plan period. Exports to Africa also registered a steady increase.

## REVIEW OF IMPORTS IN THE TENTH PLAN

13.7. Imports recorded a compound annual growth rate of 29.96% in dollar terms during the Tenth Plan period. The high growth of imports was mainly on account of increase in oil prices. The quantity of crude oil imported rose from about 90 MMT in 2002–03 to 130 MMT during the year 2006–07. However the dollar value of crude oil

**TABLE 13.2**  
**Direction of India's Exports**

Region	Percentage Share				
	2002–03	2003–04	2004–05	2005–06	2006–07*
<b>Europe</b>	<b>24.17</b>	<b>24.54</b>	<b>23.55</b>	<b>24.16</b>	<b>22.89</b>
EU Countries (27)	22.55	22.74	21.85	22.53	21.26
Other WE Countries	1.58	1.73	1.65	1.58	1.57
East Europe	0.04	0.07	0.05	0.05	0.06
<b>Africa</b>	<b>4.65</b>	<b>4.82</b>	<b>5.05</b>	<b>5.27</b>	<b>6.63</b>
Southern Africa	1.21	1.24	1.51	1.88	2.23
West Africa	2.02	1.99	1.98	1.84	1.91
Central Africa	0.22	0.24	0.19	0.16	0.16
East Africa	1.20	1.35	1.37	1.39	2.33
<b>America</b>	<b>24.45</b>	<b>20.97</b>	<b>20.10</b>	<b>20.72</b>	<b>19.23</b>
North America	21.99	19.19	17.52	17.82	15.85
Latin America	2.46	1.78	2.58	2.90	3.38
<b>Asia</b>	<b>44.39</b>	<b>47.60</b>	<b>49.50</b>	<b>48.38</b>	<b>49.78</b>
East Asia	1.15	1.10	1.03	0.97	1.18
ASEAN	8.76	9.12	10.09	10.10	9.95
WANA	14.28	15.95	17.04	16.19	18.22
NE Asia	14.92	14.70	15.83	15.74	15.31
South Asia	5.28	6.73	5.51	5.38	5.12
<b>CIS &amp; Baltics</b>	<b>1.75</b>	<b>1.63</b>	<b>1.31</b>	<b>1.21</b>	<b>1.17</b>
CARs Countries	0.16	0.24	0.21	0.16	0.15
Other CIS Countries	1.59	1.39	1.10	1.05	1.02
<b>Unspecified Region</b>	<b>0.59</b>	<b>0.44</b>	<b>0.49</b>	<b>0.24</b>	<b>0.27</b>
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Note: Figures are provisional.

Source: DGCIS&S.

imports in 2006–07 was more than US\$ 57 billion, against about US\$ 17.6 billion in 2002–03, that is, a more than three-fold increase over the period. The price of the Indian Basket of crude oil has increased from around US\$ 26.6/bbl in 2002–03 to US\$ 62.40 /bbl in 2006–07.

13.8. The broad composition of imports during the Tenth Plan may be seen in Table 13.3 given below. Bulk imports continued to account for a significant share of the total imports during the Tenth Plan mainly on account of crude oil. The crude oil and petroleum products taken together were the single most important category of imports during the Plan period. This group registered a compound annual growth rate of 32.45% during the Plan period accounting for about 26% to 30% of the total value of imports by India during the Tenth Plan. The share of 'other bulk items', which include important commodities like fertilizers, edible oils, non-ferrous metals, metal ores and products and iron and

steel, witnessed a perceptible increase over the Plan period with a compound growth rate of 34.85%. The share of this group increased from 10.3% in 2002–03 to 13.6% in 2006–07. Iron and steel and metalliferous ores and products are the two most important commodities of imports under the category of 'other bulk items'.

13.9. The share of machinery and project goods registered a significant increase during the Tenth Plan, increasing from 11.3% of total imports in 2002–03 to 18.1% in 2006–07. Imports of pearls, precious and semi-precious stones contracted sharply in the last two years of the Plan period after three years of very rapid growth reflecting the stagnation of exports of gems and jewellery.

13.10. The direction of the major imports may be seen in Table 13.4 The major change is that Asia and the ASEAN region recorded a significant increase during this

**TABLE 13.3**  
**Broad Composition of Imports**

Commodity Group	2002–03		2003–04		2004–05		2005–06		2006–07*		CAGR
	% share	% growth	% share	% growth	% share	% growth	% share	% growth	% share	% growth	
<b>A. Bulk Imports</b>	<b>38.98</b>	<b>20.74</b>	<b>37.44</b>	<b>22.21</b>	<b>38</b>	<b>44.82</b>	<b>40.9</b>	<b>43.96</b>	<b>43.59</b>	<b>36.16</b>	<b>33.17</b>
(i) Petroleum Crude & Products	28.72	25.99	26.32	16.61	26.76	45.09	29.48	47.31	29.95	29.82	32.45
(ii) Other Bulk Items	10.26	8.13	11.12	37.9	11.24	44.19	11.42	35.98	13.64	52.51	34.85
<b>B. Non-Bulk Imports</b>	<b>61.01</b>	<b>18.64</b>	<b>62.56</b>	<b>30.48</b>	<b>62.01</b>	<b>41.43</b>	<b>59.1</b>	<b>27.51</b>	<b>56.42</b>	<b>21.94</b>	<b>27.76</b>
(i) Pearls, Precious & Semi-Precious Stones	9.87	31.16	9.12	17.58	8.45	32.18	6.12	-3.06	3.93	-18.03	10.13
(ii) Machinery & Project Goods	11.26	26.3	12.41	40.24	12.16	39.76	14.96	64.58	18.08	54.42	44.46
(iii) Others	39.88	13.99	41.03	30.91	41.4	43.98	38.02	22.86	34.41	15.6	25.00
Of which											
– Electronic Goods	9.12	48.05	9.60	34.05	8.96	33.13	8.88	32.51	8.37	20.42	33.35
– Gold & Silver	6.98	-6.42	8.77	59.89	10.00	62.62	7.59	1.50	7.69	29.40	26.16
<b>Total</b>	<b>100.00</b>	<b>19.45</b>	<b>100.00</b>	<b>27.25</b>	<b>100.00</b>	<b>42.70</b>	<b>100.00</b>	<b>33.76</b>	<b>100.00</b>	<b>27.75</b>	<b>29.96</b>

Note: Figures are provisional.

Source: DGCI&S.

**TABLE 13.4**  
**Direction of India's Imports**

Region	Percentage Share				
	2002–03	2003–04	2004–05	2005–06	2006–07*
<b>Europe</b>	<b>24.98</b>	<b>24.04</b>	<b>22.98</b>	<b>21.18</b>	<b>23.64</b>
EU Countries (27)	20.90	19.29	17.31	17.44	18.25
Other WE Countries	4.07	4.73	5.66	4.72	5.36
East Europe	0.01	0.02	0.01	0.02	0.03
<b>Africa</b>	<b>4.71</b>	<b>3.50</b>	<b>3.02</b>	<b>2.71</b>	<b>5.97</b>
Southern Africa	3.52	2.51	2.06	1.77	1.53
West Africa	0.88	0.74	0.74	0.78	4.30
Central Africa	0.01	0.01	0.02	0.01	0.02
East Africa	0.30	0.24	0.20	0.15	0.12
<b>America</b>	<b>9.86</b>	<b>8.90</b>	<b>8.81</b>	<b>8.75</b>	<b>10.59</b>
North America	8.16	7.37	6.97	6.96	7.41
Latin America	1.70	1.53	1.84	1.79	3.18
<b>Asia</b>	<b>30.12</b>	<b>35.36</b>	<b>36.18</b>	<b>34.58</b>	<b>57.51</b>
East Asia	2.32	3.52	3.63	3.54	3.89
ASEAN	8.39	9.51	8.17	7.30	9.49
WANA	5.84	6.30	8.54	7.28	26.85
NE Asia	12.71	15.12	14.95	15.51	16.49
South Asia	0.86	0.91	0.89	0.95	0.79
<b>CIS &amp; Baltics</b>	<b>1.37</b>	<b>1.61</b>	<b>1.76</b>	<b>1.98</b>	<b>1.86</b>
CARs Countries	0.06	0.06	0.06	0.05	0.08
Other CIS Countries	1.31	1.55	1.70	1.93	1.78
<b>Unspecified Region</b>	<b>28.96</b>	<b>25.59</b>	<b>27.25</b>	<b>29.82</b>	<b>0.43</b>
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

Note: \*Figures are provisional.

Source: DGCI&S.

period mainly on account of increase of import share of West Asia due to increase in all prices. The combined share of imports from America and Europe was steady during the Plan period.

## TRADE BALANCE

13.11. The merchandise trade deficit widened sharply during the Tenth Plan as can be seen from Table 13.5, mainly on account of the growing oil import bill.

13.12. The extent to which the rising oil import values influenced the merchandise trade balance can be seen from Table 13.6 below. The substantial exports of petroleum products made a large contribution toward ameliorating the trade deficit.

**TABLE 13.5**  
**India's Trade Balance**

(Value: US\$ billion)

Year	Total Exports	Total Imports	Trade Balance
2002–03	52.7	61.4	–8.7
2003–04	63.8	78.1	–14.3
2004–05	83.5	111.5	–28.0
2005–06	103.1	149.2	–46.1
2006–07*	126.3	185.6	–59.3

Note: \*Provisional.

Source: DGCI&S.

**TABLE 13.6**  
**Balance of Trade and Petroleum Products**

(Value: US\$ billion)

	2002–03	2003–04	2004–05	2005–06	2006–07*
BoT (Billion)	–8.7	–14.3	–28.0	–46.1	–59.3
BoT (without petroleum imports)	8.9	6.3	1.9	–2.1	–7.2
BoT (excluding petroleum from import and export)	6.4	2.7	–5.1	–13.8	–25.7

Note: P= Provisional.

Source: DGCI&S.

## THE BALANCE OF PAYMENTS IN THE ELEVENTH PLAN

13.13. Projections of the balance of payments (BoP) for the Eleventh Plan have been discussed in Chapter 2. Exports are projected to grow at about 20% per year in US\$ terms which is marginally lower than the rate at

which they have been growing over the Tenth Plan. The current account deficit projected for the Eleventh Plan period could range between 1.2% and 2% of GDP. Financing a current account deficit of this order should not present a problem given the foreign capital inflows that are taking place and which can be expected to continue barring unexpectedly severe downside shock to the world economy. In fact, the capital flows we have been experiencing in recent years have proved difficult to manage leading to a sharp build up in foreign exchange reserves and upward pressure on the exchange rate which has adverse consequence.

## STRATEGY FOR EXPORTS

13.14. A vigorous strategy for promoting exports must be an important part of our strategy for managing the balance of payment in the years ahead. An enhanced target of US\$ 160 billion has been fixed for 2007–08 (the first year of the XI Plan) indicating a growth rate of 26.6%. On an average, the exports are projected to grow at the rate of about 20% or more during the Eleventh Five Year Plan period in current US\$ terms.

13.15. To achieve this target, it is necessary to achieve the general conditions that would promote rapid growth of the economy, including especially the development of efficient infrastructure services. Of these, reliable power supply is perhaps the most important especially if we wish to strengthen the competitive capacity of our middle and small enterprises. In addition it is necessary to ensure the following:

- Promoting production and exports of commercial crops and agri-based processed products.
- Facilitating the provision of critical specialized infrastructure necessary for promoting exports of various commodities including agricultural and marine products in collaboration with State Governments where necessary.
- Expansion and modernization of infrastructure and quality control mechanisms through upgradation of technology and greater use of IT.
- Strengthening of various institutions involved in consultancy, design, human resource development and information services needed for export promotion. This is especially important for exploiting the export potential of medium and small exporters.
- Strengthening the institutions providing general support services to the exporters.

13.16. In line with government's policy of according a high priority to agriculture, the Eleventh Plan must place special emphasis on promoting production and exports of commercial crops and agro-based processed products. Ageing bushes/ plants are acting as a major constraint to the growth of the plantation sector leading to decline in productivity, high cost of production and deterioration in the quality of products. With a view to ensuring healthy growth and improved productivity in the plantation sector, a Special Purpose Tea Fund (SPTF) has been set up under the Tea Board for funding assistance for re-plantation and rejuvenation of old tea. The Scheme will be implemented during the Eleventh Plan period. Similar initiatives are envisaged to be put in place for other plantation crops viz. coffee, rubber, spices, cashew and coconut.

13.17. The following areas should receive special attention during the Eleventh Plan: (i) Simplification of procedures, (ii) streamlining of documentary requirements, (iii) accelerated implementation of EDI initiatives, (iv) fuller neutralization of taxes, (v) improving infrastructure facilities to international standards, and (vi) initiating necessary institutional and structural changes. Streamlining trade data infrastructure to remove anomalies and to enable providing a sound and timely basis for policy formulation along with improved trade infrastructure would be the focus of Eleventh Five Year Plan.

13.18. In order to reduce transaction costs, time limits must be fixed for various clearances/approvals/filing of documents.

## OPPORTUNITIES IN EXPORTS OF GOODS AND SERVICES

13.19. Globalization provides us with a number of opportunities which we can exploit to our advantage provided we can take appropriate steps domestically.

## PROSPECTS FOR MANUFACTURING EXPORTS

13.20. Manufacturing was the most heavily protected sector of the Indian economy with the most extensive Quantitative Restrictions (QRs) and the highest tariff rates till the end of the 1980s. Since the early 90s, one of the objectives of Trade Policy reforms has been to enable the manufacturers of exported products to functioned in an effectively free trade regime so that that they have access to inputs at international prices and customs duties and internal taxes borne by the exported product are fully rebated. As mentioned earlier competitive restrictions on

**TABLE 13.7**  
Simple Average Applied Rate (Total)

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07
Agricultural Products	44.2	41.3	41.3	36.8	36.9	36.9
Non-agricultural products	35.9	32.6	29.5	20.8	15.5	13.3
All commodities	37.1	33.7	31.3	22.9	18.3	16.5

Source: Calculations based on Data from Budget Document.

imports were progressively abolished (except for reasons of safety and security) and import duties were brought down steeply. This trend of tariff reduction continued during the Tenth Plan period and the peak basic customs duties applying to a majority of non-agricultural products were reduced every year, from 30% at the beginning of 2002–03 to 10% at the end of 2006–07. As a result the simple average applied tariff rates on non agricultural products declined sharply during the Tenth Plan as shown in Table 13.7.

13.21. The Eleventh Plan will address the various issues involved so as to facilitate quicker and hassle-free movement of goods by road in order to reduce the time taken for transportation of goods from the production centres to the port of export, which is an important factor in determining the cost of transaction. To facilitate trade further, One Stop Documentation Centres (OSDCs) will be established in all major airports/ seaports/ ICDs. Full neutralization of indirect taxes including those imposed at the State level will be ensured in the Eleventh Five Year Plan so that Indian exports do not become uncompetitive by carrying the burden of internal and border taxes.

13.22. With the complete elimination of QRs and reduction of 'peak tariff' rates to 10% in non-agricultural products (with some exceptions), it is the manufacturing sector that has seen the most noteworthy trade liberalisation. After removal of most domestic controls on this sector, it has also been a significant beneficiary of the opening up of the capital account and the consequent flows of FDI, FII, and ECB. Though the initial surge in manufacturing GDP, following the domestic and import liberalization from 1991–92 to 1993–94, petered out around 1997–98, the manufacturing sector has again performed well after 2003–04. As competitive pressures on this sector were balanced by greater access to higher quality imported inputs, capital goods, finance and

technology, the global competitiveness of this sector has increased significantly. This is reflected in the restoration of high growth in manufacturing GDP and in the surge in outward FDI in the form of acquisition of foreign companies by Indian ones.

13.23. To ensure that this trend is strengthened and expanded it is necessary to reduce peak tariffs to 5%, for non-agricultural products eventually, make progress towards fuller capital account convertibility, accelerate the liberalization and development of the financial sector (e.g., long-term debt market) and complete the elimination of restrictions and controls (e.g., SSI reservation). Consideration of possible reduction of tariffs on agricultural products will have to await an international compact for reform of world trade in agriculture at the WTO negotiations.

13.24. The fact that manufacturing growth is high does not automatically mean that the sector does not suffer from some distortions. Inappropriate labour laws and cumbersome and pointless rules and procedures impose a cost that is separate from and over and above the wages that are paid to the worker. There are often high transactions cost of implementing the laws and the losses imposed by labour inflexibilities when demand falls. This may be one of the reasons why the historically natural shift of labour from agriculture to manufacturing has not taken place at the rate expected and the share of labour force in agriculture is so much higher than the share of GDP from agriculture.

13.25. The modern organized manufacturing sector has responded to the higher direct and indirect cost of labour (life time employment guarantee) by adopting more capital- and skill-intensive technology than it would have otherwise. It has also organized production processes so that labour-intensive stages of production and services are carried out in the unregistered sector. The more innovative entrepreneurs have focused on niche export markets by adopting technology to replace large numbers of unskilled labour with fewer semi-skilled workers. This has happened in conventional labour-intensive sectors like textiles as well as in labour intensive segments of sectors such as automobiles (components) and chemicals. Manufacturing has therefore developed some comparative advantage in what may be termed relatively skilled labour-intensive manufacturing. This is what will drive the growth of manufacturing GDP, outward FDI and manufactured exports. Though the private sector has geared up to

exploit these opportunities, regulatory systems must be modernized (e.g. testing of drugs) and infrastructure support provided wherever necessary (e.g. specialized ports/berths for auto export) so as to support private efforts.

13.26. However the rate of growth of unskilled employment in the organized sector could continue to suffer as long as labour rigidities are not appropriately addressed.

### PROSPECTS FOR SERVICES EXPORTS

13.27. In the first 30 years of independence the emphasis on higher education coupled with slow GDP growth created an excess supply of highly educated manpower that could not be absorbed productively within the country. A small part of this stock of educated manpower migrated to the West and participated in the high tech wave linked to IT and internet. At a later stage, domestic entrepreneurship was able to couple the stock of highly educated manpower available domestically with network linkages with highly skilled NRI manpower abroad to generate the IT export boom in the 1990s.

13.28. India witnessed a steady growth in proportion of trade in services to total trade and this can be largely attributed to trade in IT and ITES. Services trade share has grown at the same rate as goods trade over the 1990s, that is, about 6.5% and the share of services in total trade is about 24%. Services exports grew by 71% in 2004–05 and reached US\$46 billion. While India's share in world merchandise exports in 2004 was 0.8%, the corresponding share in world commercial services exports was 1.9%. India's share in world markets for IT software and services (including BPO) increased from 1.7% in 2003–04 to 2.3% in 2004–05 and an estimated 2.8% in 2005–06.<sup>1</sup>

13.29. An important reason for growth of the services sector, is the impact of trade liberalization and reforms on growth of services. According to one study<sup>2</sup> sectors that were open for FDI, external trade, or private ownership, etc. were the ones which experienced faster growth. Lower tariff (adjusted for changes in real effective exchange rate) and lower non-tariff barriers (in terms of import coverage ratio) were also

<sup>1</sup>See *Economic Survey 2005–06*.

<sup>2</sup>Gordon, J. and P. Gupta (September 2004), *Understanding India's Services Revolution*, IMF working Paper WP/04/171, found to have led to an increase in the usage of services in manufacturing sector. The process appears to have been aided by other reforms undertaken in this decade.



13.30. At the disaggregated level, exports of communications, computer & information services have more than doubled since the turn of the century (Table 13.7).

13.31. Studies confirm that India exhibits a strong revealed comparative advantage (RCA) in services as compared to goods. Between 1996 and 2000, the RCA index for services increased by 74% while that for goods declined by 15% [World Bank (2004)]. This

increase in RCA of services was mainly on account of 'other business services' which include software exports, finance, communication, management, consultancy and telecommunication sectors.

13.32. At the disaggregated level, we find that India has a revealed comparative advantage vis-à-vis rest of the world in commercial services and other services (Table 13.8). In contrast India's RCA in transport and travel services has declined overtime.

**TABLE 13.8**  
**India's Exports and Imports of Disaggregated Services, 1990–2003**

	Exports (US\$ million)					
	1990	1995	2000	2001	2002	2003
Communications	....	....	598.8	1103.9	779.4	1065.9
Construction	....	....	501.9	65.1	231.4	284.1
Insurance	123.3	170.2	257.0	282.0	331.9	408.9
Financial	....	....	276.0	306.1	598.2	392.1
Computer & Information	....	....	4727.4	7407.4	8889.3	11365.7
Royalties & Licence Fees	1.3	1.4	82.6	37.2	20.2	25.2
Other Business Services	1967.1	2119.7	4147.8	2349.0	2699.1	2601.0
Personal, Cultural & Recreational	....	....	....	....	....	....
Government, N.I.E	15.4	11.5	653.7	537.9	352.9	305.1
	Imports (US\$ million)					
	1990	1995	2000	2001	2002	2003
Communications	....	....	104.8	266.8	1002.6	610.5
Construction	....	....	127.1	470.3	601.0	1208.9
Insurance	343.9	558.8	813.2	810.9	892.6	1168.9
Financial	....	....	1277.2	1780.1	1434.3	488.0
Computer & Information	....	....	576.8	910.9	905.3	659.3
Royalties & Licence Fees	72.5	90.3	282.5	317.0	345.2	420.8
Other Business Services	1715.0	2713.8	4320.7	3732.5	4084.0	8088.1
Personal, Cultural & Recreational	....	....	....	....	....	....
Government, N.I.E	147.0	205.7	290.4	306.9	262.9	199.2

Source: Reserve Bank of India.

**TABLE 13.9**  
**Revealed Comparative Advantage (RCA)\* of India in Services**

	1980	1990	1998	1999	2000	Average (1998–2000)
Commercial Services	1.6	1.1	1.3	1.5	1.6	1.4
Transport Services	0.4	0.7	0.6	0.6	0.5	0.6
Travel Services	2.0	1.0	0.9	0.7	0.6	0.7
Other Services	0.9	1.2	1.3	1.5	1.6	1.4

Note: \* RCA = (India's Export of  $i^{\text{th}}$  Services to world /total export of Indian services)/(world export of  $i^{\text{th}}$  services /total world export of services).  
Sources: RBI 2005; World Bank, 2004.

13.33. Software services constitute around 50% of total exports while travel and transportation services constitute around 30%. Together these three services constitute around 80% of India's exports of services (Table 13.9). The high share of travel services in export earnings but a declining RCA and a falling share of travel in total exports of services highlight the urgency of formulating trade-boosting policies with respect to travel and tourism.

**TABLE 13.10**  
**Composition of India's Services Exports**

	Service export (million US\$)		Share in service exports (%)	
	2000-01	2003-04	2000-01	2003-04
Travel	3497	4122	22	17
Transportation	2046	3260	13	13
Insurance	270	420	2	2
Communication Services	1138	1047	7	4
Construction services	536	465	3	2
Financial services	347	315	2	1
Software services	6341	12200	41	49
News agency services	114	59	1	0

Source: RBI 2005.

## IT AND ITES

13.34. Trade in IT and ITES has emerged as the main driver of India's growth of trade in services. Both domestic and international market for Indian IT-ITES has been increasing steadily. Exports have increased rapidly in the last six years (i.e., from US\$4 billion in 2000 to around US\$ 24 billion in 2006). Total market for Indian IT-ITES is around US\$30 billion in 2006.

13.35. The competitiveness of India in IT and ITES trade has been examined by many analysts. For 2005, the Global Services Location Index<sup>3</sup> showed that India remained the best offshore location by a wide margin, although wage inflation and the emergence of lower-cost countries have decreased its overall lead.<sup>4</sup> Close competitors in this field were China and Thailand. Improved infrastructure and relevant people skills have increased the attractiveness of China as a low-cost option for servicing Asian markets. Thailand jumped from 13th to 6th in the 2005 Index and Southeast Asian countries had four of the top six locations on the Index.

<sup>3</sup>previously known as the Offshore Location Attractiveness Index

<sup>4</sup>A.T Kerney Global Services Location Index,2005

13.36. The rise and expansion of the Indian IT and ITES services industry is a much talked about subject the world over. Total export revenues earned by this sector have grown from US\$ 7.7 billion 2001-02 to US\$ 31.3 billion in 2006-07, thus showing a near 32 % compounded growth. India now accounts for 65% of the global market in offshore IT and 46% of the ITES market . A majority of the Fortune 500 and Global 2000 corporations are sourcing IT and ITES from India. Export forecast for the Eleventh Plan period is estimated at US\$ 37.6 billion for 2007-08 which is expected to increase to US\$ 86.6 billion in 2011-12 according to NASSCOM McKinsey Report 2005. The domestic software services market however is growing at a lower rate compared to software exports. From US\$ 3 billion in 2002-03 the domestic market grew to nearly US\$ 5 billion in 2004-05. Clearly Indian software services are a globalized and outward looking sector.

13.37. In the past three years, the reputation of the Indian IT and ITES industry has grown worldwide fuelled by greater commercial presence of the Indian IT companies in the US, UK, and other EU countries, more numbers of cross-border acquisitions by Indian companies, more business processing outsourcing by global companies from India and a movement by Indian companies towards a higher value added products and services.

13.38. The growth of IT/ITES industry has helped to create both direct and indirect employment. Indirectly the industry employs about three million people. Indirect employment arises out of expenditure on vendors including telecom, power, construction, facility management, IT, transportation, catering and other services. The industry has also created induced employment arising out of consumption expenditure of employees on food, clothing, utilities, recreation, health and other services.

13.39. Technological changes at a global level have led to the tremendous growth in the IT sector with the emergence of a number of new services (e.g. software development or internet access) and increasing tradability of existing services (e.g. cross-border medical diagnosis using online or video conferencing medium). The Indian software sector has been able to keep pace with changes at the global level, which is demonstrated by the double digit growth in the software and related services sector since the later half of 1990s and emergence of new services sector activities (e.g. BPO centres). Government policies including deregulation (such as tax exemption, reduction

of tariffs on software from 114% to zero, amendment of the copyright law etc) and incentives at the right time in right measures facilitated the growth of the Indian software industry since the 1990s. India's main advantage in its software sector story is that the sector has been able to tap into the pool of human resources that includes, engineering graduates, software professionals and English-speaking young graduates prepared to work in BPO centers.

13.40. India has a comparative advantage in Mode 1 as captured by outsourcing activities, Mode 3 as seen in increasing outward investment by Indian companies in US, UK and other developed and developing country markets and Mode 4 as captured by movement of Indian software professionals in the US, EU, etc. While a part of the movement by the software professionals is permanent and thus falls under migration, a significant part is temporary as demonstrated by a growing number of Indian software professionals returning to India from Silicon Valley of the US and other places.

13.41. Along with the rising opportunities in this sector, there are also many challenges faced by this sector in the recent years. These include:

- The prospect of protectionist legislations in developed countries and backlash against the BPO industry for the fear of loss of jobs in developed countries are some of the impediments to increasing exports of these services.
- A rise in the concerns over the security of data on customers which BPO professionals have access to and emerging shortages of skilled professionals.
- The Indian IT/ITES industry has been engaged more in developing low value and low technology products and services and less in innovation and back office processing work.
- An inadequate regime for preventing piracy in the IT/ITES industry is also viewed as a possible hindrance to foreign multinationals from moving their R&D outsourcing units to India.

13.42. Several initiatives have been taken to further enhance the availability of and access to suitable talent for IT-ITES in India. An image-enhancement programme is also in place to build greater awareness about the career opportunities in this segment. A comprehensive skill assessment and certification programs for entry-level talent and executives (low-middle level management) has been launched.

13.43. For India to fully capitalize on the opportunity and sustain its present lead in the global IT/ITES space, there is a need to focus on skill development to enhance the talent pool advantage, strengthening infrastructure to lower the transaction costs of business; and improve the domestic regulatory provisions.

## HEALTH SERVICES

13.44. Rising income levels and the emergence of health insurance has facilitated the growth of high quality health care sector in India although the capacity to pay for health services remains limited to middle and high income brackets. With the opening of the insurance market in 2000 to private players, health and medical insurance has shown significant growth. Though at present, only 2.5 million people are covered under voluntary medical insurance. Cashless claim facilities offered by many players have led to a significant rise in health insurers.

13.45. The public health care system is not able to meet the growing demands for health care facilities. The gap between demand and supply has to be bridged by the private players, and this has facilitated the growth of the corporate health care industry in India. Emergence of strong corporate players in health care is not a substitute for expansion of public sector health facilities especially for the bulk of our population but it has led to professionalization of the industry, better hospital management and higher investments in infrastructure facilities.

13.46. An international dimension of the growth of the health care industry is the phenomenon of what is called medical tourism. Thailand has been able to attract more than one million medical tourists due to world-class infrastructure facilities in Thailand. India should be able to replicate the Thailand example by focusing on development of good-quality medical as well as tourism infrastructure. India certainly has the potential and the capacity to attract more than one million tourists per annum.

13.47. There are two clear advantages for India in the field of medical tourism. The first and the foremost is the cost advantage. The second unique advantage of India is that it offers holistic medicinal services. With yoga, meditation, ayurveda, allopathy and natural herbal treatments, India offers a unique basket of services to foreign patient-tourists that is difficult to match by other countries. Kerala has been the pioneering State in this area as evidenced by the

fact that Kerala and ayurveda have virtually become synonymous with each other. The preference for health tourism in Kerala is so strong that Kerala Ayurveda Centre (KAC) has been established at multiple locations in various major cities. Karnataka has also taken some very pioneering steps in promoting medical tourism. The Government of Karnataka has planned to setup Bangalore International Health City Corporation in order to cater to international patients for a wide variety of health care products and treatments. The recent operations of children from Pakistan in Bangalore have not only helped boost the medical economy in the State, but also helped in fostering goodwill, peace and harmony between India and Pakistan.

13.48. In Maharashtra, there is a wide array of speciality and super-speciality hospitals that can help promote medical tourism. Some of the major hospitals already in the business of medical tourism are Lilavati Hospital, Jaslok Hospital, Breach Candy, Hinduja Hospital, Wockhardt Hospital, and Apollo NUSI Wellness Retreat. The Asian Heart Institute at Mumbai's Bandra-Kurla Complex offers state-of-the-art facilities for all types of heart ailments. Hotels such as Hyatt, JW Marriott, Renaissance and Resort offer extensive spa facilities for both domestic and international tourists.

13.49. The Indian Health care Federation has prepared a roadmap for making India a world-class destination for medical tourism. Accreditation of Indian hospitals is paramount for medical tourism. This will help in ensuring quality standards across a spectrum of specialty and super-specialty hospitals. In order to encourage medical tourism, air connectivity needs to be strengthened for all the major cities in the country especially Delhi, Chennai, Bangalore, Pune, Hyderabad and Kolkata. Health-support infrastructure also needs to be created at the airports and other travel junctions. It is also essential to establish Indian health care brand synonymous with safety, trust and excellence. One-stop centres need to be established in key international markets to facilitate inflow of foreign patients, and immigration process needs to be streamlined for medical visitors.

13.50. A related area which can be exploited is provision of back end health care related services. Health care majors in the developed world, especially the US, are already outsourcing back-end health care services to Indian BPO firms. The major health care BPO operations in the country are Hinduja TMT (claims adjudication),

Apollo Health Street (claims adjudication, billing and coding), Comat Technologies (transcription), Datamatics (transcription and forms processing) and Lapiz (medical billing).

## MULTILATERAL TRADE NEGOTIATIONS

13.51. Since India is today much more integrated in the world economy than it was in the past, it needs a well-functioning rule based trading system more than in the past. Working constructively towards a fair and balanced agreements in the Doha Round is therefore an essential part of managing globalization. Since India had taken major strides toward liberalization of its trade and investment regime after the conclusion of the Uruguay Round on an autonomous basis, it entered into the Round with a strong bargaining position of being able to offer tariff bindings (which is what trade negotiations are about) without much threat of disruption. Although our bound tariffs on agricultural products are high, since domestic support is incomparably lower in India than in the industrialized countries, we have considerable leverage in agricultural negotiations as well.

13.52. Unfortunately the Doha Round currently appears to be in serious difficulty because of continued differences among the principal participants. India's priority in agriculture must remain seeking steep reduction in the levels of agricultural subsidies prevailing in the industrialized countries. The agreement to eliminate all forms of export subsidies was no doubt a very positive development. However, the fact remains that export subsidies have been and will be effectively substituted by domestic support. Obtaining cuts in this pillar therefore constitutes the key to success. It is important for access not only in the subsidizing country but in third country markets as well. Participants have so far focused on the level of cuts in Overall Trade Distorting Support and the Total Aggregate Measurement of Support.

13.53. The negotiations have not given adequate attention to one important point that has been made by G20 for putting some limitation on decoupled income payments. The architecture of the Agreement on Agriculture was based on the belief that fully decoupled income support caused no or minimal distortion to trade and production. Since then, two aspects have come to light. First, that in the real world there is no such thing as fully decoupled income support. Second, economists now agree that it was not quite right to characterize even fully decoupled income

payments as minimally distorting. As observed in a OECD study any policy that transfers income to producers could conceivably have some effect on production decisions by increasing farm incomes and farmers' wealth, by reducing income risks and by altering farmers' expectations. Unless deep reform is accomplished in domestic support by the developed countries developing countries cannot be expected to reduce tariffs on important agricultural products, which provide the means of livelihood to a large section of the population. In India the dependence on agriculture for employment and livelihood is very high and this is the central reason why India will need flexibility through special safeguards and in special products, both in coverage and treatment, unless radical reform in domestic support is adopted by the major industrialized countries encompassing not only steep reduction in what has been hitherto regarded as trade distorting but also strict disciplines on the Green Box payments which put money in the hands of the farmer from publicly funded government programmes.

13.54. In services, India's major interest is the liberalization of cross-border trade (Modes 1&2) and also in Mode 4 which relates to movement of person. In cross-border trade India has requested for broad-based commitments across a wide range of service sectors. In Mode 4 the main request by India is in respect of admission of independent professionals and contractual service suppliers for provision of services. It has been pressing for reduction of impediments such as visa and immigration procedures, economic needs test, work permit norms, etc. Its main trading partners have not been forthcoming in offering openings for professionals under Mode 4. Most members have not offered any commitment in the categories of contract service providers and independent professionals. Where a response has been forthcoming it is lacking in sectoral spread. Efforts to take up visa and immigration matters in the discussions on Domestic Regulations have also not gone very far.

13.55. India has autonomously liberalized Mode 3 in many sectors. Today FDI is allowed in all but a few service sectors such as retail trade, and establishment restrictions exist in accountancy and legal services. Among important service sectors, foreign equity caps of less than 50% apply only to insurance, print and electronic media covering news and current affairs, air transport and higher caps apply to telecommunications and private sector banking

at 74%. India should be in a position to bind most of these, and perhaps go even further in exchange for comparable concessions in the areas of India's interest.

13.56. Since the Doha Round began, India has brought down its import tariffs on non-agricultural products successively every year and the peak tariffs for non-agricultural products at the beginning of the Eleventh Plan period are 10% (except for a handful of products). While the Swiss formula has been accepted for effecting cuts in tariffs, the negotiations are stalled by disagreement on the coefficients that should be applicable and particularly on the difference between the coefficients to be adopted by the developing and developed countries. The objection about accepting a lower co-efficient in the Swiss formula arises from the need to provide assurance that India is dealt with fairly. The World Trade Organization (WTO) rules and the Doha Ministerial Declaration speak of less than full reciprocity in reduction commitments being expected from the developing countries. Past practice suggests that reciprocity is a function of two factors viz., trade coverage and depth of reduction. When all the trade is being covered the extent of reduction becomes the sole measure of reciprocity. If the coefficients suggested by the developed countries (10 for the developed and 15 for the developing) were to be adopted India would be reducing its bound tariffs by 73%, the EC by 33% and the USA by 35%. This is clearly not consistent with the principle of reciprocity in trade negotiations and far removed from the agreed standard of less than full reciprocity from the developing countries.

13.57. Developed countries argue that the developing countries must lower their tariffs by a larger proportion because their bound tariffs were higher at the outset. However this ignores the fact that trade negotiation must start from the balance that was struck during the last Round. India has been autonomously reducing tariffs since the launching of the Round but it has a right to receive negotiating concessions for converting the applied levels into contractual commitments under the WTO Agreement. If the proportionate reduction by the developed countries is less, a reciprocal balance can be established in one of two ways. Either the developed countries deliver additional concessions in other areas (Mode 4 in services for instance) or India should be allowed to restore parity in reciprocity by adopting an appropriately high coefficient.

13.58. India has a strong interest in a successful conclusion of the Doha Round and should aim at the negotiations ending at a high level of ambition even if the impasse may need to be prolonged to accomplish such an outcome. We should not be deterred by the fear that the trend toward regional arrangements would strengthen and trade conflicts would intensify. The geopolitical dynamic which drives regional arrangements will remain unaltered as it did despite the successful conclusion of the Uruguay Round and such arrangement were broadened and strengthened and new ones were created with redoubled vigour at that time. There is no doubt a distinct possibility of increased trade disputes especially in agriculture after the demise of the Peace Clause, but India should not be daunted by the possibility of increased trade disputes as the major subsidizing countries are likely to face disputes and trade friction could eventually prove to be a tonic for the trading system if it helps to create a sense of urgency among the major players and a political will to effect deep reform in agriculture by the time they return to the negotiating table.

## REGIONAL TRADE AGREEMENTS

13.59. Paradoxically, the successful conclusion of the Uruguay Round and the establishment of the WTO, was followed by a wave of regional trade agreements in the world. India too took similar steps. The India-Sri Lanka FTA was formed in 1998, and South Asian Preferential Trade Agreement was replaced by South Asian Free Trade Agreement (SAFTA) in January 2004. Several initiatives were taken for PTA or FTA with trading partners not only in the region but also outside the region. The new direction of trade policy toward regional trade agreements was given during the Ninth Plan period but the move intensified during the Tenth Plan. The position at the beginning of the Eleventh Plan is the following:

- Three FTAs are in existence viz., India-Sri Lanka FTA, SAFTA, and Indo-Singapore Comprehensive Economic Cooperation Agreement. Within SAFTA unilateral preferences have been extended to Bangladesh and Nepal.
- Apart from Asia-Pacific Trade Agreement (APTA) and Global System of Trade Preferences (GSTP) India has entered into four PTAs viz., Indo-Afghanistan PTA, India-Thailand Framework Agreement, Indo-Mercosur PTA and India-Chile PTA, the latter two not having been implemented until the beginning of the

Eleventh Plan. Negotiations are ongoing for FTAs with the ASEAN, Thailand, Gulf Cooperation Council, Mauritius, South Korea, Japan, Israel, and the European Union. In the case of Mauritius it is envisaged that there would be PTA in goods and FTA in Services and investment. Another initiative is the Bay of Bengal Initiative Multi-Sector Technical and Economic Cooperation Framework Agreement, which envisages an FTA among Bangladesh, India, Sri Lanka, Myanmar, and Thailand. Negotiations are underway also for broadening the FTA in goods with Sri Lanka into a comprehensive economic cooperation agreement, embracing services and investment as well.

- Joint Study Groups have been set up for closer economic cooperation with China, Malaysia and Russia and a similar initiative has been taken in the context of India-Brazil-South Africa (IBSA)

13.60. India's engagement in a large number of regional trade initiatives raises some issues. There are strong geopolitical reasons for promoting close economic cooperation in South Asia and also with the countries of South East Asia and East Asia. India must aim to be a part of a future East Asian Free Trade Area, which could eventually evolve out of the ASEAN plus Six. But in order to avoid disruptions in domestic agriculture and industry a great deal of preparatory work needs to be done before we start implementing the FTAs. First, our infrastructure, both social and physical must be brought on par with the trading partner with whom we are entering into an agreement. It is particularly necessary to raise the level of education and skills and to improve power and transport infrastructure in the country, as otherwise an FTA would result in the flight of capital from the country. Efficiency in manufacturing in particular is a function of the quality of physical infrastructure and of skill development. Second, a level playing field must be created on the fiscal side. A great deal of progress has no doubt been made by the changeover from the cascade system of taxation and the introduction of Central Value Added Tax and State VAT. But in order to ensure that our industries do not suffer a disadvantage in an FTA the introduction of GST must be put firmly on course. There must be an understanding on the exchange rate policy as well, before we can have a soundly functioning FTA as a market driven exchange rate policy in one partner country cannot co-exist with a substantially controlled exchange rate policy in another. When the time is ripe

for negotiating FTAs both goods and services must be considered together so that balanced results are obtained. These fundamental aspects need to be attended to in parallel with operationalizing FTAs.

13.61. The easy way of going ahead with FTAs on the basis of exemptions of a long list of products needs to be avoided except in agriculture where there is a particular problem because of the dependence of majority of the population on the sector for their livelihood and the lack of alternatives for them for redeployment. Furthermore, in FTAs sufficient time should be given to manufacturing industries to adjust to new conditions of competition and the temptation to show quick results through ‘early harvest’ resisted. It has to be borne in mind also that in a rapidly globalizing world, manufacturers are keenly searching for cheaper inputs and it is very difficult to ensure that imports from a particular trading partner qualify as an ‘originating’ product. Strict rules of origin have been put in place, but the certificates of compliance with these rules are issued by authorities in the exporting country and the customs authorities in India do not have the wherewithal to verify the accuracy of the information on which the certificates are based.

13.62. If FTAs need preparation and time for adjustment, PTAs need to be shunned altogether. As demonstrated in the now defunct Tripartite Agreement and the Trade Negotiating Protocol among developing countries PTAs can have adverse effects through trade diversion. In addition PTAs can result in an inverted duty structure to the detriment of domestic industry, as has been the experience in the Indo-Thailand Agreement, which was in reality a PTA because of the operationalization of preference on selected products subject to ‘early

harvest’. The selective and partial preference in PTAs such as the GSTP and APTA and those envisaged in the Indo-Mercosur Agreement, while not resulting in any trade flows clutter up the tariff schedule of the country.

## FOREIGN DIRECT INVESTMENT (FDI)

13.63. The liberalization of the FDI policy and the steady growth of the Indian economy contributed to a large increase in FDI inflows during the Tenth Plan period as can be seen from Table 13.11.

### APPROVAL MECHANISM UNDER FDI POLICY

13.64. **Automatic route**—In most sectors FDI is permitted on the automatic route. FDI in such sectors/activities does not require any prior approval and only requires notification to the Reserve Bank of India within thirty days of such receipt of inward remittance; and filing of required documents within thirty days of issue of shares to foreign investors. FEMA Regulations prescribe specific formats for notifying foreign investments, transfer of shares to non-residents and payment for foreign technology/use of trademark/brand name made under the automatic route.

13.65. **Government approval route**—Limited activities require prior Government approval. Proposals for FDI are considered by the Foreign Investment Promotion Board (FIPB), now functioning under the Department of Economic Affairs, and decisions are conveyed in most cases within 6–8 weeks of receipt of complete application. Approval for foreign technology collaboration, where required, is considered by the Project Approval Board (PAB) under the Department of Industrial Policy and Promotion.

**TABLE 13.11**  
**Foreign Investment Flows during Tenth Plan Period**

S. No.	Financial Year (April–March)	Equity		Reinvested earnings +	Other capital +	Total FDI Inflows	% age growth over previous
		FIPB route/ RBI's Automatic	Equity capital of unincorporated bodies#				
		(Value: US\$ million)					
1.	2002–03	2574	190	1833	438	5035	() 18
2.	2003–04	2197	32	1460	633	4322	() 14
3.	2004–05	3250	528	1904	369	6051	(+) 40
4.	2005–06 (P)	5540	280	1676	226	7722	(+) 28
5.	2006–07 (P)*	15585	480	2936	530	19531*	(+) 153

Note: ‘#’ Figures for equity capital of unincorporated bodies for 2005–06 and 2006–07 are estimates. ‘+’ Data in respect of re-invested earnings and Other capital for the years 2005–06 and 2006–07 are estimated as average of previous two years; ‘P’ All figures are provisional; \* Include swap of shares US\$ 3.1 billion.

13.66. A comprehensive review of the FDI policy was undertaken in 2006 with a view to consolidate the liberalization already effected and further rationalize the FDI policy governing various activities. New sectors/activities viz. Single Brand Product retailing, Power Trading, Coffee and Rubber processing and warehousing were opened for FDI.

13.67. As a result of the various rationalization measures, the FDI Policy has become progressively more liberal, transparent and investor-friendly. A liberal and transparent FDI policy has been put in place for the industry, services and infrastructure sectors under which FDI up to 100% is permitted in most sectors on the automatic route. Caps on foreign equity apply only in a few service sectors viz. 20% on FM radio broadcasting, 26% on insurance, defence production, print and electronic media covering news and current affairs, 49% on air transport services, asset reconstruction companies, cable network, DTH, hardware for up-linking, HUB etc., 51% for single brand retailing of products and 74% for atomic minerals, private sector banking, telecom services and the establishment and operation of satellites. A proposal for foreign investment/technical collaboration requires prior government approval only if the foreign investor has an existing Joint Venture or technology transfer/trademark agreement in the 'same' field (determined on the basis of 4 digit NIC 1987 code) unless the investments are made by SEBI registered venture capital funds or where the existing investment by either of the parties is less than 3% or where the existing venture/collaboration is defunct or sick. This requirement does not apply for IT Sector, investments by multinational financial institutions and in the mining sector.

## FDI OUTLOOK

13.68. **A.T.Kearney FDI Confidence Index 2006** based on a seven-year survey of top 1000 firms, covering 68 countries receiving 90% of the FDI has rated India ahead of the US in terms of business confidence index. The top honours go to China. US is the fourth in the list. 45% of global investors are upbeat about India compared to last year. The report predicts India to be on the cusp of FDI take off, in view of the government focus on reforms, overcoming narrow business interests, de-bottlenecking infrastructure, logistics and regulatory barriers.

13.69. India has improved its position by two places in the **World Economic Forum's Global Competitive Index**

(GCI) rankings for 2006–07, coming in 43rd, well ahead of Brazil (66), China (54), and Russia (62).

## STRATEGY FOR FDI DURING THE ELEVENTH FIVE YEAR PLAN

13.70. Given the current scenario, FDI could increase significantly during the Eleventh Plan. During the Eleventh Plan steps would need to be taken to consolidate the gains from FDI by reducing the delays in State-level clearances required by investors to establish enterprises. Progress towards elimination of FDI limits in key sectors also needs to continue in order to increase FDI flows and stimulate transfer of technology, which is critical for improving competitiveness.

## FOREIGN TECHNOLOGY TRANSFER POLICY

13.71. FDI brings along with capital, modern technologies and best practices. The GoI has announced a liberal foreign technology transfer policy as well. The policy on foreign technology transfer is regulated on the basis of the quantum of payments allowed for technology transfers. Payments for technology transfer from a foreign collaborator are allowed to a joint venture with an Indian partner as also to wholly owned Indian subsidiaries of a foreign company. There is no time limit prescribed for the duration of payments to be made. The technology payments are governed by the Foreign Exchange Management (Current Account Transaction) Regulations, 2000. These do not cover the FDI Scheme which is governed by Foreign Exchange Management (Transfer or Issue of security by a Person Resident outside India) Regulations, 2000 except where specifically notified. In other words, there is no restriction on technology collaboration in areas, which are prohibited for foreign equity or which attract foreign equity caps under the FDI policy except where such a restriction has been notified.

13.72. At present, foreign technology collaboration involving payment of lump-sum amount of up to US \$2 million and/or royalty at the rate of 5% on domestic sales and 8% on exports are allowed under the automatic route. In addition, the current policy also allows payment of royalty up to 2% on exports and 1% on domestic sales under the automatic route for use of trademark and brand names of the foreign collaborator without technology transfer. Cases involving payment of lump-sum amount or royalty beyond the limits prescribed under the automatic route are considered by the government on the recommendations of the PAB.



## MANAGING CAPITAL FLOWS

13.73. A major issue that most emerging market countries need to address is how to cope with a world of greater capital mobility. There is general agreement that the emergence of large pools of international capital, highly mobile across borders, provides an important opportunity for developing countries to access additional capital to finance their development in both the private and the public sectors. However, it is also true that free capital mobility brings with it the risk of volatility. This risk is particularly great for developing countries because investor perceptions of the prospects of individual developing countries are more vulnerable to contagion effects which could lead to volatility that is not justified by underlying fundamentals. Developing countries also face problems because they typically lack financial system strong enough to deal with inward and outward capital mobility.

13.74. The difficult choices facing developing countries are usually described in terms of a 'trilemma' or the 'impossible trinity' which asserts that in a world of internationally integrated capital market flows, a country cannot simultaneously achieve all three objectives of free capital mobility, a stable exchange rate, and an independent monetary policy. It is possible to have an independent monetary policy (i.e., a target interest rate or money supply growth) and exchange rate stability, but in that case capital flows have to be controlled. Alternatively, if capital flows are completely free it is necessary to give up either exchange rate stability or the ability to set monetary policy independently. In practice, few governments make firm choices for all times, and a mixed strategy is often

adopted. The exchange rate is flexible but not fully flexible, capital flows are moderated in various ways or monetary policy is forced to adjust in various ways. All these choices involve costs. However, there is general agreement that it is undesirable to allow too large an appreciation in the exchange rate in response to capital inflows that may be temporary. Efforts to avoid appreciation by unsterilized intervention run the risk of increasing liquidity and money supply with a possible increase in inflationary pressure. On the other hand, resort to sterilised intervention imposes interest cost on the Budget.

13.75. These problems illustrate the merit of the cautious approach adopted by the government in the matter of liberating capital inflows. The advantages of accessing pool of capital to finance development are recognized in the commitment to move gradually to fuller capital account convertibility. But the move is to be made gradually at a pace which enables the authorities to deal with unexpected volatility. In controlling capital flows it is important to recognize the relative attractiveness of different types of flows. In this regard direct foreign investment is the most preferred form of flow. Investments in Indian firms through the stock market and by venture capital funds in unlisted companies are also potentially beneficial. ECB and other short term flows are areas where one can introduce an element of control to moderate sudden surges. However, even with capital calibration it is not easy to manage a surge in capital inflows, if it occurs. In such situations, it is necessary to explore ways of limiting the fiscal cost of sterilizing large growth of reserves; either by making these flows less attractive or by means that do not require costly sterilization.