



Agribusiness in South Asia

A Fact Sheet



 **MAKE TRADE FAIR**

Agribusiness in South Asia

A Fact Sheet

Sukhpal Singh

Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad

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Abbreviations

AAFL	Adani Agri Fresh Limited
AP	Andhra Pradesh
APMCs	Agricultural Produce Marketing Committees
BDA	Bio Fuel Development Authority
BILT	Ballarpur Industries Limited
BRAC	Bangladesh Rural Advancement Committee
CF	Contract Farming
CFC	Ceylon Fisheries Corporation
EEZ	Exclusive Economic Zone
GDP	Gross Domestic Product
GNP	Gross National Product
GSAMB	Gujarat State Agricultural Marketing Board
GTZ	German Technical Cooperation
HBC	Hard Boiled Candies
HPCL	Hindustan Petroleum Corporation Limited
HYV	High Yielding Variety
ICT	Information and Communication Technology
IDPL	International Dairy Products Limited
IFFCO	Indian Farmers Fertiliser Cooperative Limited
IOC	Indian Oil Corporation
IQF	Individual Quick Frozen
ITC	Indian Tobacco Company
KMILL	Kiriya Milk Industries of Lanka (Pvt) Ltd
KRBL	Khushi Ram Behari Lal
LPG	Liquified Petroleum Gas
M&M	Mahindra & Mahindra
MFPI	Ministry of Food Processing Industries

MNCs	Multi National Corporations
MoU	Memorandum of Understanding
MSP	Minimum Support Price
MT	Million Tonnes
NABARD	National Bank for Agriculture and Rural Development
NAPL	National Agri Products Limited
NAS	Nestle Agricultural Services
NGOs	Non-Governmental Organisations
NLL	Nestle Lanka
ONGC	Oil and Natural Gas Corporation
PAFC	Punjab Agro Foodgrains Corporation
PCRA	Petroleum Conservation Research Association
RIL	Reliance Industries Limited
SFADP	Small Farmers and Agro-forestry Development Programme
SKU	Stock Keeping Units
SNF	Solids Not Fat
TCS	Tata Consultancy Services
TN	Tamil Nadu
TNCs	Trans National Corporations
UP	Uttar Pradesh
WB	World Bank
WTO	World Trade Organisation

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Foreword

As structural transformation of the economy takes place, the relative importance of primary farm production declines and that of processing and distribution increases. This shift is largely from agriculture to agribusiness as seen in most of the developed countries and more recently in developing Asian countries. The policy stance of many of these developing countries also seems to have tilted over the last one decade or so in favour of agribusiness from a more specific focus on agriculture. Such developments have significant implications for agricultural development in these countries where a large section of the population still depends on agriculture for their livelihood.

Agribusiness is the single largest sector of economy in many developing countries and is growing fast. Agriculture currently accounts for only about 26 percent of the GDP in India, but if we take an agribusiness perspective of the economy, more than 50 percent of India's GDP comes from the agribusiness sector. A large majority of Sri Lanka's population (75%) still lives in rural areas and depends on agriculture or related agribusiness activities directly or indirectly for their livelihoods. Sri Lanka's agribusiness sector is rather diversified and has a long history of serving international markets with products like rubber, tea and spices. Bangladesh being predominantly agrarian, its agricultural sector accounts for 31.6 percent of the GDP and provides employment to 63.2 percent of its population. The major export agribusiness sectors of Bangladesh are potato, shrimp and seeds.

While analysing the impact of agribusiness on the development process of a country, understanding the complexity of agribusiness becomes crucial. The increasing expansion and control of big business in agriculture and food systems have given rise to increasing concern, even alarm, regarding the adverse impact on livelihoods of farmers, labour markets in general and women workers in particular, sustainable production of food, quality of food, health and nutrition, environment and welfare of other forms of life. It is therefore important that agri-business activities should be carefully analysed and monitored for their impact on sustainable rural livelihoods.

This paper reviews and analyses the nature, profile and functioning of agribusiness sector in South Asia. It has also risen some very pertinent issues regarding this sector which are important in order to understand the policy design and action. I hope all the stakeholders would find the facts presented in this paper useful.

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Executive Summary

Poverty reduction in the south Asian region is inevitably linked to agricultural development. But, the context in which this agricultural development has to be achieved has changed in the last decade or so in the region due to the opening up of domestic markets, liberalisation of domestic policies under Structural Adjustment Programme (SAP) and the inclusion of agricultural trade under the WTO. Now, due to the declining terms of trade for primary products, which have a low level of knowledge intensity, the focus has shifted to value added agro products for export and domestic markets. Though there are many advantages in becoming part of the export-oriented value chains like knowledge transfer, better incomes, and understanding of market, there are also negative aspects like vulnerability of export markets, high cost of attending to these markets and price fluctuations. This paper examines the profile of agribusiness sector and the impact of agribusiness corporations, supermarket chains, and such agencies on primary producers in South Asia from the perspective of rural poverty reduction.

Agribusiness has strong linkages with the industrial, agricultural and service sectors and has impacts on each of these. It is the single largest sector of economy in south Asian countries and is growing fast. Agriculture currently accounts for only about a quarter or less of the GDP in these countries and has been on a decline for some time, though the people dependent on agriculture continue to be a high proportion of the total population. But, if we take an agribusiness perspective of the economy, then even now, more than 50 percent of the GDP of these countries comes from the agribusiness sector which includes all the agricultural input sectors, the farm production sector, agro processing, including food, and manufacturing sector and the food/fibre distribution and marketing sector. South Asian

farming is dominated by small holdings, which means there are resource constraints to link up with global markets or global players.

Globalisation and liberalisation are likely to have the greatest impact on the rural poor through their influence on the agricultural sector, terms of trade, availability and cost of inputs, and new investments in the agribusiness sector. Technological progress in farming can help the rural poor by raising farm productivity, lowering food prices, increasing employment, and reducing farming risk. But the role and influence of multinational corporations (MNCs) in food production and trade will, as an institutional mechanism, determine the exact impact of globalisation on the rural poor, who are mostly from the labour class. Contract farming promotes participation of domestic firms and MNCs in farming, and is seen as the 'new investment' aspect of globalisation.

Supermarkets in south Asia presently account for a very small share of the fresh produce retail sales. However, sales are growing rapidly and an attractive fruit and vegetable sector is perceived as an important way of attracting customers. Supermarkets presently use a wide variety of fresh fruit and vegetable procurement practices which are likely to see consolidation. At present, the following channels can be seen:

- direct, uncontracted purchases from farmers at individual supermarkets;
- purchases from wholesalers, who either work directly with farmers or through wholesale markets;
- purchases through independent procurement companies (dedicated suppliers) who often work with farmers approved by the supermarkets chains (preferred suppliers);

- purchases through government-sponsored distribution centres;
- purchases through informal farmer groups, farmer associations or cooperatives;
- purchases through large individual farmers, who often sub-contract part of the supply to smaller farmers;
- leasing of space within the store on a commission basis to traders, farmers and cooperatives.
- multiple channels, and
- integrated chains

But, small producers have been, by and large, excluded from various commodity chains, including organic produce chains, which operate with contract farming schemes at the producer level, with the exception of some crops like gherkins which require family labour and constant supervision, and therefore, only small acreage is allowed under contract. In Bangladesh, there is a positive development where NGOs are taking active role in these chains and facilitating the small producer involvement in value chains by organising contract farming which is missing in India and Sri Lanka. In India, the legal reform process is already under way with the Union Government enacting the Model Act (Agricultural Produce Marketing (Development and Regulation Act) 2003 and many states adopting the amended Act which deals with the setting up of private markets, selling of produce by growers outside the APMCs (regulated markets), setting up of direct markets, specialised commodity specific markets, regulation and promotion of contract farming,

provision for agencies and measures to promote quality, standards, and alternative markets, and public-private partnerships to facilitate more and better linkage between firms and farmers. The model contract agreement is quite fair in terms of sharing of costs and risks between the sponsor and the grower. But, it leaves out many aspects of farmer interest protection like delayed payments and deliveries, contract cancellation damages if the producer made firm specific heavy investments, inducement / force / intimidation to enter a contract, disclosure of material risks, competitive performance based payments, and sharing of production risks. Also, there are state level variations in the amended Acts and the spirit has been diluted.

There are many malpractices and negative implications of contract farming in the region despite the fact that it does lead to higher income and employment for rural producers and labour due to new crops and technologies besides assured markets and prices. These ill-effects include 'agribusiness normalisation' and depletion of natural resources like land and water. Further, contract farm production is primarily carried out by female labour, and increasingly by young girls under adverse wage and work conditions. The paper concludes by arguing for a holistic understanding of the functioning and dynamics of the organisation of vertical co-ordination in various sectors and examines the institutional and organisational dimensions of such chains and networks from the primary producer perspective.

1. Introduction

Agricultural development still holds the key to economic development in many developing countries, especially in South Asia where a large proportion of the population relies on agriculture directly or indirectly for their livelihoods. Poverty reduction and social progress in the region is inevitably linked to this as well. But the context in which this agricultural development has to be achieved has changed in the last decade or so in this region due to the opening up of domestic markets, liberalisation of domestic policies under Structural Adjustment programme and the inclusion of agricultural trade under the WTO. Now, due to the declining terms of trade for primary products, which have a low level of knowledge intensity, the focus has shifted to value added agro products for export and domestic markets. The share of value added processed products in relation to commodity trade increased from 24.7 percent in 1970 to 58.2 percent by the end of the 1990s globally across developing and developed countries (da Silva, 2005). But, a large part of this value added agro trade is intra-industry, spread across countries and even within the same corporate entities like MNCs or TNCs. In fact, the food industry 'transnationality' index, which rose from 59 percent in 1990 to 79 percent in 1999, is the highest among all industries. This index measures the degree to which a company is internationalised by comparing foreign assets, sales

and employment to that at home (da Silva, 2005). Though there are many advantages in being part of export-oriented value chains like knowledge transfer, better incomes and market understanding, there are also negative aspects like vulnerability of export markets, high cost of attending to these markets and price fluctuations (Andreas et al, 2006). Further, the food miles i.e. the distance food travels has increased significantly e.g. in the USA, food typically travelled 1500-2500 miles from the farm to plate which was 25 percent higher than that in 1980 and in the UK, the average food miles is 3000 kms. (da Silva, 2005). This is possible due to developments in food technology, transport technology, Information and Communication Technology (ICT), and biotechnology. In the developed world, processed foods accounts for 60 percent of consumption on an average (Rehber, 2000).

Agribusiness has strong linkages with the industrial, agricultural and service sectors and has impacts on each of these. It is the single largest sector of economy in many developing countries and is growing fast (Andreas et al, 2006). Agriculture currently accounts for only about 26 percent of the GDP in India as also for many other countries like Sri Lanka and Bangladesh and has been on a decline for some time (table 1). But if we take an agribusiness perspective of the economy, then even now, more than 50

TABLE 1
Comparative Contribution of Agriculture to GDP in South Asia (at Current Prices in %) 1980-2003

Country	Agriculture				Industry			Services		
	1980	1990	2001	2003	1980	1990	2001	1980	1990	2001
India	38.1	31.1	24.7	22.2	25.9	29.3	26.4	36	39.7	48.8
Bangladesh	31.7	30.4	22.7	21.8	20.9	21.7	26.4	47.4	47.9	50.9
Sri Lanka*				17.3*			27.3*			55.3*

Source: Bayes and Ahmed (2003).

* <http://www.fao.org/countryprofiles/selectiso.asp?lang=en>, accessed on 1st August, 2006.

* for 2006; http://en.wikipedia.org/wiki/Economy_of_Sri_Lanka

percent of India's GDP comes from the agribusiness sector, which includes the following: all agricultural input sectors, the farm production sector, agro processing, including food, and manufacturing sector and the food/fibre distribution and marketing sector. Though sectors like agro processing and retailing or distribution are considered as part of the industrial and service sectors, respectively, they are directly dependent on what happens on or around the farms. Therefore, they are legitimately part of the agribusiness sector as agribusiness includes any land based or allied food or fibre production and activities deriving from them as long as the raw material base is biological in nature. Most of the rural non-farm sector, which is targeted for employment generation today is nothing but agribusiness and depends directly on what happens in the farm sector. It accounts for 32 percent of household income in Asia (Andreas, et al, 2006). As structural transformation of the economy takes place, the relative importance of primary farm production declines and that of processing and distribution increases. This shift is largely from agriculture to agribusiness as seen in most of the developed countries and more recently in developing Asian countries. Countries like Taiwan have shown that the agribusiness sector can serve to boost other sectors of the economy. However, the complexity of the agribusiness sector needs to be kept in mind while analysing its impact on the development process of a country. Every step or link in an agribusiness chain from farm gate or even

input supply to the retail represents an increasingly interlinked economic, technological and multi-regional production system. This makes the distinction between agriculture and agro-industry increasingly blurred and the two sectors become interwoven (Andreas et al., 2006). South Asian farming is dominated by small holdings (table 2), which means there are resource constraints to link up with global markets or global players.

Globalisation and liberalisation are likely to have the greatest impact on the rural poor through their influence on the agricultural sector, terms of trade, availability and cost of inputs, and new investments in the agribusiness sector. Technological progress in farming can help the rural poor by raising farm productivity, lowering food prices, increasing employment, and reducing farming risk. But the role and influence of multinational corporations (MNCs) in food production and trade will, as an institutional mechanism, determine the exact impact of globalisation on the rural poor, who are mostly from the labour class. Contract farming (hereafter CF) promotes participation of domestic firms and MNCs in farming, and is seen as the 'new investment' aspect of globalisation (Ramamurthy, 2000; Killick, 2001). This paper examines the profile and impact of agribusiness corporations, supermarket chains and such agencies on primary producers in South Asia from the perspective of rural poverty reduction.

TABLE 2
Farm Sector Structure in South Asia

Country	Average Size of holding (ha.)	% of marginal holders (< one ha.)	% of farm area under marginal holdings	% of small holders (1-2 ha.)	% of farm area under small holdings
India (1995-96)	1.3	62	17	19	19
Sri Lanka (2002, only two categories i.e. <0.8 and > 0.8 but all <2 ha.)	0.8	71	30	29	72
Bangladesh (1996)	0.5	87	43	9	26
Pakistan (2000)	3.0	36	6	22	10
Nepal (2002)	0.8	75	39	18	30

Source: Joshi et al, 2007.

2. Agribusiness in India

India is world's third largest producer of agricultural commodities after China and USA. India produces 16 percent of the world's milk, 41 percent of mangoes, 30 percent of cauliflowers, 28 percent of tea, 23 percent of bananas, 24 percent of cashew nuts, 36 percent of green peas and 10 percent of onions. This strong base in agriculture provides a large and varied raw material base for food processing. Further, India has the largest livestock population (cattle / buffalo: 283 mn; sheep / goat: 183 mn), reflecting the huge potential for India in the dairy and meat segments. This base in agriculture can not only feed India's large and growing consumption base, but also become a key supplier of food to the world. Although, India's current share of world agri and food exports is about 1.6 percent, there is potential for a multi-fold increase (Rai, 2006). But, the land holdings in India are very small.

Though agriculture accounts for only 26 percent of the GDP, the commodity sector as a percentage of GDP accounts for 58 percent. At present, commodities of the order of Rs. 1100 billion are being traded. The major agricultural commodities traded are cotton, sugar, wheat, soybean, and potato. The case of potato is interesting as there is neither any production subsidy nor MSP (Business Today, 10 July 2006, pp. 114-117, and 123). At present, future trading is permitted in more than 100 commodities and there are 3 national and 21 regional exchanges recognised for commodity futures trading.

India possesses 11 percent of the world's arable land, which is approximately 161 million hectares, and is the second-largest grower of fruits and vegetables, after China. Yet in 2004, it accounted for merely 1 percent of the world's \$100 billion in exports of fruits and vegetables. The Dutch lender Rabobank projected that India would double its share of global food and agricultural exports to 3 percent in the next decade from 1.5 percent now, with the value

of exports soaring to \$30 billion by 2015 from \$8 billion in 2003. Only 2 percent of Indian fruits and vegetables are processed, compared with 80 percent in the United States.

2.1 Indian Food Processing Sector

The agro processing sector has grown appreciably during the last two decades. There are 35,000 modern rice mills besides 91,000 rice hullers, 4500 shellers and 8300 hullers- cum-shellers which together can process two thirds of India's paddy production. There are 20, 000 pulse mills processing more than 75 percent of the pulses produced in the country (The ET Knowledge Series – Rural Economy, 2002-2003; Sekhon et.al., 2003; Chengappa, 2004). Vasad town in Gujarat has 35 pulse processing mills which process close to 10 lakh qlt. of tuar (arhar) dal annually. Most of these units are owned by Patels and source raw materials from within India as well countries like Burma, Malawi, Tanzania, and re-export it to North American, European, and Asian countries besides Australia.

In the horticulture sector, there are 5198 units processing fruits and vegetables (Chengappa, 2005). The fruit and vegetable processing industry grew 2.5 times in its installed capacity between 1990 and 1996. This was also accompanied by higher capacity utilisation (48 percent) which was only 34 percent in 1990. The exports grew more than five times during this period (Viswanathan and Satyasai, 1997). However, this processing accounted for only 1.2 percent of the total production of fruits and vegetables in the organised sector in India with the overall figure being 1.7 percent. It is higher at 37 percent in milk, 21 percent in meat, and about 6 percent and 11 percent in poultry and marine fisheries respectively in 2005 (<http://www.fas.usda.gov/gainfiles/200504/146119288.doc>).

There are also more than 400 fish processing units in India (Scheuplein, 1999). In fact, in the Indian

food market, the processed food segment constitutes only 10 percent while the semi-processed another 15 percent. The food processing sector is dominated by unorganised sector units which account for 42 percent of all units with the small scale sector taking another 33 percent and the organised sector only 25 percent of all food industry units (CII and McKinsey & Co. Inc., 1997). The organised sector comprises of 18000 units producing Rs.9000 crore worth of foods. The major sectors in food

processing are meat and meat products, vegetable oils, and cereal products. Besides, there are 3619 ginning and pressing units with 47,194 gins and 810 presses. The value addition in the agro processing industry is estimated to be Rs. 25,00-3,000 billion with one third of it being in value added food products alone (Chengappa, 2004). Table 3 below gives contribution of this sector to the Indian economy. Table 4 shows the key players in major segments of the food processing industry.

TABLE 3
Magnitude of Indian Food Processing Sector (Organised sector)

Size of the industry	Rs. 2,50,000 crore
No. of units	6607
Investment	Rs. 20097 crore
FDI as o 31-2-04	Rs. 3500 crore
Contribution in GDP	5%
Direct employment	2.77 lakh
Exports 2004	Rs. 14,500 crore
Growth	15% annual
Contribution in total exports	10%

Source: <http://www.idfresearch.org/pdf/Tradelib.pdf>

The Employment growth in the agro processing industries during the early 1990s as against the 1980s was higher in the case of only fruit and vegetable processing, meat, fish, edible oils and cashew, while net value added growth rates were higher than those in the later half of 1980s (Gandhi et.al., 2001). During the post 1994-95 period, employment growth rates have been higher in the case of fruit and vegetables, tea, starch, wines, textiles, and paper. The industry, especially the small scale and rural based, suffers from low productivity, and lack of capital and market orientation (Mathur,

TABLE 4
Market Size, Growth Rates and Key Players in Food industry

Industry	Size* (in crore)	Key players	Net sales** (Rs crore)
Edible oil	12000 (5%)	Adani Wilmar Ruchi Soya Marico Agro Tech Foods (Con Agra) Cargill Godrej Foods NDDB Marico Markfed, Punjab Bunge	2500 4500 900 900
Tea	8000 (5%)	Hindustan Lever Tata Tea Mcleod Russel	1400 1000 500
Bakery products	8000 (1%)	Parle Britannia ITC Kellogs	2000 170 300
Poultry	7500	Venky's (India) Godrej Agrovet Vista	400 150
Branded sugar	7000 (5%)	Triveni Engg. Balrampur Chini EID parry Bajaj Hindustan	1200 1100 900 850

TABLE 4 (Contd...)

TABLE 4 (Contd...)

Soft drinks/mineral water	7000 (5%)	Pepsi Coca Cola	3000 3000
Dairy products	5000 (5%)	Amul Nestle India GlaxoSmith CHL Hatsun Agro NDDDB Mother Dairy Dynamix	3800 1600 1000 500
Health drinks	1100 (8%)	Nestle India Dabur Rasna Heinz Glaxo Smithkline Amul	600 150
Culinary/Ready to eat	2500 (20%)	MTR NestleIndia Hindustan Lever ITC McCain Foods	500 500 400 400
Branded rice	2000 (8%)	Satnam Overseas (38%) LT Overseas (26%) KRBL Lakshmi Energy REI Agro # Amira Foods (new entrant)	950 700 550 550
Coffee	1000 (5%)	Hindustan Lever Tata Coffee CCL Products	400 200 120
Branded Atta (65% of all wheat converted into atta and the branded segment is 0.9 million tonnes)	500 (8%)	ITC Pillsbury HLL	200

Notes: Figures in percentage (%) terms indicate growth rates

*size estimates for branded/organised segments

** the above includes unlisted companies, figures for which are indicative and are based on industry sources.

Net Sales figures for both branded and unbranded.

Source: Bhattacharya, A. 2006: Food for Thought, Economic Times, portfolio, 10-16 July 2006, P 2. Also The Hindu Business Line, 18 July 2006.

1994; Chadha and Sahu, 2003). The major problems of the agro processing industry are non-availability of quality raw materials in adequate quantity at reasonable cost and at the right time, besides financial and demand constraints (Gandhi et.al., 2001). There have been many mergers and acquisitions, and restructuring in the Indian food industry during the 1990s which have led to large consolidated players dominating many segments of the market (Banaji, 1996-97).

The cooperatives have been successful in the processing of sugar, paddy, milk and cotton. Now, there are 273 sugar cooperatives which produce nearly 55 percent of the total sugar production

in India with the remaining being produced by private (153) and public sector mills. Similarly, more than 87,000 dairy cooperatives federated into 187 district level cooperatives and 27 state level federations working with 87 lakh milk producers have been important players in the milk business. There are 173 cooperative spinning mills accounting for 22 percent of yarn and fabric production, and 431 ginning and pressing cooperatives accounting for 12 percent of all units and 21 percent and 18 percent, respectively of all gins and presses. Besides, there are 13,000 fisheries cooperatives in India (The ET Knowledge Series – Rural Economy 2002-2003). The main reason for the success of this segment of the processing sector has been

the focus on value addition, and therefore, high returns to producing members, functional vertical integration, high participation of members, and professional management and leadership (Dwivedi, 1996). During 2003-04, however there was a closure of 144 sugar mills of which most of them were in Maharashtra (49), U.P. (19) and Bihar (18). This figure increased to 176 in 2004-05, with 89 in Maharashtra, 19 in Bihar, and 17 in UP. During 2005–06 also, 132 sugar mills were closed with 48 in Maharashtra, 19 in Bihar, and 16 in U.P. (The Indian Express, July 21, 2006).

2.1.1 Wheat based industry

Within the wheat-based processing industry, bakery constitutes the largest segment of grain based processed foods (table 5). The industry is characterised by the presence of a large number of unorganised players, exceeding 50,000. There are only about 15 players, who market branded, packed bakery products. As far as bread is concerned, the total bread production in the country is estimated to be 3.75 million tonnes annually. As per industry estimates, in the last 5 years, the bread industry in India has been growing at about 6 percent. The organised segment has grown faster at about 8 percent. In 1977, the Government of India reserved the bread industry for the SSI. The two large units that were already in existence namely, the Britannia Industries Limited and the Modern Food Industries Limited were however allowed to continue on the basis of their existing installed capacity. Besides these two players, there are 25

medium scale and 1,800 small scale manufacturers together accounting for 45 percent of production. The unorganised sector is estimated to have as many as 75,000 bread bakers located in residential areas in towns and cities. From being a low priced commodity, bread has gradually developed into a branded product largely because of the product positioning platforms created by two large players in the industry. Milk bread accounts for 85 percent of the bread market with 10 percent going to brown bread and 5 percent for fruit and other special bread (<http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 7 August, 2006). The size of the biscuit industry is estimated to be around 1.95 million tonnes, (valued at Rs. 68.6 bn) of which the organised sector (branded/packed) is about 57 percent by volume, and 64 percent by value. The organised biscuit sector comprises two large scale units, about 50 medium scale and about 2,500 SSI units. The unorganised sector is estimated to have approximately 30,000 small and tiny bakeries across the country. Namkeen accounts for 94 percent and 92 percent of the organised and unorganised sector grain based snacks market respectively with the rest going to extruded snacks (<http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 7 August, 2006). Ready-to-eat foods is another emerging segment in India now.

2.1.2 Confectionery industry

The size of the confectionery and chocolate market in India is estimated at Rs. 26.0 billion. Sugar confectionary accounts for 61 percent of this market, with the balance being in chocolates, mints and gums. The organised market for sugar confectionery and gums is estimated at 1,39,000 tonnes valued at Rs. 12 billion. The market can be divided into 7 major categories, namely hard boiled candies (HBC), toffees, eclairs, chewing gum, bubble gum, mints and lozenges. Hard boiled candies and toffees together constitute the largest segment accounting for a 69 percent share. Gums are the second largest with an 18 percent share. The confectionery market has been growing at 6 percent annually over the last five years. Gum based confectionery has grown faster

TABLE 5
Market Size of Various Segment of Wheat-Based Foods

Segment	Value (Rs billion)	Volume (Million tonnes)
Bread	38.9	3.75
Biscuits	68.6	1.95
Grain based snacks	29.0	0.29
Branded atta	13.5	0.90
Pasta products	8.4	0.14
Total	158.4	7.03

Source: <http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 7 August, 2006

at over 10 percent. The confectionery market is highly fragmented with several local players. The unorganised segment is estimated to constitute two thirds of the total market and has a strong presence in the HBC/Toffee segment. Sugar confectionery is a major segment (61 percent) with almost equal shares (12-14%) being held by other segments i.e. chocolate bars, choco counts and mints and gums. Dabur's Hajmola, P&G's Vicks and Warner Lambert's Halls, Chicklets, Clorets are also sold as confectionery with 1-2 percent of the market share each (<http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 7 August, 2006). The market for chocolate has grown at 12 percent annually over the last decade. Growth has been more rapid in the period 1997-02, in line with increased disposable incomes. Moulded chocolates are more preferred, with a market share of 50 percent by volume, followed by counts (33%), and sugar and panned chocolates accounting for the remainder. Within these two segments, Cadbury is the biggest player (66-70% market share) followed by Nestle (18-22%) (<http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 7 August, 2006).

2.1.3 Fruit and vegetable processing industry (including spices)

Though only about 2 percent of these crops are

processed, the sector has many existing large scale players and many new ones entering the sector with large investments both in value added fresh and processed products (table 6).

India produces 2.5 to 3 million MT of spices annually worth around US\$ 3 billion. India exports around 0.25 million MT of spices annually, accounting for a 37 percent share in volume and 23 percent share in value in the world spice trade. India meets around 70 percent of the world demand for spice oils and oleoresins. India accounts for 25-30 percent of world's pepper production, 35 percent of ginger and about 90 percent of turmeric production. Major exports destination are the EU, Sri Lanka, Japan, and Middle East countries. (Indian Agribusiness Survey, 2005; and <http://www.indiaonestop.com/markets/spices/spices.htm>, Accessed on 7 August, 2006). Major spices in terms of area are chilli, cumin seed, mustard seed, coriander seed, pepper, cardamom, turmeric and fenugreek (http://hortibizindia.org/database_files/2003/db_page21.pdf, accessed on 7 August, 2006).

2.1.4 Dairy (milk products) sector

The Indian dairy production system is dominated by small producers. There are around 100 million

TABLE 6
Sectoral Volumes and Key Players in the Indian Processed Fruit and Vegetable Industry

Category	Industry size (Rs. in million)		Key players in organised segment
	Organised	Unorganised	
Jam	900	500	HLL, Mapro, Marico, Mala's
Pickles	1,500	10,000	Priya Foods, Praveen, Desai Brothers, Cavin Care, GD Foods
Sauce/Ketchup	1,000	4000	HLL, Nestle, GD Foods, Heinz, Cremica (Mrs. Bector's)
Pulp/Concentrate	4000	-	Foods and Inns, BEC, Clean foods, Jain irrigation, Usha International
Juices/Fruit based drinks	5000	-	Pepsi, Dabur, Parle, Godrej, Mother Dairy
Squashes	1,300	2,500	HLL, Haldiram, Mapro
Ready to eat vegetables	1,000	-	Tasty Bite, ITC, MTR, ADFC
Potato chips	2,500	3,000	Pepsi
Cooking pastes	300	-	Dabur, HLL
Total	37,500		

Source: <http://mofpi.nic.in/visdoc/volume2.pdf> Accessed on 31 July 2006, p 5.

milch animals reared by 70 million farmers (table 7). The share of landless, small and marginal farmers is 68 percent in milch animals and 62 percent in milk output. There are 100,000 village dairy cooperatives with a farmer membership of the order of 11 million. These primary cooperatives are federated into 170 district cooperative milk unions and further into state cooperative dairy federations. The dairy cooperative network collects about 17 million litres milk per day and pays an aggregate amount of about Rs.700 billion to the milk producers in a year (table 8). The cooperative and public sector focuses on meeting the liquid milk demand in cities and towns. On the other hand, the private sector concentrates

on manufacturing of milk powders, dairy whiteners, infant foods, ghee and to some extent the traditional Indian dairy products. Only a few of them market liquid milk. In 1999-2000, there were 653 plants in the organised sector with an employment of 80,000 persons (Chand, n.d.) (table 9 and table 10).

About 37 percent of India's milk production of 86 million tonnes is processed, 15 percent in the organised sector and 22 percent in the unorganised sector. A major share of the milk processed in the organised sector (mostly by dairy cooperatives) is in the form of packaged liquid milk. Other processed items include ethnic sweets, milk powder, ghee

TABLE 7
Distribution of Dairy Animals by Size Group of Land Holdings, 1992

Type of house hold	% of house holds	Arable land		Distribution of milch animals			Average dairy holding (No./100 household)		
		% share	Av. size (ha)	Cows (%)	Buffaloes (%)	Total (%)	Cows	Buffaloes	Total
Landless	21.8	0	0	2.8	2.9	2.8	4.9	3.9	8.8
Marginal (<1.0 ha)	48.3	15.5	0.3	48.8	36.6	43.5	38.5	22.3	60.8
Small									
(1-2 ha)	14.2	18.6	1.4	22	21.2	21.7	59	44	103
Medium (2-4 ha)	9.7	24.2	2.7	15.8	20.1	17.7	62	61	123
Large (>4 ha)	6	41.7	7.5	10.6	19.2	14.3	67.4	94.3	161.7
All	100	100	1.1	100	100	100	38.1	29.5	67.6

Source: Chand, R (n.d.): 'Dairy industry in India: Situation and outlook', A presentation, NCAP, New Delhi

TABLE 8
Status of Dairy Industry in India

	1990-92	1998-2000
Income Value of milk (Rs. billion at 1980-81 prices)	158	214
Share in value of agricultural output (%)	15.1	16.7
Share in value of livestock output (%)	69.2	69.3
Employment*Man days engaged in livestock rearing (million person days)	9.8	8.5
Share in agricultural employment (%)	4.7	4.4
DCSs in 2000		84,289
Producer members (millions) in 2000		10.6 (21% women)
Milk procurement (million lts/day) in 2000		15.8

*Usual status activity. Figures relate to 1983, 1993-94 and 1999-2000.
Source: Chand (n.d.)

TABLE 9
Main Products, Size, and Major Players in Indian Dairy Industry

Products	Industry size (billion rupees)		Key players in the organized sector
	Organised	Unorganised	
Packaged milk	98.0	0	Mother Dairy, Amul, various state cooperatives, Paras Dairy, Heritage, Chitale, Metro, and private dairies in various states esp. Gujarat, Karnataka, Punjab and Haryana
Ethnic sweets	62.5	455	Mother Dairy, Amul, various state cooperatives, Haldiram, Bikanerwala,
Yogurt	6.3	160	Mother Dairy, Amul, Nestle
Cheese	2.0	21	Amul, Vijaya, Britannia, Dynamaix Dairy
Ice cream	8.0	0	HLL, Mother Dairy, Vadilal, Amul
Butter	5.2	60	Amul, Mother Dairy, Vijaya, Britannia, Verka, Creamline
Ghee	35.0	210	Amul, Vijaya, various state cooperatives, Paras
Milk powder	38.0	0	Amul, Nestle, Verka, Vijaya, Nandini,
Total	255	906	
Grand Total	1,161		

Source: <http://www.fas.usda.gov/gainfiles/200504/146119288.doc> accessed on 20 July, 2006.

TABLE 10
Principal Dairy Products Manufacturers in India

Company	Brands	Major products
Nestle India Limited	Milkmaid, Cerelac, Lactogen	Sweetened and condensed milk and milk powder
Milkfood Limited	Milkfood	Ghee, ice cream,
SmithKline Beecham Limited	Horlicks	Malted milkfood, ghee, butter, powdered milk, milk fluid and milk based baby foods.
Indodan Industries Limited	Indana	Condensed milk, smp, wmp, dairy whitener, and chilled and processed milk
Gujarat Co-operative Milk Marketing Federation Limited	Amul	Butter, cheese and other milk products
H.J. Heinz Limited	Farex, Complan, Lactose, Bonniemix, Vitamilk	Infant and malted milkfoods
Cadbury	Bournvita	Malted food

Source: http://mofpi.nic.in/industry-specific-information/milk/milk_players/milk_players.htm accessed on 20 July, 2006.

(melted, clarified butter), butter, cheese, and ice cream. In the unorganised sector, a major share is processed into milk-based sweets, and a smaller share for making yogurt, butter, and ghee.

The Indian dairy industry can be divided into two types of enterprises: liquid milk and milk products. In the procurement and marketing of liquid milk, there is a strong presence of cooperative and traditional private channels though the organised sector private enterprises also exist. The packaged liquid milk market alone is of the order of Rs.

12,000 crore and is growing at the rate of 10 percent annually (Sodhi, 2005). On the other hand, in the marketing of western dairy products, it is only the organised cooperative and private sector that marks its presence. The orientation of the large private dairy sector has been, historically, towards milk product marketing. The private domestic and multinational enterprises are attracted to dairy product manufacturing because of the ease of profit making through brand marketing by reaching high income consumers, SNF (Solids Not Fat) surplus and the lesser hassles in marketing (Shah

et.al., 1995). The price realisation per litre of milk is higher in the case of western milk products. There are a few organisations which are into both liquid milk as well as milk products. These two categories differ in terms of their ownership, size of business and profitability. Whereas the liquid milk business is dominated by cooperative or private Indian firms, the milk product business is largely in the hands of multi national corporations (MNCs). The presence of private dairies in liquid milk is confined only to certain cities and regions (Promar International, 2001).

Nestle, a Swiss multinational company, one of the largest and oldest firms, has been operating a milk plant at Moga since 1961 when it started with 180 producers from four villages and 520 kg. of milk procurement. In 1962, the firm expanded its operations to 66 villages covering 4660 milk producers and collected 2.0 million kg. of milk. Initially, the firm adopted a 'cooperative approach' to source milk supplies, but this was gradually abandoned in favour of CF with an aim to increase milk production and procurement by providing inputs and services to the producers. The company procures 236 million kg. of milk from 85,000 farmers in 1002 villages in the districts of Moga, Ludhiana, Sangrur, Muktsar, Faridkot and Ferozepur (Chand, 2001; 2005) through the Nestle Agricultural Services (NAS), which works closely with the dairy farmers of these villages by providing extension advice, inputs and other services needed to obtain the assured supply of quality raw milk. Average milk procurement has increased from 4.6 kg./farmer/day in 1962 to 10.7 kg./farmer/day in 2002. NAS also provides health cover to dairy animals, and supplies medicines, balanced feed and fodder seed. For genetic upgradation of dairy cattle, the company supplies pedigree bulls and has also set up 37 artificial insemination centres. All material inputs are supplied on a cost recovery basis but costs are low as a result of bulk purchase by the company (WB, 2003). It has a retail network of 700,000 outlets in India covering 3300 towns serviced by over 4000 distributors (BIRTHAL et al., 2005).

2.1.5 Meat and meat products (including poultry)

The total meat production in the country is 4 million tonnes which includes beef, buffalo meat, mutton, goat meat, pork and poultry meat. But, beef and buffalo meat account for 60 percent of the total meat market with goat, pork and poultry accounting for about 10 percent each (http://www.southasianmedia.net/Magazine/journal/9-wto_poultry_industry_India.htm, accessed on 20 July, 2006). However, only about 1 percent of the total meat is converted into value added products like sausages, ham, bacon, luncheon meat, kababs, meat balls, etc. as the slaughter rate was only 6 percent in cattle, 11 percent in buffalo, and 30-40 percent in small ruminants in 1994 with almost 100 percent in pigs and chicken. (http://mofpi.nic.in/industryspecificinformation/meat/meat_rawmaterials/meat_rawmaterials.htm, accessed on 20 July, 2006). The total meat export during 1999-2000 was Rs. 845.00 crores consisting mostly of mutton and buffalo meat out of which 70 percent was contributed by export of buffalo meat. The country has 3600 slaughter houses, 9 modern abattoirs and 171 meat processing units licensed under Meat Products Order. Major players in meat sector with their product range and brands are given in table 11.

Compared with the rest of the livestock sector, the poultry industry in India is more scientific, better organised and continuously progressing towards modernisation. Breeding and feeding management has improved through education, training, competition, expansion and survival instincts. India is the world's fifth largest egg producer, with a total production of 40 billion eggs per year. India has 150 million layers and 650 million broilers. There are 750 hatcheries and 3430 million birds. The annual per capita consumption of eggs is 40 gms, and that of broiler meat is 1000 gms. Although these figures are low in comparison with those for developed countries, the industry has great potential to expand because 30 percent of the country's population (about 300 million people) is developing economically and the demand for poultry products is therefore likely to grow.

TABLE 11
Major Manufacturers of Processed Meat Products in India

Company	Products	Brand/s
Frigo Refico Allana Limited, Kulaba, Mumbai	Frozen buffalo meat	Allana
Frigo Refico Allana Limited, Kulaba, Mumbai	Canned meat	Allana
Hind Industries Limited, New Delhi	Frozen buffalo meat	Sibaco, Eatco
Hind Industries Limited, New Delhi	Chilled/Frozen sheep and goat meat	Sibaco, Eatco
Alkabeer Exports Limited, Mumbai	Frozen buffalo meat	Alkabeer
Alkabeer Exports Limited, Mumbai	Chilled/Frozen sheep and goat meat	Alkabeer
P.M.L. Industries, Chandigarh	Frozen buffalo meat	PML
U.P. Pashudhan Udyog Nigam Ltd. Uttar Pradesh	Pork and other meat products	CDF
U.P. Pashudhan Udyog Nigam Ltd. Uttar Pradesh	Canned meat manufactures	CDF
A.P. Meat & Poultry Corporation, Hyderabad	Pork and other meat products	APSMPC
Pigpo, Jorbagh Market, New Delhi	Pork and other meat products	Pigpo
MAFCO, Mumbai	Pork and other meat products	MAFCO
Ranchi Bacon Factory, Ranchi	Pork and other meat products	
Rajasthan Meat and Wool Marketing Federation, Alwar	Canned meat manufactures	
Venkateshwara Hatcheries, Pune, started as a franchise of Babcook in 1971 and now its broiler breed VENCobb has 60% market share in India. It is into contracting since 1990s (Birthal et al, 2005).	Poultry products	Venky's Food
DeeJay, Bangalore	Poultry products	

Source: http://mofpi.nic.in/industryspecificinformation/meat/meat_players/meat_players.htm accessed on 20 July, 2006.

Currently, it is growing at the rate of 10 percent in broilers and 6-7 percent in layers and is going through a phase of integration in broilers which is likely to change the face of the industry. Although the phenomenon is new, it is expected that there will be very rapid changes towards integration as more farmers find it increasingly difficult to run farms with marginal profits or negative margins. The poultry industry is very modern, with pure-line breeding, the latest vaccines and medicines, environmentally-controlled poultry houses, up-to-date processing units, the latest management practices, chicken processing, exports of hatching eggs and excellent feed quality (<http://www.fao.org/DOCREP/ARTICLE/AGRIPPA/X9500E01.HTM>, accessed on 3 August, 2006). Poultry processing is still in its infancy. There are only seven modern integrated poultry processing plants. However, there are a good number of small poultry processing units engaged in production of poultry meat products. There are five egg processing units engaged in exporting egg products. But, India's share in poultry production is 2.19 percent and

that in exports is 0.07 percent only (http://www.southasianmedia.net/Magazine/journal/9-wto_poultry_industry_India.htm, accessed on 21 July, 2006).

2.1.6 Fisheries sector

With an annual fish production of 6 million metric tonnes, India occupies the fourth position in fish production and second in aquaculture production globally. The annual domestic per capita fish availability is 9 kilograms and seafood export earnings of India is consistently over Rs. 6,000 crores a year. Fish contributes 1.4 percent of the GDP and 4.5 percent of the agricultural GDP (Sarada, 2006). The fisheries in India are classified as marine, inland and aquaculture. India has a coastline of 8118 sq. kms. with an Exclusive Economic Zone (EEZ) of 2.02 mn. sq. kms. and 0.5 mn. sq. kms. of continental shelf. In the inland sector the resources comprise of 2.38 mn. hectares of ponds and tanks, 2.03 mn. hectares of reservoirs, 0.19 mn. kms. of rivers and canals and 1.4 mn. hectares of brackish water area, the potential of which can be tapped through capture and culture

fisheries. Inland fisheries provide 54 percent of the total national fish catch. Of the total fish production, 62 percent is on account of capture production and 38 percent is on account of aquaculture. Marine fish in India primarily include shrimp, finfish, tuna, cuttlefish, squids, octopus, red snappers, ribbon fish, mackerel, lobsters and cat fish. Of the total, 60 percent is obtained from marine sources, while coastal fishing constituting the bulk. Deep sea resources account for only 12 percent of the output.

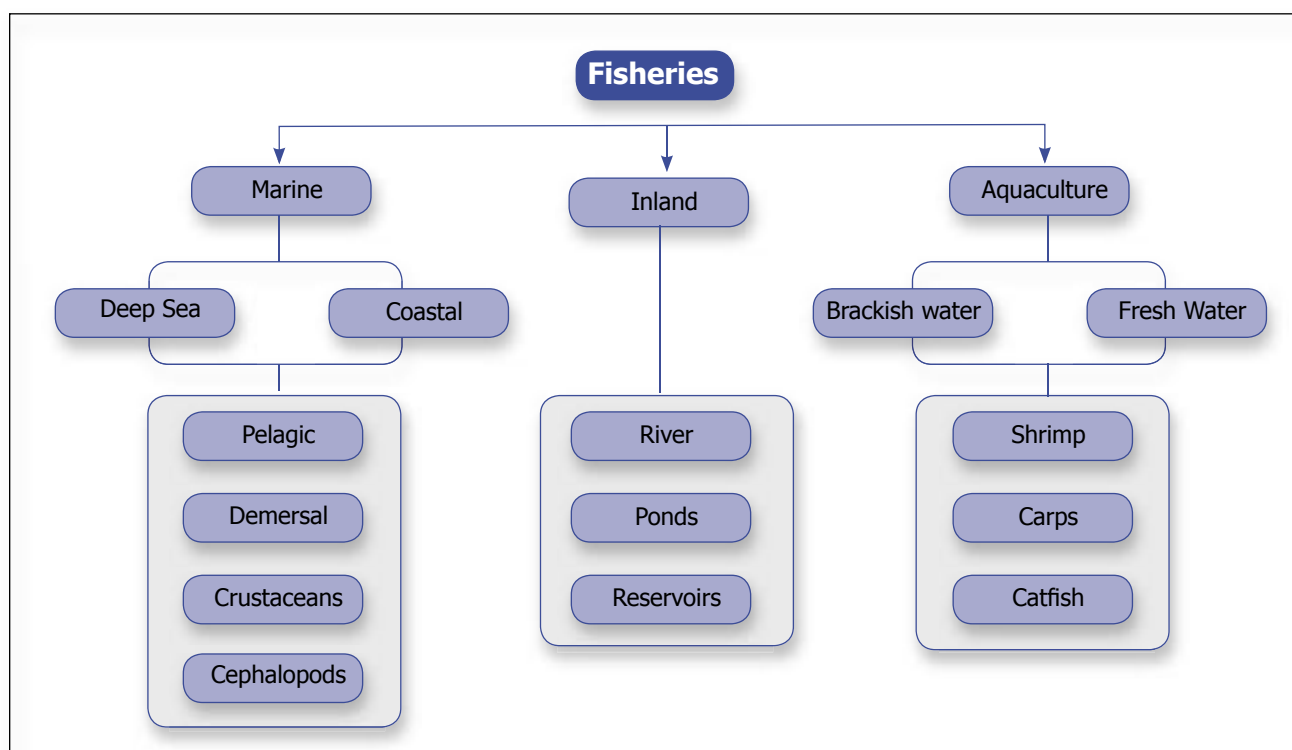
The marine fisheries segment can be segregated into Deep sea fishing and Coastal fishing (also

see figure 1). The Indian marine fisheries sector is characteristically open access, with free and common property rights. The multi species fisheries comprise of over 200 commercially important finfish and shell fish species. Mackerel, penaeid prawn, clupeiods, sciaenids, and perches are the dominant species in Indian marine waters.

Fisheries supply chain

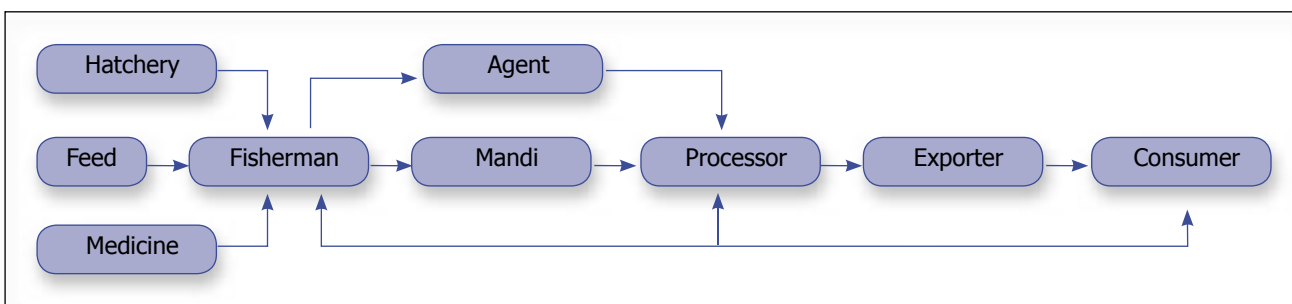
The supply chain in the fisheries is depicted below (figure 2). Pre-dominantly, producers sell their catch directly to consumers via wet markets. The alternate channels for distribution are:

Figure 1
Segments of the Fisheries Industry in India



Source: <http://mofpi.nic.in/visdoc/volume2.pdf>, (accessed on 4 August, 2006).

Figure 2
Supply Chain for Fish



Source: <http://mofpi.nic.in/visdoc/volume2.pdf>, (accessed on 4 August, 2006).

- Via commission agents, who in turn sells to the processor
- Mandi /market yard.

Fish processing

Most processing facilities are concentrated in clusters with Kerala accounting for 30 percent and AP, Gujarat and TN about 12-14 percent each. Maharashtra and West Bengal follow with about 10 percent each (<http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 4 August, 2006). The capacity utilisation in these clusters is less than 30 percent. About 85 percent of the existing processors are classified as small scale. In 2001 80.5 percent of the total fish were sold as fresh, 4.5 percent were sold as frozen and 5.8 percent were cured. Processing of produce into canned and frozen forms is carried out almost entirely for the export market. In all, there were about 393 freezing units, 13 canning units, 160 ice-making units, 12 fish meal units and also about 476 cold storage units in 1999 (table 12).

Shrimp aquaculture

Shrimp aquaculture is part of both marine and inland fisheries. On a resource classification basis, the aquaculture sector covers fresh water culture, brackish water and marine culture. Two types of shrimps are cultivated in India, Tiger shrimp (*Penaeus Monodon*) and Chinese White or Pacific White shrimp (*Penaeus Vannamei*). Cultured shrimps/fresh water prawns contribute nearly 60 percent of the marine exports by volume. However in value terms their contribution is higher at 82 percent. The area under shrimp production has increased at a CAGR of 6.7 percent and production

TABLE 12
India's Seafood Processing Industry Infrastructure

Type of infrastructure	Number	Capacity (MT)
*Fishing Vessels (Traditional)	180000	NA
*Fishing Vessels (Mechanised)	47000	NA
Freezing plants	397	8497
IQF Plants	102	746
Canning Plants	13	50
Ice plants	157	2969
Fish Meal Plants	12	229
Pre-processing Plants	579	3408
Conveyances	498	NA
Cold storages	482	106890
Other storages (Dry Fish etc.)	216	11458
*Fishing Harbours (Minor/Major)	29	NA
*Fishing landing centres	114	NA

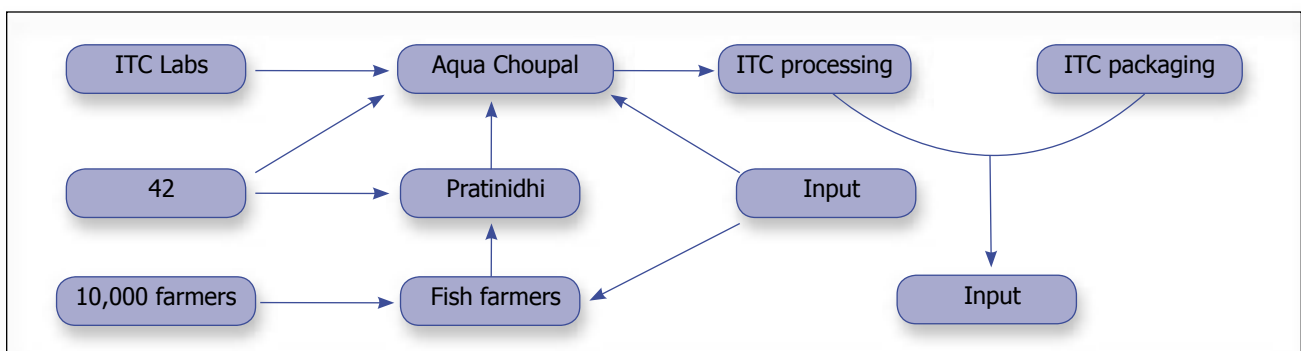
Source: Indian Agribusiness Survey, 2005, p. 99.

at the rate of 11.5 percent over the period of 1990-91 to 2002-03. Brackish water shrimps account for 79 percent of production, the balance being scampi culture.

Aqua E-choupals

ITC Aqua Choupal Model (figure 3) was launched in 2003 in Coastal Andhra Pradesh. Its turnover was INR 500 crore in 2004-05. With a participation by more than 10,000 farmers in more than 100 villages in Andhra Pradesh. Seven districts in Andhra, Srikakulam, East and West Godavari, Krishna,

Figure 3
ITC Aqua-Choupal Model



Guntur, Prakasam and Nellore are covered. It has vertical co-ordination at the farm level wherein a very important role is played by the Pratinidhi. The Pratinidhi builds ITCs brand among the farmers, encourages the farmers to use ITCs choupal labs, monitors quality at the farm level and provides extension services. The Pratinidhi gets 1 percent share in the final value. The choupal has a free internet facility for farmers which provides all the necessary information, amounting to extension services. The farmer can exercise his choice in the sale of produce. Payment is INR 5 less than the market price. Prompt payment is done unlike other players and also provides discounted inputs at the farm gate (<http://www.idfresearch.org/sps/docs/agarppt4.pdf>, accessed on 4 August, 2006).

Exports of fish

Marine exports were estimated at Rs. 68.8 bn in 2002-03. The export of marine products has undergone a shift from dried fish products in the 1960s, to canned products in the 1980s which was further evolved into frozen products in the 1990s. Shrimps account for 67 percent of the exports by volume followed by fin fish and cuttle fish. Culture shrimps accounts for over 80 percent of the shrimps exports. Processed fish products for export include: conventional block frozen products, individual quick frozen products (IQF), minced fish products like fish sausage, cakes, cutlets, pastes, surimi, texturised products and dry fish, etc. (MFPI). Of the total shrimp exports, 80 percent are in the traditional block frozen form, primarily to

China, Thailand and Vietnam. These are further processed in the destination country, either for local consumption or for exports. Value added products account for 1.5 percent of the total exports. There are about 16,000 registered exporters in the country. Of these only 773 exporters are directly trading in the international market. Nearly 70 percent have a turn over ranging between Rs 0.1 -50 million, and are classified as small or marginal exporters. Ruchi, Vishal, Adai, Aditya are leading merchant exporters while HLL, Liberty and Falcon Marine are leading producer exporters (<http://mofpi.nic.in/visdoc/volume2.pdf>, accessed on 4 August, 2006).

2.1.7 Paper industry

Indian paper industry has annual production capacity of 5 million tonnes. It generates annual turnover of approximately 120 billion. It directly and indirectly employs nearly 1.3 million people (<http://www.bilt.com/corpbrochure/1-9corpbroch.pdf>, accessed on August 9, 2006). There are, at present, 515 units engaged in the manufacture of paper and paperboards and newsprint in India (table 13). The country is almost self-sufficient in manufacture of most varieties of paper and paperboards. Import, however, is confined only to certain specialty papers. To meet part of its raw material needs, the industry has to rely on imported wood pulp and waste paper. Production of paper and paperboard during the year 2002-03 (upto December, 2002) was 24.52 lakh tonnes (also see figure 4). At present about 60.8 percent of the total production is based on non-wood raw material and 39.2 percent on wood (<http://www.economywatch.com/business-and-economy/paper-industry.html>, accessed on August 9, 2006). Wood as raw material accounts for 40 percent of the paper production and about 30 percent each being shared by agro waste and waste paper (http://www.waterandagroindustry.org/pulp_paper.htm, accessed on August 9, 2006).

2.1.8 Bio diesel

India is looking at bio fuels as a viable alternative to petroleum diesel and exploring the main commodity sources for bio diesel which can be

TABLE 13
Category-wise Paper Mills in India

Category	Capacity range*	Number of units	Capacity (TPA)*
Small	Up to 10,000	299	12,90,382
	<2000	69	75,522
	2000-5000	107	296,980
	5000-10000	123	917,880
Medium	10000-20000	116	1669,460
Large	>20000	70	3893,048

*Tonnes per annum.
http://www.waterandagroindustry.org/pulp_paper.htm; accessed on 9 August, 2006.

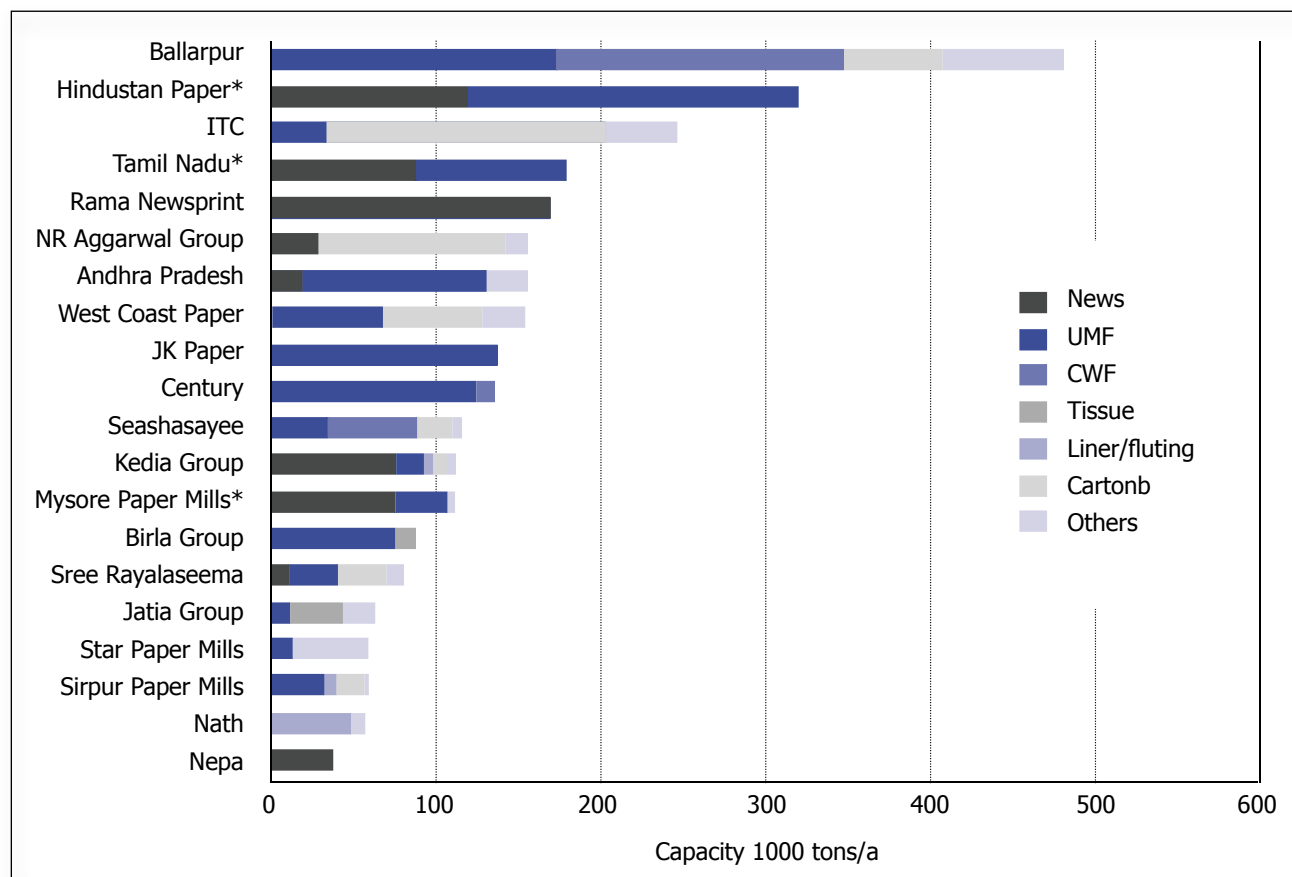
Figure 4

Major Paper Producers in India 2002

The biggest producers focus on printing and writing papers, newsprint and cartonboards

Project Number

Project Name



UMF- uncoated wood free printing and writing paper; CWF- coated wood free printing and writing paper;
 Source: http://dipp.nic.in/first_new/g_lobalrep/Final_9092002.pdf, (accessed on August 9, 2006)

non-edible oils obtained from plant species such as *Jatropha curcas* (Ratanjyot), *Pongamia pinnata* (Karanj), *Calophyllum inophyllum* (Nagchampa), *Hevca brasilliensis* (rubber), etc. *Jatropha* is an indigenous oilseed tree, a perennial crop, has the same characteristics as diesel, and can be used neat or mixed with conventional diesel. To top it, this is a clean fuel option. For India, *Jatropha curcas* is a non-edible oil tree, unlike in the West, where bio diesel is derived from edible oilseeds. Moreover, *Jatropha* can thrive in wasteland, and offers the opportunity to reclaim much of this land and lead to local economic development. Planning Commission figures state that a 10 million hectare crop could yield 30 million tonnes of oil a year. Further, of the 130 million hectares of wasteland in India, about 33 million hectares are available for reclamation. The railways, the largest diesel consumer in India, have reported much success with this option and are

seeking substantive bio diesel supply contracts. The government, too, is in the process of mandating its blending with mineral diesel. A 5 percent blend is to be introduced shortly, with an implied demand for 2.5 million tonnes of bio diesel, and this is to rise to 20 percent by 2020, implying a demand of around 16 million tonne. Looking ahead, *Jatropha* appears to be one of the most promising feedstocks upon which the industry will be built (http://www.financialexpress.com/fe_full_story.php?content_id=100174, accessed on 7 August, 2006).

The Ministry of Petroleum, GoI, is playing an important role through the Petroleum Conservation Research Association (PCRA), by launching the National Mission on Bio Diesel and replicating the existing synergy between the Ministry of Agriculture, Rural Development and Non-conventional Energy Resources of the Government

of India. The mission was launched to give a boost to bio fuel production, which can reduce the country's dependence on imported diesel by as much as 20 percent. The domestic production is only 30 percent of the country's demand and the remaining 70 percent of the demand is met through imports. Government invested Rs. 90 million on the bio fuel project in 2004-05. The allocation for the current year has been scaled up to Rs. 450 million and government has announced a purchase policy for ethanol and bio diesel fuels on a per litre basis, that is Rs 18.75 for ethanol and Rs. 25 for bio diesel, for a stipulated quality.

India has also formulated an action plan for the setting up of the Bio-Fuel Development Authority (BDA) and identified government-owned waste or fallow land as well as constituted task forces in various states to take the initiative for planting jatropha. The action plan envisages encouraging the private sector to invest in CF and the setting up of an oil-exPELLER and transesterification plant for bio diesel production. The Indian Government has identified 39 mm hectares (almost 100 mm acres) of land suitable for growing jatropha, cheerily termed "the wonder plant" by Rajasthan state's "Centre of Excellence for Jatropha Bio diesel Promotion".

The government claims that, if fully exploited, the said 100 mm acres could produce be a bio diesel that can substitute for 20 percent of the country's diesel consumption in five years, far higher than the present 2 percent. (<http://www.gasandoil.com/goc/news/nts62525.htm>, accessed on 7 August, 2006).

The Indian Oil Corporation (IOC) and Hindustan Petroleum Corporation Limited (HPCL) of the Government of India are experimenting with various mixes of biodiesel with diesel in consultation with the automobile industry. The IOC has also signed a memorandum of understanding with the Indian Railways for plantation of Jatropha on railway land. The National Bank for Agriculture

and Rural Development (NABARD) has also initiated a pilot project on bio fuel in the Jatropha and Jojoba variety. At the same time, the National Oilseeds and Vegetable Oil Development Board, under the Ministry of Agriculture is providing a back ended subsidy of 30 percent for the promotion of tree borne oil seeds like Jatropha and Jojoba. The government has estimated the cost of production at Rs.20 per litre if the cost of seeds is taken at Rs.5 per kg.

In India, Gujarat is the first state to run commercial buses using bio diesel fuel. So far, Indian corporates like the Tata Consultancy Services (TCS), Reliance Industries Limited (RIL) and Godrej Agrovet Limited have signed bio diesel agreements with some of the foreign firms. The public and private sector companies such as IOC, IFFCO, ONGC and Emami have started bio diesel projects in the collaboration with state governments for CF of this plant. In the southern part of the country, the Bannari Amman group, a bio diesel production company, has installed a bio diesel plant with a daily crushing capacity of 3000 litres and CF in 2000 acres of land (http://www.ris.org.in/document_v8n2.pdf, accessed on 7 August, 2006). Labland Biotech, for instance, has a long-term contract with the UK-based global firm, DI Oils, to supply one crore Jatropha plants a year for the next 10 years, besides supplying 10,000-50,000 tonnes of Jatropha crude oil annually over the next 15 years. Farmers in Karnataka and the neighbouring states are being roped in through the CF route (table 14). Reliance Industries is reported to have earmarked 200 acres of land in Andhra Pradesh, which too will be scaled up depending on the progress of the project. Southern Online Biotechnologies Limited, Andhra Pradesh, Jain Irrigation System Ltd. (planning to set up in Chhattisgarh by 2008) and Nova Bio Fuels Pvt. Ltd., Panipat are new entrants with capacities of 30,000, 1,50,000 and 30,000 litres per day, respectively (http://www.svlele.com/biodiesel_in_india.htm, accessed on 7 August, 2006).

TABLE 14

State-wise Jatropha/Karanja Plantation in India (Area in ha.)

State	2003-04		2004-05		2005-06		Total	
	Jatropha	Karanja	Jatropha	Karanja	Jatropha	Karanja	Jatropha	Karanja
Andhra Pradesh	1	290	100	160	200	-	301	450
Arunachal Pradesh	-	-	65	-	135	-	200	-
Bihar	10	-	-	-	-	-	10	-
Chhattisgarh	50	270	200	646	240	75	490	991
Delhi (TERI) A.P & Rajasthan	60	-	-	-	-	-	60	-
Gujarat	79	40	550	-	650	100	1279	140
Goa	-	-	-	-	-	10	-	10
Haryana	-	-	300	-	225	5	525	5
Jharkhand	-	-	200	-	300	100	500	100
Karnataka	16	30	102	280	198	250	316	560
Kerala	-	-	50	-	-	-	50	-
Madhya Pradesh	240	100	302	100	412	25	954	225
Maharashtra	144	4	480	18	640	-	1264	22
Manipur	-	-	60	-	140	-	200	-
Meghalaya	-	-	98	-	102	-	200	-
Mizoram	-	-	100	-	180	-	280	-
Nagaland	-	-	90	-	150	-	240	-
Rajasthan	150	-	150	-	350	-	650	-
Tamil Nadu	-	6	134	20	766	-	900	26
Uttar Pradesh	54	36	450	70	450	80	954	186
Uttaranchal	-	-	380	-	230	-	610	-
West Bengal	-	-	50	-	50	-	100	-
India	804	776	3861	1294	5418	645	10083	2715

Source: <http://www.indiastat.com/india/showdata.asp?secid=394254&prid=209&level=3> (accessed on 7th August, 2006).

3 Food Retailing in India

Retailing in India is, by and large, unorganised, highly fragmented and predominantly small, family owned businesses. About 78 percent of these businesses engage only household labour; and a few of them employ two to three workers only. Nearly, 96 percent of the five million-plus outlets are small with less than a 500 sq. ft. area, which is indicative of the fact that in India the per capita retailing space is smallest (2 sq. ft.) in contrast to 16 sq. ft. in the United States. The Retailing sector accounts for about 44 percent of the total GDP. It is also the largest employment provider with about 15-20 percent of the total

workforce directly employed in retailing. Retail sales in India accounts for about 69 percent of the consumer expenditure. The turnover of the retail industry stood at Rs. 7400 billion (1690 US\$) in 2003, with an estimated growth rate of 8.3 percent per year for the period 2003-08. The retail sector in India employs nearly 21 million people which is 7 percent of total employment and second only to agriculture (The Economic Times, 13 March, 2006). Organised retailing accounts for about less than 2 percent of the food retailing industry in India (Chengappa et al., 2005). However, with a projected growth rate of 8.3 percent per annum, it is

expected to appropriate a share of 20 percent of the total retailing by 2008. In India, food is the largest sector with a large number and variety of retailers. Food retail outlets (36,82900) account for about one third of the total retail outlets (1,11,65000 in 2001) as well as 63 percent of the total retail sales in the country (Chengappa et al., 2005). The number of retail outlets has grown at the rate of 26 percent during the period 1996-2001. Food and groceries represents 48 percent of what Indian consumers spend their money on. Supermarkets in India presently account for a very small share of the fresh produce retail sales. However, sales are growing rapidly and an attractive fruit and vegetable sector is perceived as an important way of attracting customers.

3.1 Retail Formats of Major Food Chains in India

Supermarkets represent the most popular form of organised retailing in India, of which the organised food and grocery sector accounts for about 14 percent of the total sales after clothing and textiles (at 36%), watches and jewellery (at 17%). Euro Monitor Report (2004) indicates that there are about 385 super market stores operating (2003), mostly with one outlet, while there are only 14 companies that run department stores and two with hypermarkets. In the recent years, a number of corporate players such as Pyramid, the Tatas, the Rahejas, ITC, Pantaloon and RPG group, have entered the organised food retail sector in India. The major food retailers in India include RPG's Food World, Nilgiris and Subhiksha, while others like Big Bazaar, Star India Bazaar also deal with food and fibre products. Some facts regarding their profiles are given in table 15. Food World, India operates 50 stores, primarily in south India and has developed supply relationships with about 100 small farmers. Its farmers have an average holding of five acres each. There is no contractual relationship. For the time being, the company has agreed to purchase everything its farmers produce, although if quality considerations begin to override quantity requirements, this may not last. Prices are set on a daily basis with reference to the prevailing wholesale

market price and the method of calculation is fully transparent. Farmers deliver from up to 50 kms. away to a consolidation centre which, in turn, is up to 300 kms. from the stores. There is no cool chain so losses are high, although significantly less than in the traditional supply chain. Foodworld has negotiated with seed and fertiliser companies on behalf of the farmers to ensure that the right varieties are supplied. Farmers receive loans from these companies. At present, Food World plays no role in loan repayment although it would cease buying from farmers who fail to repay their loans. Discussions with banks were underway to set up a quadripartite arrangement, whereby the banks finance the inputs supplied to farmers and Foodworld repays the banks out of the farmer's earnings (Shepherd, 2005).

Reliance is launching 2500 Feel Fresh Stores to retail fresh fruits and vegetables. Feel Fresh plus stores numbering 2400 will retail apparel and electronics besides fruits and vegetables (The Economics Times, 05 August, 2006). The competition from large retail chains and manufacturers like Adani, Cargil, Vimal Bharat, Jmd and Gokul in the vanaspati sector has led to the closure of most of the vanaspati units in Saurashtra which contributes 40 percent of the countries total vanaspati consumption (The Economic Times, 04 August, 2006). Reliance is getting into the cooking oil market with soy oil through sourcing from third party. Its major competitors are Adani and Ruchi Soya.

Adanis are investing Rs.160 crores in Himachal Pradesh to procure high quality fruits and vegetables through their new venture -Adani Agri Fresh limited (AAFL). It will procure apples from Himachal and will be announcing procurement prices on a weekly basis (The Times of India, 08 August, 2006). Diageo India — a liquor company — is tying up with Food Bazaar to sell its premium brands like Smirnoff and Johnny Walker and will be the first liquor company to bag shelf space at Food Bazaar outlets (The Hindu Business Line, 09 August, 2006).

TABLE 15
Profile of Major Food Retailers in India

Retail formats	Group name	Store brands	Number of stores	Employment	2004 net sales (US\$ m)
Hyper market (typically 3,500-5,000 sq.ft.)	Pantaloon Retail	Food Bazaar	19	2500 (total for Pantaloon retail)	72
	Tata Trent	Star India Bazaar	1		n/a
	Shoprite Checkers	Shoprite	1		n/a
	RPG#	Spencer's (Giant)	3		33
Super market (typically 1,000-2,000 sq. ft.)	Nilgiris	Nilgiris**	32	FW-300 per store	33
	RPG & DFI	Food World (64% market share in 2000-01)*	93		78
	Apna Bazaar		86		33
	Zakaria Shahid Group	Apna Bazaar	24		n/a
	Trinethra Super Retail	Sabka Bazaar	92		24
	Pantaloon Retail	Trinethra	31		n/a
	Fab Mall***	Food Bazaar			
	Valdel Retail (Family Mart)****				
Discount	Viswapiya	Subhiksha*****	164		50
	Margin Free Markets	Margin Free	300		n/a
Convenience (typically 750-1000 sq.ft.)	Bharat Petroleum Company (BPCL)	In & Out	240		n/a
Cash and carry	Metro Cash and Carry	Metro*****	2	300 in each centre	15

Note: # With the Dairy Farm and the RPG group parting ways in Foodworld Super market Ltd. the brand has been now renamed, Spencer's Daily. The Food World brand has been retained by Dairy farm. The RPG group has taken over 49 of the 93 Food World stores (The Hindu Business Line, 10 January, 2006). It is the only chain procuring directly from growers.

* Food World : With 3000-3500 sq. ft. space it carries about 5000 stock keeping units (SKU). (A Stock Keeping Unit is one particular variety of a product in one size/volume. For instance, if company X manufactures two brands of soap, each in three sizes, then the number of SKUs the company has is six). Food Worlds handle on an average 600 customers per day per store, which translates to 1.8 million transactions per month. Offers a private label for about 150 products, for which 10-15 percent discount is offered. Sale of private label products accounts for about 22 percent of the total sales.

** Nilgiris: The annual turnover of the company is about Rs. 240 crore (US\$ 54.5 million), with Rs. 80 crore (US\$ 18.1 million) from the super market, Rs. 20 crore (US\$ 4.54 million) from their bakery, Rs. 100 crore (US\$ 22.7 million) from lodging, and the remaining from other business.

***Fab Mall : Food items, which number about 120 (all of which are Fab Mall — their private label), account for about 30 percent of the turnover and stocks. The remaining 70 percent is split between processed foods (30%), non-food items (30%) and fresh fruits and vegetables (constituting about 10%). Their product mix also includes both packaged and branded meat. They have created their own private label, particularly for food items, with strict quality control procedures, including cleaning and sorting, fumigation, etc. (which initially included expertise from CFTRI, Mysore).

**** Family Mart : consists of a Department store called 'Centra', a Supermarket – called 'Daily', a food court and an entertainment centre for kids. The super centre is housed in a one lakh sq. ft. area located on Kanakapura, Bangalore. Supermarket 'Daily' is in Mysore. They maintain about 5000 SKUs. About 20 percent of the items (mainly food) constitute 80 percent of the total business. They have an in-house brand known as 'Daily's', which make up about 30 percent of the total products for which price discounts are given. They also sell fresh F&V; fresh meat is however, not sold, given the sensitivities of people, although, branded and packed frozen meat is available at their supermarket.

***** Subhiksha : This is based on a discount retailing format. To cut costs, they have taken measures such as small sized functional stores with an approximate area of 1500 sq. ft., long lease (10 years) of outlets, fixed vendors for the store furniture and equipment as well as providing customer service and eliminating self-service (to reduce customer pilferage). It also expanded its operations to Bangalore, Hyderabad and other cities in India like Ahmedabad. Subhiksha has also been in step with technological advancement; their e-shop facility helps customers to order their goods on the net.

***** The Metro : This Group is one of the world's largest trading groups and a Fortune 500 company created in 1996 through the merger of several important retail companies. In 2003, it started operations in India, and opened its first outlet in Yeshwanthpur, Bangalore on a sprawling area spread over 6,500 sq. m. and the second on Kanakapura Road, Bangalore. Capital expenditure for both the stores is 199 crore (US\$ 45.67 million). It has sophisticated logistic systems and claims to produce high quality merchandise, in both food and non food areas. The company is involved in wholesale trade only due to FDI restrictions in retail. Their distribution system envisages bringing together producers, farmers, agricultural cooperatives and manufactures with the community of traders, retailers and small and medium enterprises. It sources most (90%) of their products from local producers and suppliers. They have about 17,500 SKUs. Each centre employs 300 local people and the headquarters would employ 750 local people. Metro has regulated access to its stores by letting only those (having registration number) with 'access cards' to purchase from its outlets. Metro does not deal with primary agriculture commodities such as food grains and F&V. Recently, it made forays into the meat and meat products market through backward integration involving contractual farmers.

Source: The Hindu Business Line, 27 October, 2005; Chengappa et al., 2005.

Reliance is investing in retail across 1500 towns and cities with sourcing directly from farmers through CF. It will have a multiple format like convenience stores, specialty stores, super markets and hyper markets. The major agro products will be fresh produce, groceries, apparel, footwear and farm products. It will have a presence in Punjab, Haryana, and West Bengal for agri procurement. It is planning to procure 10 million litres of milk daily from the farmers to be sold as liquid milk or processed dairy products. (Business Today, 30 July, 2006, pp. 76- 80). The Government of Punjab has given a fiscal concession of the order of Rs. 1500 crore to Reliance for setting up its agri venture worth Rs. 500 crore. These incentives have been in the form of subsidies, sale and lease of government and common land, exemption on power duty for 20 years and other tax concessions. (The Economic Times, 21 July, 2006).

Interestingly, some of the big retail chains like Big Bazaar, V Mart and Foodland have begun supplying small kirana stores as a B to B model on the lines of Wal-Mart's Sam's Club. The wholesale business will be a separate business model like that of Metro cash and carry which sells primarily to large distributors. There are about 10 million retail outlets in India, the majority of them being small mom and pop outlets (The Economic Times, 19 July, 2006). Some of the corporates like Reliance, Tata, Coca Cola, ITC and M&M have signed Public-Private-Panchayat Partnership agreements to set up Rural Business Hubs which will focus on food processing, agri products, poultry, animal husbandry, fisheries, bio fuel and handloom and handicrafts. (The Hindu Business Line, 13 July, 2006). Satnam Overseas Ltd. is tying up with Reliance Retail for selling its branded basmati rice in the domestic market. (The Hindu Business Line, 09 July, 2006).

3.1.1 Food processors and exporters as retailers

Many of the basmati firms like KRBL, LT, and Satnam Overseas have recently renamed themselves as KRBL Limited, LT Overseas and Kohinoor Foods Limited, respectively in order to give a new corporate identity to their brands in the national and international markets as their brands are better known than the companies themselves. In fact, LT overseas has already registered a subsidiary called Daawat Foods Pvt. Ltd. based on its brand name Daawat (The Hindu Business Line, 05 August, 2006).

Global Green — a subsidiary of BILT — is supplying to over 15 retail stores in the US, Canada and Europe and gherkin to 22 countries with a turnover of Rs.100 crores. It has also subsidiaries in the Europe and the US. It produces 30,000 tonnes of gherkin every year (The Hindu Business Line, Brand Line, 27 April, 2006). Global Green is one of the top 10 gherkin suppliers in the world.

Pepsi is reviving its CF in tomatoes for the domestic market. It will not process the entire crop for export like in the past, but grade it according to quality and process only a portion of it with the rest going to domestic market. Tomato produce will be graded in to A, B, C, and D with A grade going to retail outlets for table use, B grade for the wholesale market, while C and D for processing (Hindu Business Line 17 June, 2006). It will be supplying fruits and vegetables to Big Bazaar and others retail chains whose fruits and vegetable business contribute 10 percent of the total turnover. It is also planning to use the surplus land in its bottling plants as nurseries for growing plants to supply these to the farmers (The Economics Times, 15 November, 2005).

4. Global Supermarket Chains in India

Wal-Mart entered India in 2002 for procurement with an office in Bangalore and today procures annually \$1.2 billion worth of products from India. Since 1985 it was sourcing products through buying agents. It is now likely to open its first B2B cash and carry store (Sam's Club, a division of Wal-Mart which is the largest warehouse chain in the USA and serves small businesses) and also more procurement offices. It has now 40 suppliers in India for supply of towels, shoes, jewellery and fans, as in the case of other global retail chains who source from India like Target, Tesco and Gap. Since 2004, it has also started training suppliers in the retail link system to track the sales of their products in Wal-Mart stores. It is also working towards sourcing spices, Basmati, tea, and shrimps from India as Tesco has been doing for sometime now for its Central European stores. \$93 million are largely made up of clothing and home textiles with only \$ 3.3 million worth of other products which is growing over the years. Gap, the US retail chain procured apparels worth Rs. 2000 crore from India. Similarly, German retail chain, Metro sourced apparels and leather goods worth \$53 million in 2004. Similar are the stories of emerging chains like Chico, the women's apparel chain which gets 20 percent of its supplies from India, Decathlon- the French sports goods retailer, Target, JC Penney, Marks & Spencer, and H&M which are expanding their sourcing operations in India. The sourcing of food products from India is also growing across chains (John, 2005; John et al., 2005).

Wal-Mart, the world's largest retailer, is currently barred from opening its stores in India, because of fears that large-format retailers will displace millions of India's small shops. But the company is exploring India as a source of 'premium exports', including items like long-grain basmati rice, spices and fresh fruits like mangoes. It has stores in 15 countries, and there are some very attractive products grown in India that it would like to export (Giridharadas, 2006). Similarly, Hindujas are also entering into the Indian supply chain and tying up with international retailers.

Bharti's Field Fresh is also partnering with retail chains like Wal-Mart and Tesco (The Economic Times, 27 July, 2006). Field Fresh will export onions, chilies, okra and other vegetables to Western retailers, including Tesco of Britain. The joint venture partner in Field Fresh Food namely, the Rothschild group, has a large holding in Tesco. Field Fresh Food is likely to use the Tesco brand for food retailing under licence arrangement as foreign investment in food retailing is still not allowed in India. The venture has already leased 1,860 hectares, or 4,600 acres of land and sent its first shipments to Europe. It expects to be a leader in an Indian food export market for fruits and vegetables that the company expects will reach \$5 billion by 2011. What is being created, as per industry sources, is something akin to a BPO in the agricultural sector where food will be grown for the world.

Starbucks Coffee is also procuring its tea from India and sells under the brand name of Tazo. It buys tea from Apeejay T, Warren Tea, Assam Tea and some merchant exporters. It is also planning to set up Tezo tea outlets in the country (The Economic Times, 25 July, 2006). Similarly in the textile sector, there are many companies which are supplying to high end US apparel brands like, Reese, Bill Blaus and Dan River. Wellspun India is making towel and sheets for brands like Nautica, Feild crest, Cannon and Tommy Hillfiger for the last five years (The Economic Times, 25 July, 2006).

Pepsi Co has designated India as a farm-products hub for all of Asia. The company was originally forced to export farm products from India, in the late 1980s, as a condition for selling soft drinks in the country. But now the company has decided that what was once its obligation is now a profitable business opportunity. The company is contracting with Indian farmers to procure seaweed, potatoes, chilies, tomatoes and oranges for export. Jallowal, a village in Punjab state, in northern India, is one of the only places outside the United States that

PepsiCo has chosen to transplant the Florida and California oranges used in its Tropicana brand of juice. The company aims to export orange-juice concentrate to its operations across Asia. PepsiCo sells farmers saplings, trains them and contracts with them to buy their harvest at an agreed price.

With international brands like Nike and Paul Smith dealing in the infant and home textile segment that are demanding complete product traceability, the cotton producers in India like Arvind, Vardhman, Nahar, TT and Royal Classic are going in for CF of cotton. Royal Classic which supplies to Sara Lee is already contracting 5000 acres in Tamil Nadu. Some of them have started organic farming of cotton which is being supported by multinationals like Monsanto and Dupont in extension especially with Vardhman and Trident in Punjab. Some others like Gokuldas and Orient Craft prefer to work with channel partners or spinners for getting supervised and certified organic cotton for manufacturing organic garments (The Economic Times, 18 July, 2006). Wal Mart has been procuring, many products like apparel, textile, home furnishing and shoes directly from Indian factories. It also buys products worth \$ 1.2 billion indirectly from India.

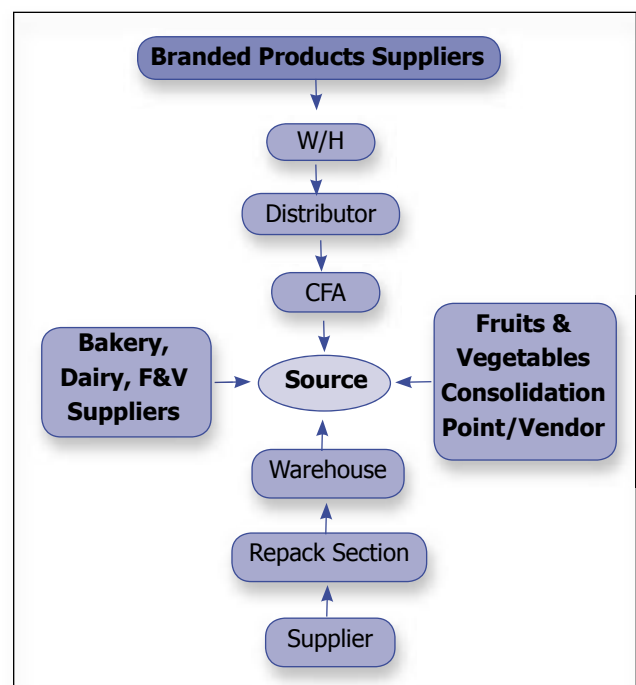
More recently, several European supermarket chains like Sainsbury's, Safeway, and Tesco have extended their procurement into India with EUREPGAP standards which is being followed strictly by local suppliers and farmers. Tesco alone has procured greens worth more than Rs. 25 crore annually from India and it has its own global standard for food called Nature's Choice. Some of the local companies involved with these chains are Mahindras and Bharti-Rothschild. There are more than 400 farmers in Maharashtra, Andhra Pradesh and Uttaranchal supplying to these chains. The crops include litchi, mango, grape, potato and gherkin (Srinivas, 2005). There are also many Indian supermarket chains like Food World, Nilgiris, Subhiksha, Fab Mall, Valdel Retails, and Giant which have started off in fruits and vegetables more recently but only one of them –Food World is procuring directly from farmers (Chengappa et al., 2005; figure 5).

Tesco is buying more than Rs.25 crores worth of greens from India every year under its nature choice standards for food through companies like Mahindra and Field Fresh. The 80 outlet strong Apna Bazaar will be dealing with fresh foods to the extent of 10 percent of its turnover where food sales account for 60 percent of total sales. It is a cooperative chain set up in 1948 by Mumbai mill workers (The Hindu Business Line, 01 August, 2006). Garment retail chains like Wal Mart, J.C. Penney, Target, and Gap have doubled the sourcing of garments from India during the last two years and they are setting up their wholly owned sourcing and buying offices. Wal Mart has faced 40 cases of work place violations in the US in 2005 (The Economic Times, 21 September, 2005).

4.1 Procurement Practices of Supermarkets

In general, super markets purchase larger volumes and have created new systems of procurement i.e. they deal directly with individual growers, or specialised wholesalers, and specialised suppliers (see figure 5). Most of the time, they work with multiple channels of supplies. They insist both on a lower price and higher quality from the suppliers

Figure 5
Supply Chain Mechanism Adopted by the Retail Chains



Source: Abhishek et al., 2005.

which means that only efficient and large growers will be able to work with them in the long run. They use both fixed and variable pricing methods and delay payment to suppliers upto as long as 60-90 days despite regulations to pay within the week in some countries like Malaysia. Further, farmers need to make large investments in order to be able to supply to supermarkets successfully despite the fact that credit is still a problem for the farmers (FAO, 2004).

Relatively few chains in Asia have adopted centralised buying—a global practice among supermarket chains, in part because they presently operate insufficient stores to make a distribution centre viable. Where they have done so, facilities may just be simple warehouses and far from state-of-the-art. Both Food World in India and Saigon Co.op. in Vietnam have such centres, but neither presently uses cold chains. Many chains in Asia continue to purchase through wholesalers, in preference to establishing distribution centres. Some chains are not prepared to buy from suppliers who are unable to supply all stores in the chain, with clear indications for the size of companies who will be able to survive in such an environment. Others, however, are gradually shifting from those traditional wholesalers to “specialised/dedicated wholesalers” that are specialised in a few products and dedicated to supplying one supermarket chain. In many countries, the leading chains are promoting “preferred supplier” systems. This is done in order to select producers or wholesales capable of meeting the quality and safety standards of the supermarkets which, on the basis of experiences in other regions, are likely to become stricter as consumers become more affluent. Such linkages permit more rapid movement of produce from farm to store, enabling supermarkets to sell much fresher produce. To achieve this, supermarkets often require that their suppliers adopt practices and make investments that simplify movement of produce along the supply chain. Insistence on these “Good Commercial Practices” can eventually be expected to become widespread in Asia. In supermarket jargon, fruits and vegetables are considered by many stores to be a “destination category” i.e. a category of products

that chains consider attract people to their stores rather than to competitors. Destination categories are thought to be important because consumer loyalty to an individual chain is considered to be weak. It is clearly easier to create an individual identity for product groups such as fruits and vegetables, fish or meat than it is for household goods. However, in order to do this, the stores need to be assured of a reliable supply of consistent quality. In many countries, supermarket managers have little individual freedom to buy produce directly from suppliers. Not only do chains seek to offer a consistent product range over all their stores, but purchases at each store are time-consuming and involve complex paperwork. It is far better for a store to receive dependable deliveries from a few wholesalers or from a centralised distribution centre than to have to worry about buying from farmers or wholesale markets on a daily basis (Shepherd, 2005).

Thus, supermarkets in Asia presently use a wide variety of fresh fruit and vegetable procurement practices which are likely to see consolidation. At present, the following channels can be seen:

- direct, uncontracted purchases from farmers at individual supermarkets;
- purchases from wholesalers, who either work directly with farmers or through wholesale markets;
- purchases through independent procurement companies (dedicated suppliers) who often work with farmers approved by the supermarkets chains (preferred suppliers);
- purchases through government-sponsored distribution centres;
- purchases through informal farmer groups, farmer associations or cooperatives;
- purchases through large individual farmers, who often sub-contract part of the supply to smaller farmers;
- leasing of space within the store on a commission basis to traders, farmers and cooperatives (Shepherd, 2005).
- multiple channels, and
- integrated chains (Shepherd, 2005a)

4.2 Agri Export Chains, Primary Producers and Labour

In India, in the cashew commodity chain, there were only a few large importers who tended to sell to large processing companies which then sold to the supermarkets who did their own packaging and marketing under their own brand names. In some clusters in some parts of southern India, each export house had 40-50 small processors in their network who produced almost entirely on their own and employed wage labour to supplement family labour. This small processor dominated activity allows the surplus generated through processing to be spread more evenly across many players besides generating employment for local people. The small processors in the rural areas had better control over logistics and quality as they were located in the cashew growing areas and knew most of the growers in the region. In cashew plantations, a complex nexus of power relations among government officials, politicians, traders and village leaders seemed to govern the benefits to communities. But, despite the export boom in cashew, the domestic resource cost of earning foreign exchange increased over time. There was also a potential danger of the Indian parts of the chain engaging in a 'race to the bottom' by reducing cost particularly labour cost which could mean exploitative conditions and even complete exclusion from the much needed employment for local people. Further, the suppliers were facing higher standards of quality in globally driven markets for cashew at the same time when the processing shifted from the factory based systems earlier to non-factory, cottage and commission-based processing. Further, labour standards and working conditions seemed to be deteriorating in terms of employment becoming more seasonalised and informalised, particularly for women who accounted for more than 90 percent of the workers in this industry (Eapen et al, 2003).

Small producers have also been excluded from various commodity chains which operate with CF schemes at the producer level (Singh, 2002; Deshingkar et al., 2003), with the exception of some crops like gherkins in India which require family labour and constant supervision, and therefore, only small acreage (0.5

–1.0 acre) per farm family is allowed by the sponsors of contract production (Singh and Asokan, 2005). It is mostly the medium and large farmers who have been beneficiaries of such backwardly-coordinated commodity chains. The small and marginal farmers have not been able to enter high value agricultural production like fruits and vegetables because of lack of resources (Deshingkar, et al., 2003; Singh, 2002). Further, under contracts, there has been use of low paid female adult and child labour for reasons of 'nimble fingers' i.e. it is docile, low wage, and quality labour, besides poor working conditions for such labour (Singh, 2003). Even for producers, there have been instances of lack of sustainability of the contract arrangements and 'agribusiness normalisation' i.e. supply chain driving firms to reduce procurement prices over time in order to cut down their costs and resorting to open market procurement to weaken the bargaining power of the contract growers (Singh, 2002).

Similarly, the garment sector labour force predominantly comprises of first generation women workers. Due to pressure from buyer-imposed mechanisms like social audits, most of the garment manufacturers pay minimum wages but this does not necessarily mean fair wages. Some of the international retailers are also putting pressure on the suppliers to prevent child labour. They send inspection team to the factories to conduct spot audits. This is in addition to the mandatory annual social audit. Recently, the Swedish retailer Ikea took action against a supplier in Maharashtra after its subcontractor in Chennai violated the child labour norms. It asked the supplier to fund the education of the child till matriculation (The Economic Times, 26 September, 2005 and The Hindu Business Line, 03 March, 2006).

More recently, Carrefour has been fined in South Korea for unfair business practices i.e. forcing suppliers to cut prices to save the 1.737 billion won supply order for 10 months last year. It is also accused of intentionally delaying the signing of contracts with suppliers (The Hindu Business Line, 05 July, 2006).

5. Agri Retail Chains in India

In the agri retail sector, there are many large corporate players like ITC with its e-choupals and E-sagars, M&M with its Krishi Vihars, Godrej Agro with its Adhars and the Tatas Kisan Sansars being the major ones. M&M's MSSL is tying up with international retailers like Tesco, Target and Carrefour for products like pomegranates, and vegetables like, tomatoes and onions and potatoes which account for almost 50 percent of the total vegetables produce in the country. (Economic Times 21 July, 2006). The ITC's e-choupal project has already become the largest initiative among all internet-based interventions in rural India reaching more than 10 lakh farmers in 11,000 villages through 1900 kiosks in four states i.e. Madhya Pradesh, Karnataka, Andhra Pradesh and Uttar Pradesh in crops of soyabean, coffee, fish, and wheat, respectively. It is also planning to get into other crops such as bajra, basmati rice, sesame seeds and handpicked groundnut besides spices and fruits and vegetables. These projects will be spread across 14 states over the next few years (Sanganeria, 2003).

Godrej Agrovet is opening 1000 outlets in the next five years with a focus on Punjab, Haryana, Gujarat and Maharashtra with each costing Rs.30 lakh to 1.5 crore. These would retail besides agri inputs, food and grocery, apparel and foot wear and consumer durables. It has tied up with Apollo Pharma for medical centres and Bajaj Alliance for insurance. It is also tying up with oil and LPG companies for retailing their products. The company also holds 10-15 percent of the frozen chicken market which is 5 percent of the chicken market in India (The Hindu Business Line, 06 August, 2006).

ITC has plans to upscale its e-choupal centres to 20,000 by 2010 with a projected revenue of \$ 2.5 billion from rural retail. Reliance has plans to invest Rs. 250 billion in retail. Food and grocery will account for 77 percent of retail volumes with another 7 percent is to be accounted for by clothing and 1 percent by footwear besides 2 percent by home furnishing (Business and Economy, 14 July 2006, pp. 84-85).

6. Contract Farming in India

Contract Farming (CF) can be defined as a system for the production and supply of agricultural and horticultural produce by farmers/primary producers under advance contracts, the essence of such arrangements being a commitment to provide an agricultural commodity of a type, at a specified time, price, and in specified quantity to a known buyer. In fact, CF can be described as a halfway house between independent farm production and corporate/captive farming and can be a case of a step towards complete vertical integration or disintegration depending on the given context. Due to the efficiency (co-ordination and quality control in a vertical system) and equity (smallholder inclusion) benefits of this hybrid system, it has been promoted aggressively in the developing world by various agencies (Glover,

1987). It basically involves four things - pre-agreed price, quality, quantity or acreage (minimum/maximum) and time (Singh, 2002).

CF is known by different variants like centralised model which is a company farmer arrangement; outgrower scheme which is run by the government/public sector/joint venture; nucleus-outgrower scheme involving both captive farming and CF by the contracting agency; multi-partite arrangement involving many types of agencies; intermediary model where middlemen are involved between the company and the farmer; and satellite farming referring to any of the above models (Eaton and Shepherd, 2001; GoI, 2003). In fact, CF varies depending on the nature and type of contracting

agency, technology, nature of crop/produce, and the local and national context.

The contracts could be of three types namely : (i) procurement contracts under which only sale and purchase conditions are specified; (ii) partial contracts wherein only some of the inputs are supplied by the contracting firm and produce is bought at pre-agreed prices; and (iii) total contracts under which the contracting firm supplies and manages all the inputs on the farm and the farmer becomes just a supplier of land and labour. The relevance and importance of each type varies from product to product over time and these types are not mutually exclusive (Hill and Ingersent, 1987; Key and Runsten, 1999). Whereas the first type is generally referred to as marketing contracts, the other two are types of production contracts (Scott, 1984; Welsh, 1997). But, there is a systematic link between product and factor markets under the contract arrangement as contracts require a definite quality of produce and, therefore, specific inputs (Scott, 1984; Little, 1994). Also, different types of production contracts allocate production and market risks between the producer and the processor in different ways. The price of the contracted produce can be the growers' fixed price, residual (profit/loss) sharing by sponsor and grower, open market based price, spot market price, consignment based, two part split price, tournament price (fixed plus variable based on relative performance), base price plus quality-based incentive price, or administered price.

Some others recommend CF as the only way to make small scale farming competitive as the services provided by contracting agencies can not be provided by any other agencies (Eaton and Shepherd, 2001). Contract farming also lowers transaction costs for the farmers as many of the transactions are internalised by the procuring firm (IFPRI, 2005). CF is also an alternative to corporate farming which may be costly, risky, and difficult to manage and still not viable (Payer, 1980). Further, in India, supermarket chain growth including FDI in retail, international trade and quality issues like SPS, organic trade, fair trade,

and ethical trade, promotion by the central and state agencies, banking and input industry push for CF, farming crisis and reverse tenancy, and failure of traditional cooperatives, will help in the spread of CF across crops and regions as they provide new space to this arrangement in the context of withdrawal of the state from the agricultural space. Even the new Intellectual Property Rights regime which encourages protection and exploitation of proprietary genetics is likely to accelerate the CF practice (Wolf et al., 2001).

But, generally, contracting agencies especially private, tend to prefer large farmers for CF because of their capacity to produce better quality crops due to the efficient and business-oriented farming methods, the large volumes of produce which reduces the cost of collection for the firm, their capacity to bear risk in case of crop failure, and various services provided by these large producers like transport, storage, etc. (Wilson, 1986; Winson, 1990; Burch and Pritchard, 1996; Fulton and Clark, 1996; Key and Runsten, 1999). On the other hand, small farmers are picked up by firms for contracts only when the area is dominated by them, there is a government directive to do so or they are found to be low cost producers in certain areas and crops (CDC, 1989). Further, firms may work with small farmers to make use of the state support (financial and technical) to these producers under various development programmes (Glover and Kusterer, 1990) and to benefit from lower cost production on these farms as these farmers have access to cheaper family labour, and being residual claimants of their labour, work more conscientiously than hired labour (Key and Runsten, 1999). In fact, some of them even use large growers, rural elite, and local small processors as sub-contractors to procure from the small growers for the company (Kirk, 1987). The seed companies in India use small companies as subcontractors to procure seeds produced under contracts (Shiva and Crompton, 1998). In Canada, small tomato growers were preferred as the crop required hand-picking which only small farmers do as the large ones do mechanical harvesting, especially when weather limits the use of mechanical

harvesters (Winson, 1990). Similarly, in India, gherkin CF is carried out by small and marginal farmers as the crop requires plenty of labour inputs which these farming families can provide from within (Dev and Rao, 2004). Also, working with many small farmers in the case of small processors gives the required flexibility in the procurement schedule helping to extend the processing season and use the equipment efficiently; and help spread the risk of supply failure as compared to working with a few large farmers.

In Turkey, the vegetable contract growers did not read the contract before signing and others (20%) who read it did not understand it. Though the contracts were group contracts they were not happy with the group approach as there was no group feeling and interaction. Most of them wanted third party intervention and felt the need for organising and bargaining cooperatives. Even those who were not in contracting had later withdrawn from contracting due to dispute related to pricing and the method of payment. On the other hand, the processors reported farmer default and competition in contracting as the major problems. Similarly in the US, the major problem in broiler contracting included early contract termination, manipulation of quality or cost of input, underweighing of poultry and feed, additional costs and misvaluation of the performance of producers (Rehber, 2000).

Further, agribusiness companies working with farmers are driven by the profit motive alone most of the time, and therefore, tend to ignore the social dimensions of their operations. Examples of such behaviour include abandoning an area if not profitable to continue, and exclusion of small and marginal growers from their operations (Andreas et al., 2006).

Besides renegeing on contracts and holding up problems in the guise of quality based rejection of produce, the agribusiness firms may also make farmers dependent on their technology, for example an animal feed supplied may be formulated to delay the growth cycle or decrease the daily weight gain,

resulting in lower productivity and in final prices paid to farmers. Also, delayed delivery schedules can lead to farmers receiving lower prices as the quality gets deteriorated. Firms avoiding transparency in pricing and agribusiness normalisation are other problems reported in CF. Ecological degradation and monoculture are the other potential problems in CF for farmers and local areas (da Silva, 2005).

The contracting firms tend to aggravate the natural resource crisis as most of the contracts are short term (one or two crop cycles) and the firms tend to move on to new growers and lands after exhausting the natural potential of the local resources, particularly land and water, or when productivity declines due to some other reason (Morvaridi, 1995; Torres, 1997). The over-exploitation of groundwater, salination of soils, soil fertility decline, and pollution are typical examples of environmental degradation due to CF (USAID, 1994; Rickson and Burch, 1996; Siddiqui, 1998). The firms do not care for this as the costs of such effects are externalised so far as the firm is concerned.

The growing importance of CF has serious implications for the agribusiness co-operatives, which have been practising some form of contract procurement in the past simply because they are producer-owned organisations. They will have to now compete with the private and/or multinational firms at the farmer/producer level in terms of providing competitive price and other incentives so that producer members do not turn away from the cooperative organisation. This will require more efficient functioning of the cooperatives. In Australia, the lack of financial support to co-operatives by the state and the competition from the MNCs and other local agribusiness firms, under the deregulated environment, led to the closing of some co-operative processing plants and a change in the form of organisation in others (Burch and Pritchard, 1996).

Also, an agribusiness firm generally does not encourage the cooperative formation and expansion in its area of operation as it may become

a competitor in the relatively longer term and spoil the procurement base of the firm (Wilson, 1986). This happened in the case of a Unilever subsidiary in Cameroon wherein as farmers tried to organise a co-operative to strengthen their bargaining power, the company refused to procure and farmers' crop was wasted. This happened despite the fact that the cooperative was dominated by large farmers. Finally, the cooperative failed (Konings, 1998). However, it is seen that a para-statal may encourage cooperatives genuinely and if that happens, then they do succeed as well, as happened in Kenya in case of tea (Konings, 1998). But, the success of the contract system per se in the case of Kenya was the result of the coming together of the state, donors and transnational capital, favourable market conditions, access to capital, and a relatively decentralised management system (Little and Watts, 1994).

6.1 Status and Experience of CF in India

Other than seed, it was tree CF that was one of the first to happen in India. Globally, plantations provide 20 percent of wood and are estimated to provide 50-70 percent by 2050 as per FAO projections (Mayers and Vermeulen, 2002). Further, 60 percent of the wood pulp companies were sourcing some of their raw materials through outgrower schemes or were involved in some extension to the growers in the mid 1990s. Similarly, 57 percent of the countries out of 76 studied had at least one example of such farmer linkage in the late 1990s (Saigal and Kashyap, 2002). This linkage is co-ordinated either through intermediaries, contractual land leasing from farmers for captive wood production or CF system. Some prominent examples, besides companies in India, are those of PICOP in Philippines and the tree outgrower schemes in KwaZulu-Natal in South Africa (Baumann, 2000). Poplar has been a major source of wood supply after the decline of eucalyptus, which is used for board and ply board manufacturing by large firms like WIMCO, Sai Biotech, BILT (Yamunanagar) and Nuchem (Tohana, Hissar), and for furniture and housing. Both domestic and multinational corporate agri-business houses, especially those in the paper board and match sticks industries, went

in for more direct arrangements with the farmers for ensuring an adequate supply of quality raw material at more reasonable prices for acquiring international competitiveness, by providing them with necessary inputs. Now, most of this demand for wood is being increasingly met from agro- and social forestry rather than from forests. There are 12 major companies in India which distribute 63 million seedlings annually to tens of thousands of farmers (with WIMCO alone having 15,000 farmers and ITCBPL over 6000 farmers), with an annual area coverage of 45,000 hectares (Mayers and Vermeulen, 2002). In India, WIMCO, JK Paper, ITC, and BILT had major CF projects during the 1980s and the 1990s with mixed results. Appendix table A-1 gives a bird's eyeview of CF in India.

CF has various models/variants being practiced in India at present (Appendix 1). There have been some studies of the CF system in India more recently. However, most of these look at the economics of the CF system in specific crops, compared with that of the non-contract situation and/or competing traditional crops of a given region, e.g. in gherkins (hybrid cucumber) in Tamil Nadu (Chidambaram, 1997) and Andhra Pradesh (Haque, 2000; Dev and Rao, 2004), tomato in Punjab (Bhalla and Singh, 1996; Haque, 2000; Rangi and Sidhu, 2000) and Haryana (Dileep et. al., 2002), and cotton in Tamil Nadu (Agarwal et al., 2005). It is found that contract production gave much higher (almost three times) gross returns compared with that from the traditional crops of wheat, paddy and potato in case of tomato (Bhalla and Singh, 1996; Rangi and Sidhu, 2000), and in the case of gherkin when compared to tomato and onion (Chidambaram, 1997), and cotton (Agarwal et al., 2005) due to higher yield and assured price under contracts. The studies of tomato contract production in Punjab and Haryana (Haque, 2000; Dileep et. al., 2002), of cucumber in Andhra Pradesh (Haque, 2000) and cotton in Tamil Nadu (Agarwal et al., 2005) also found the net returns from these crops under contracts being much higher than those under non-contract situations though the production cost in tomato was higher under the contract system

(Dileep et al., 2002). A more recent study across crops, companies and locations in Punjab also confirms this (Kumar, 2005). In the case of cotton in Tamil Nadu, the contract growers had lower input cost, lower interest loans, faster payment for produce, and the crop insurance facility (Agarwal et al, 2005). The studies in the states of Punjab and Haryana also reveal that contract growers faced many problems like undue quality cut on produce by firms, delayed deliveries at the factory, delayed payments, low price and pest attack on the crop (Bhalla and Singh, 1996; Singh, 2002; Rang and Sidhu, 2000; and Dileep et al., 2002; Satish, 2003). More recently, DSCL run input supply and the CF programme one (Haryali Kisan Bazaar) for potato in Haryana also showed higher net returns for growers compared with non-growers due to higher yields and higher prices, though the cost of cultivation was also higher (17-24%) (Tripathi et al., 2005).

It was also found by all of the studies that most of the firms work mostly with large and medium farmers (Bhalla and Singh, 1996; Singh 2002; Haque, 2003; Dev and Rao, 2004; Singh and Asokan, 2005; Kumar, 2005; Khairnar and Yeleti, 2005) with the exception being firms in Karnataka, Tamil Nadu, and Andhra Pradesh which worked with small and marginal farmers due the nature of the crops (cucumber/gherkin, and broiler chicken). Gherkin contracting was also smooth as there was no local market for the crop, there was flexibility in contracts due to the short term nature of the crop, and farmers maintained alternative sources of income (Singh and Asokan, 2005). Similar was the case of iceberg lettuce grown for McDonalds in India which had a very thin market (Khairnar and Yeleti, 2005). Surprisingly, even a state sponsored cooperative (Markfed) in Punjab does not entertain farmers who can not spare at least three acres for its basmati paddy CF programme (The Tribune, Chandigarh, 08 June, 2006). This bias in favour of large/medium farmers is perpetuating the practice of reverse tenancy in regions like Punjab where these farmers lease in land from marginal and small farmers for contract production (Singh, 2002; Haque, 2003). Breach of contracts

by farmers as well as firms has also been reported (Bhalla and Singh, 1996; Singh 2002; Haque, 2003). Some of these studies recommend further expansion and promotion of the CF system due to its benefits (Bhalla and Singh, 1996; Chidambaram, 1997; Rang and Sidhu, 2000; and Dileep et al., 2002). The eligibility criteria for participation in CF projects/schemes like irrigated land, suitable land, land near main road, literacy level of the farmer are themselves discriminatory in terms of who can be a contract grower. In fact, in CF everywhere, private agribusiness firms have less interest and ability to deal with small scale farmers on an individual basis (Hazell, 2005). Some of the coping strategies and innovations adopted by farmers in CF situations include the following: labour-water exchange, share cropping, and group leasing of land by marginal and landless farmers (Singh, 2002; Deshingkar et al., 2003).

The more recent models of CF like franchising being practiced by the Tatas (Tata Kisan Sansar) for wheat in the states of UP, Haryana and Punjab; and by the Mahindra Shubhlabh Services Limited (Mahindra Krishi Vihar) for paddy in Tamil Nadu, Andhra Pradesh, Karnataka and basmati and maize in Punjab and Haryana are also not delivering as expected. Mahindra and Mahindra's recent involvement in Punjab agriculture has not worked to the advantage of the farmers. In fact, this model creates a monopsony where a single buyer buys produce of hundreds and thousands of farmers. This system works to the disadvantage of those farmers who lack adequate information about the market, which is termed as asymmetry of information. This model increases the buyer's power disproportionately and puts the seller entirely at the buyer's mercy. Small and marginal farmers have not gained from these experiments. Wherever any gain has been reported, it is reported for the farmers in general and distinction between big/rich and small/poor farmer's gains is not reflected in any way. The interests of the poor farmers are not synonymous with those of large/rich farmers (Gill, 2004). One of the limiting factors in the performance of the contract scheme in Punjab seems to be

the MSP which introduces price rigidity and acts unfavourably for the buyers and exporters. On the other hand, because Basmati is out of the purview of the MSP, its contracting performance has been quite favourable for the processors and exporters as they could discover a market price. Also, being an export crop, it enjoys a well established high value market which in turn has created a lot of comfort for the exporters. The performance of CF in Punjab has been tardy despite the fact that the state (PAFC) has been reimbursing the extension service fees to the companies, on behalf of the growers.

Further, the contracts protect company interest at the cost of the farmer and do not cover farmer's production risk e.g. crop failure, retain the right of the company to change price, and generally offer prices which are based on open market prices (Singh, 2002; Singh, 2005a; Singh and Asokan, 2005; Khairnar and Yeleti, 2005). Even organic produce buyers offer conventional produce market-price based prices to their growers (Singh, 2006a). This is a serious issue as even a significant premium over market price may not help a farmer if open market prices go down significantly which is not uncommon in India. The market price based price is offered to avoid grower defaults as they can, otherwise, sell the produce in the open market due to availability of alternative market due to product symmetry. However, an important contracting agency in India offers two alternative prices to the grower: a fixed price different for different times of the season (staggered prices) plus a quality incentive based on produce quality in terms of content and defects, and a market price (preceding three days' average market price in the local mandi) linked price (which is slightly lower than prevailing market price) and a quality incentive again based on content and defects. This is quite innovative and fair system which gives the flexibility and choice to the grower and rewards quality (Fig. 7 in Appendix 1).

The firms also manipulated provisions of the contracts in practice, e.g. in case of broiler chickens in Tamil Nadu where they picked up birds before the due date or delayed it depending on the demand

which meant losses for contract growers. They also delayed payments upto 60 days. But, growers were locked into these contracts due to the firm-specific fixed investments they had made (Singh and Asokan, 2005). Thus, many of the CF projects also failed due to either the poor design of the project or default by any of the contracting parties.

Most of the companies do not provide any crop insurance service to the farmers. Pepsi is the first company to rope in the Agricultural Insurance Company of India to insure a potato crop of 3000 farmers at a premium of Rs. 1000 per acre. If the plant population falls below 12000 per acre, the farmer can claim Rs. 25,000 per acre as compensation. The scheme is individual farmer specific and run through the company's CF programme.

Even the state sponsored programme of CF did not deliver in Punjab. The contracted winter maize and hyola crops failed almost completely due to inclement weather and poor quality seeds. In case of green peas, the contract growers were forced to dump their produce in the open market, after being rejected by the PAIC on quality grounds as per the contract specification. There had been fungus infection due to inclement weather marked by heavy rains in the winter season and then a sudden rise in temperature. An area of 500 acres under the contract production of green peas in Patiala and Fatehgarh Sahib districts had been affected. Some farmers found fault with the fungicide supplied by the contracted company in this regard. The dumping of contract-produced crop in the open market led to a fall in the local market prices and it was being sold at Rs. 3 per kg. now as against a promised price of Rs. 5 per kg. by the PAIC (Singh, 2003; Rangi and Sidhu, 2003). In general, across crops and regions, the CF programme could not achieve the stated area goal. Not only did it short in terms of the contracted area being less than that stated by the agency, but also the farmers did not plant the entire contracted area with the contract crops. The gap was much larger in the latter case and even as high as 50 percent in the winter maize in Ludhiana and 20 percent in hyola in both Ludhiana and Patiala. There

was a different private seed company for each crop and they only provided seed and no other extension service. Finally, none of the companies procured the produce and advised the farmers to sell in the open market either because open market prices were higher than the contract price or the quality was not as desired. Except the oilseed crops (hyola and sunflower), the net returns from contract crops were found to be lower than what farmers would have got from the wheat crop. Most of the problems farmers faced related to the production and quality (like quality of seed and extension) and not marketing of produce (except peas) as the open market could take care of the contract produce. Due to this experience, a large majority (60%) were not willing to enter into the CF arrangement again (Dhaliwal et al., 2003). There have also been instances of corruption and malpractice in the PAFC run CF programme due to conflict of interest among implementing agencies and lack of monitoring (Ramachandran and Dogra, 2006; Singh, 2006).

The recent World Bank reports also point to deficiencies in the CF programme launched by the State Government of Punjab. It states that for the CF programme to be successful, it should take into account the aspects such as selection of crops for contracting, development of a quick and effective contract enforcement and dispute resolution system, limiting fiscal risks to the state government, limiting the number of parties in a contractual arrangement, and developing farmers' organisations capable of contracting with sponsors, with a view to reduce transaction costs, increasing information flow, and improving farmers' negotiation position (WB, 2003; WB, 2004).

In seed contracting, the growers bear all the costs including cost of parent/foundation seed, cost of cultivation, quality monitoring cost, transporting seed to the processing plant, and wastages and losses at the farm, and in transit, grading and packaging. They also bear all risks like low germination, reduced yield, poor quality, and rejections. They are paid a pre-agreed price only after the quality of seed is tested and for only the quantity that passes

those tests. Normally, it takes about 60 days to get the payment. If the germination of parent seed/foundation seed goes down to 70 percent or lower, the growers are advised to 'plough down' because it will not be economical to pursue the production till the harvest. Plough down can be ordered at subsequent stages in case of severe pest attack or cross-pollination being not effective. The company certainly loses some quantity of quality seed, but the growers' loss is much more in terms of not only costs incurred but also loss of income from the area. There is no provision for compensation against 'plough down' of the crop. The companies, however, take care of their risk by planning 10-20 percent more acreage than required (Singh and Asokan, 1997). Sometimes, companies give incentive for better germination rate and better quality of seed production. The default rates of contract growers have been low as they are assured grain price for seed crop at least and yields are better than grain crops (Shiva and Crompton, 1998).

If the seed is found rain damaged or the container is found damaged or torn and unsealed during the transit, the grower is not entitled for any payment for such rejected/damaged seeds. The rejected seeds can be used for food/feed or for sale to other agencies for edible/non-edible purposes. The minimum procurement price for the seed crop in most of the states is decided by the representatives of the industry, e.g., in Andhra Pradesh, the AP Seedsmen Association (which has 147 seed companies as members), seed production organisers, and the growers decide the prices. However, this rate varies and is dependent on the demand and supply factors to a larger extent, and each company may have its own rate with the growers. But, generally the seed price is higher than the price of the crop output in the grain/agricultural produce market. The contract growers are to supply the entire produce of seeds to the company under contract at the agreed price and time. Though there is generally a clause in the contract for penalty for default, it is rarely implemented due to practical difficulties. The SSCs and companies pay about 80 percent of the price at the time of seed procurement and the

remaining 20 percent after the seed passes the final quality test (Kumar and Barua, 1998).

It is not incidental that most of the CF projects are in the states of Punjab, Haryana, Gujarat, Maharashtra, Karnataka and Tamil Nadu which are agriculturally developed states. On the other hand, vast areas of the country such as Bihar, Jharkhand, Chhattisgarh, Orissa, West Bengal, the entire north-east India and areas of Uttaranchal, Himachal Pradesh, Kerala and Jammu and Kashmir have been bypassed by CF projects. Does it mean that these areas and farmers would not benefit from commercialisation and vertical integration of agriculture? These are areas with the highest concentration of small and marginal farmers (Gill, 2004). This essentially means that contracting companies do not encourage the participation of those who need to be helped to participate as risk preference and innovativeness require not just attitude but also resources and risk taking capability to undertake risky crops and ventures (Glover, 1987). The aspects of contracting which contribute to CF excluding small producers are: enforcement of contracts, high transaction costs, quality standards, business attitudes and ethics like non/delayed/reduced payment and high rate of product rejection, and weak bargaining power of the small growers (Kirsten and Sartorius, 2002).

Repeated cultivation of the same crop without rotation can lead to a variety of soil infestations, most commonly nematodes, which has happened in many situations in the case of tomatoes. In fact, sometimes, the land becomes unfit for any kind of crop cultivation (Glover and Kusterer, 1990; Torres, 1997). Irrigation intensity of contract crops, i.e., tomato, potato and chilly is more than that of wheat. For example, potato requires 8-12 irrigations compared with only 5-6 for wheat and other crops (Chand, 1999; Pepsi Foods manual for potato production in Punjab). Pesticides and fertilisers are also used at much higher levels than in the traditional crops. For example, potato cultivation requires 108 kg. of NPK (inorganic fertiliser) per acre as against only 78 kg. for wheat (Chand, 1999) and 60 kg.

each of phosphorus and potassium per acre as per the Pepsi Foods manual. The tomato crop requires 60-90 kg. of nitrogen, 60-100 kg. of phosphorus, and 60-120 kg. of potash per acre depending on the quality of soil as per HLL manual. Similarly, the chip potato crop requires 4-5 pesticide sprays and the seed potato crop 6-7 sprays as per the Pepsi Foods manual. Tomato crop under contract requires as many as 14 sprays as per the HLL manual, which is even higher than that in cotton. This, in a situation where farmer awareness of the negative effects of pesticides on the environment, other than human and animal lives, especially food-related aspects, is very low (Gandhi and Patel, 1997), can be quite problematic.

CF has led to the increased incidence of the practice of reverse tenancy in the region as the returns from farming have increased for those who can invest in it and take risk of crop failure, and these are mostly the large landholders or those who have other non-farm sources of income. This is certainly leading to higher orders of economic differentiation in the region as those who lease out land are only worse off (Singh, 2002).

In India, the legal reform process is already underway with the Union Government enacting the Model Act for the state Agricultural Produce Marketing (Development and Regulation) Act, 2003 and many states (8 as suggested, and 10 partially like Gujarat, Haryana, Karnataka, Maharashtra, U.P., Delhi, and Chandigarh permitting only direct marketing/CF or private/cooperative markets (only Karnataka)) carrying out the amendment in their Acts. This amended act deals with the setting up of private markets, selling of produce by growers outside the APMCs (regulated markets), setting up of direct markets, specialised commodity specific markets, regulation and promotion of CF, provision for agencies and measures to promote quality, standards, and alternative markets, and public-private partnerships to facilitate more and better linkage between firms and farmers (GoI, 2004). The amended APMC Act has certain mandatory and optional provisions regarding CF wherein mandatory ones include aspects like

who can undertake CF (type of sponsor and of contract grower), details about the land under contract, duration of contract, description of farm produce, other contract specifications like quantity i.e. acreage, entire crop, or fixed quantity, produce quality specifications and penalties for lower quality like rejection, or lower price, crop delivery arrangements i.e. at farm/factory gate/ collection centre and transport arrangements, pricing and credit mechanisms, farmer asset/land indemnity, compulsory registration of contracts with the local authority and the procedure for dispute resolution. On the other hand, the optional features include those relating to farm practices, joint crop insurance, support services to be provided, farmer-management forum for monitoring of contract system performance, and monitoring of quality and yields.

The model contract agreement is quite fair in terms of sharing of costs and risks between the sponsor and the grower (GoI, 2003). But, it leaves out many aspects of farmer interest protection like delayed payments and deliveries, contract cancellation damages if the producer made firm specific heavy investments, inducement/force/ intimidation to enter a contract, disclosure of material risks, competitive performance based payments, and sharing production risks. Also, there are state level variations in the amended Acts and the spirit has been diluted. For example, in Gujarat, the amended Act makes the APMC as a party in the tripartite contract stating the logic that APMCs have a useful role as facilitator as they have a long standing relationship with farmers and can disseminate the CF concept and practice besides monitoring its practice. It makes the Gujarat State Agricultural Marketing Board (GSAMB) and the local APMC as the registering authority for contracts. The MD, GSAMB will examine the contract for its fairness to the farmers and can refuse to register the same if found inadequate in the protection of the farmer interest. It is also the arbitrator in case of disputes. The registration costs Rs. 200 for the sponsor. Though the central model Act exempts contract procurement from market fee, the Gujarat Act

makes it mandatory to pay the prescribed cess to the concerned APMC or in case of multi-location operations, to the GSAMB which will apportion it to the concerned APMCs. Though the monitoring role of APMC is desirable, but making it a party to the contract is totally unnecessary and undesirable as that is not the best way to protect the farmer's interest, if that, at all, is the logic for giving the role of a party to the contract to the APMC in contracts between sponsors and the growers. Further, it is not known how far the model contract agreement will be adopted by the agencies unless it is a conditionality to avail certain other incentives or policies. In Thailand, even after three years of its notification, the standard agreement was used only by two companies (Singh, 2005d).

6.2 Impacts of Contract Farming on Rural Women and Child Workers in India

There have been many studies of conditions for women workers and gender discrimination in export-oriented industries across the world during the past 30 years (Lim, 1990; Pearson, 1998; Barrientos et al., 1999; Balakrishnan, 2002). While some (e.g., Lim, 1990) see the employment of women in such enterprises as a natural economic process driven by business dynamics and labour family needs (as demand and supply factors respectively), others view it in more gendered frameworks and have been critical of the way female labour is treated and paid in these factories. The latter studies term the whole process of industrialisation as not only export-led, but also female-led (Pearson, 1998). However, female labour conditions in the farm sector under agribusiness expansion have not yet been subjected to similar analysis.

Agriculture is becoming increasingly 'feminised' globally as men are moving out of the sector more quickly than women. The reasons for increasing female representation in agriculture vary from voluntary and involuntary withdrawal of men from farming, to growing wage opportunities for women in export-oriented, non-traditional crops and activities. While these new labour arrangements have led to marginal increases in real income for

some women workers, they have also changed relationships between workers and employers, workers and work, and led to differentiation within labour. For example, women's wages are lower and stickier (i.e. do not rise as fast) than men's, working conditions poorer and bargaining power more limited. These are, to some extent, the result of structural factors (Mehra and Gammage, 1999). Others argue that labour markets are not only bearers of gender, they also reinforce gender inequality (Elson, 1999).

Women have increasingly been employed to do more delicate work because of their supposedly feminine traits, such as docility, obedience and nimble fingers. But these are not natural or innate skills; rather they are social skills embedded during girls' upbringing as part of their socially defined subordinate position within society. In fact, the expanding employment of women in agribusiness has many parallels with female employment in industry, where women are also preferred for their so-called nimble fingers, and their work is insecure, badly paid, and flexible. In agribusiness, some of these aspects are the result of the nature of production in a sector characterised by seasonality, mono-cultivation and natural risk (Collins, 1993; Barrientos et al., 1999; Elson, 1999).

Though there have been studies of gender impacts of CF within producer households (Carney, 1988; Bulow and Sorensen, 1993; Porter and Phillips-Howard, 1997; Jayaweera, 2002), such studies of labourers' households are more unusual. In many cases, rural women working in processing plants and related activities reported that employment had given them greater self-esteem and power within the household (Glover and Kusterer, 1990; Dunham, 1995). However, CF does lead to gender inequalities in the quantity and quality of work, as well as wages for women and children, who work longer hours as they are considered better workers, but are paid less (Collins, 1993; Porter and Phillips-Howard, 1997). Employment on contract farms is also temporary and sporadic. Some activities, such as pruning, spraying, thinning, pinching out, tying

and harvesting of grapes, are reserved for women, and this work differentiation extends even to the processing sector (Torres, 1997; Barrientos et al., 1999; Rath, 2003). Such 'gendering' of tasks is a problem as it can exclude women from activities that are better paid, less strenuous or less hazardous.

6.2.1 Child labour and gender

Child labour is one of the major problems in CF, and this is the case throughout the developing world (Porter and Phillips-Howard, 1997; Torres, 1997; Raynolds, 2002). However, no data on its global or regional magnitude are available because CF is practised in small pockets in each developing country. Similarly, there are no estimates of the magnitude of child labour in CF in India. India is one of the main users of child labour in the Asian region. The 1991 Census of India reported that there were 12.6 million full time and 10.4 million marginal child workers in India, with Andhra Pradesh having the highest number of child workers (15% of the total child workers in India; cited in Kar, 2002). In the 1990s, about half the child labour in rural India was concentrated in the five states of Andhra Pradesh, Karnataka, Maharashtra, Madhya Pradesh and Tamil Nadu (Lieten, 2002b).

Any kind of work by children under the age of 18 is often considered exploitation in developed countries. In India, however, the term 'child labour' applies only to children aged between 5 and 14. The Child Labour (Prohibition and Regulation) Act, 1986 states that no child below the age of 14 shall be employed to work in any factory or mine or in any other hazardous employment which excluded farm work (cited in Mishra, 2000). The disaggregation of child labour into different occupational categories reveals that almost 80 percent of working children are in the agricultural sector (Gayatri and Chaudhri, 2002). Since child labour tends to be concentrated in agriculture, it may be reasonable to expect that the incidence of child labour will be higher in agriculturally less developed regions. But, that is not the case; Bihar state, usually referred to as an underdeveloped state, has one of the lowest child labour ratios in

the country. On the other hand, Tamil Nadu and Andhra Pradesh, more advanced agriculturally, have the highest incidences of child labour. Also, there is a significant correlation between child labour and the economic participation rate, especially female participation rate. The states with the highest incidence of child labour are also the ones with a high per capita income and a much higher female work participation rate than many other states (Lieten, 2002a). This is because in contexts where there are extended labour opportunities yet a low degree of labour empowerment, poor families are tapped for additional labour power. Since adults usually have some form of alternative employment in such regions, child labour is more likely to be used (Lieten, 2002b).

Employers/contractors prefer girls for a number of labour supply traits like docility, obedience and stability; a phenomenon which is well documented in the literature. Most of the girl labourers belong to the scheduled caste and scheduled tribe households, poor backward castes and other such communities. The lower status assigned to girls in Indian society, where male preference rules, further propels their employment in a number of activities. Even if parents do not wish to exploit their children, they are often trapped in a vicious cycle of indebtedness, bondage and other obligatory relations which compel them to send their daughters to work. Yet the employers or contractors of girl labour have no requirement to take care of these children; if any health problems arise, they are simply replaced with a new group. With no social security obligations, there is hardly any cost involved for the employers or contractors (Rustagi, 2002). Child labour under contracting is not subject to any legal or public disapproval.

6.2.2 Case studies

The states of Andhra Pradesh and Punjab have been pioneers in contract seed production and contract vegetable production respectively in India. These case studies bring out the gender and child labour dimensions in the practice of farm labour under the CF system. The case studies from Andhra

Pradesh, mainly drawn from Ramamurthy (2000) and Venkateshwarlu and Corta (2002), are based on intensive field research by these authors on the labour processes, conditions and households involved in hybrid cottonseed production. The Punjab case study is mainly based on my own interactions and observations in the field as part of a larger study of CF in the state (Singh, 2005).

6.2.3 Contract cottonseed production in Andhra Pradesh

In 1999-2000 Andhra Pradesh had the highest incidence of child labour in India, with 25 percent of children aged between 10 and 14 in the rural areas working, compared with only 9 percent in India as a whole (Lieten, 2002b). This was also accompanied by the highest rural female work participation rate in the state (48%), compared with only 30 percent in India in 1999-2000. Furthermore, 47 percent of the total rural employment in Andhra Pradesh in 1993-94 was casual compared with 36 percent for rural India as a whole. The proportion of casual employment was much higher for female labour (53%) than male labour (43%) (Dev and Mahajan, 2001). Contract farm labour is generally casual labour, though workers may be tied by advance loans.

This sets the context for the first case study: labour in CF of hybrid cottonseed. Three districts of Andhra Pradesh (Kurnool, Mahboobnagar and Rangareddy) account for 70 percent of India's cottonseed production and 97 percent of the total area (28,000 acres in all) under cottonseed production in the state. About 60 percent of the state's seed production is destined for sale in other states of India or abroad. Hybrid cottonseed production is highly labour and capital intensive. It requires four times more capital and nine times more labour per acre than ordinary cotton production. Labour accounts for 60 percent of the total cost of cottonseed production, and the most labour intensive operation is cross-pollination (see box 1), which has to be done manually. It involves about 90 percent of the total labour input and 45 percent of the total capital input (Venkateshwarlu and Corta, 2001).

Most of the cross-pollination work is done by young girls who work daily from July to February. Cross-pollination and harvesting (picking cotton) are carried out for six months and four months each by the girls, with some overlap between the two tasks during November to February. The predominant task is cross-pollination, which takes 95 percent of their time. The involvement of young girls in cottonseed production is so high that it is estimated that 0.25 million girls are employed in this activity throughout Andhra Pradesh. In one case, on a 70-acre cottonseed farm dispersed over 14 different villages, 560 girls were employed and were monitored by 14 supervisors. The girls and their parents are contacted well in advance of the crop season and credit is extended to the parents who agree to assign their daughters to the cottonseed farmers for the season (July-February). This credit (cash/grain) advance, which ranged from Rs. 100-3000 in 1997-98 and was obtained by more than 90 percent of the girls' parents, serves to interlink the credit and child labour markets; this has become an important part of the MNCs' CF strategy (Venkateshwarlu and Corta, 2001).

Generally, 10-15 children are hired for 100-150 days per acre of cottonseed production. Children as young as six years old work from 8.30 am to 6-7 pm; some boys even return to the field again from 9-12 pm at night. The cottonseed production calendar has been standardised by companies for seed certification and marketing. This has resulted in the regimentation of children's work schedules, who are continuously employed for six to nine months a year. Children's labour is extended well beyond the standard workday (9-10 hours a day with a one hour lunch break). They are paid a piece rate of Rs. 10/- per 25 kg. cotton for delinting (separating cotton from seeds), and Rs. 0.05 per pest/worm caught. Many girls also accompany their mothers for casual work. They are paid daily wages or piece rates (Ramamurthy, 2000).

Girls are preferred in cottonseed production because their wages are lower than adults', they work longer hours and more intensively, and are

generally easier to control. It is reported that one girl can do the work of three adults. Though the agreement obliges these female children to work for only one season (six-nine months), in practice they tend to work for several years for the same farmer. Children are given incentives in the form of chocolates, biscuits or snacks, or prizes and bonuses like a stainless steel tiffin carrier every two years for better and faster work. They are even taken to a cinema twice a month and allowed to watch television or videos while separating cotton from seeds (an activity where children are paid on a piece rate basis). In some cases, girls are brought in from outside the local area and made to stay in the employer's house and cattlesheds throughout the season (Ramamurthy, 2000; Venkateshwarlu and Corta, 2001).

Whilst young girls are the most popular labour type on cottonseed farms, women are also employed, though for much less of the time and for fewer tasks. The most common labour arrangement for women in contract farms is daily casual work. Though this work ensures instant wage payment, in practice the wages are held back till a task is completed. There is also increased micro management of labour time and supervision of daily wage labour by landowners, who may threaten women workers with losing their jobs or withholding their wages. Labour time is controlled by the landowners in various ways, such as going to workers' homes each morning to fetch them early for work, ensuring that lunch is brief, prolonging the work day, and insisting on workers making up for any tardiness in work. Often, even the supervisors are women. In order to reduce the need for supervision and control, another labour arrangement (the piece rate system) has emerged, especially for cotton picking and weeding. The piece rate system leads to workers lengthening the workday themselves, magnifying the pace and intensity of work and even monitoring each other's performance. Daily wage labourers pick about 10-15 kg. of cotton a day; those working under the piece rate system can pick as much as 20-30 kg., with some even reaching 40 kg. This leads to a change in the relationship between efficient

and less efficient workers and creates a hierarchy of workers. As individual wage earnings become more uneven, average wage costs for producers are reduced (Ramamurthy, 2000).

Since the 1980s, the cross-pollination work in cottonseed farms has shifted from daily adult labour to almost entirely labour by girls, who are fully bonded i.e. obliged to work only for the contract grower who advanced the loan. In fact, adult women are discouraged from cross-pollination work, and girls over 14 or those who have reached puberty at the time of agreement are not permitted to work in contract farms by the seed producers, organisers or companies. Many rumours are spread to discourage women from undertaking such work, such as that post-pubescent girls working in the fields will cause crop failure. This is no different to countries like Japan and Korea, where until the 1980s married women were prevented from working by law or strong social customs (Tzannatos, 1999).

The employment of female children in cottonseed farms has had many impacts on gender relations at the household level. For example, girls have more responsibility for household provisioning, and with more money coming in, men may withdraw from work and often resort to drinking. There are also health implications for girls involved in cottonseed work; higher levels of pesticides are used in this crop than in ordinary cotton cultivation. Girls working in cotton fields for many years have been reported to suffer menstrual problems (Venkateshwarlu and Corta, 2001). This is similar to the conditions of grape farm workers in Maharashtra; major problems faced by women grape workers included lower backache, neck pain, headaches and menstrual problems. The women working on grape farms had the highest morbidity rate among all groups of women agricultural workers. More than 60 percent of the women working on grape farms reported health problems, compared with only 32 percent for all women workers (Rath, 2003). Further, more and more girls are being taken out of school to do such work (Ramamurthy, 2000).

6.2.4 Contract tomato and potato production in Punjab

Agricultural labour accounts for as much as 88 percent of the total rural labour in the state of Punjab (Gill, 2000). More than two-thirds of the agricultural labour in the state, including contract farm labour, is casual. The Major reasons behind the casualisation of farm labour in the state include mechanisation of major farm operations, inflow of migrant labour, slowdown of agricultural growth, and non-viability of small and marginal holdings (Rangi et al., 2001). Women's labour participation rate in agriculture in Punjab has been extremely low (4.5% in 1991), though higher than their participation rates in the national, rural and urban workforce (2.8%, 2.2%, and 4.3%, respectively). Only 1 percent of cultivators (farmers who own or lease land) were female in 1991 (Gill, 2001). Punjab also has had one of the lowest incidences of child labour (2.7%) in the country (Lieten, 2002a). However, Punjab has been a pioneer in India in the CF of perishable produce, a sector which tends to rely on women and children's labour.

Fruit and vegetables require more intensive labour than other crops. Contract farms under company supervision are little more than 'factories in the fields' from the point of view of labour. Their labour system resembles the industrial sector because of timing, quality and standardisation requirements which cannot be met by mechanical methods. This requires 'quality labour', i.e. efficient, timely and paced; 'flexible labour', that is readily available and cheap; and 'docile labour', in other words politically trouble-free labour. These conditions are met more easily by women, who are perceived to be homemakers and, therefore, low cost, sincere and more obedient workers. This amounts to manipulation of the cultural understanding of gender (Collins, 1993).

That contracting has led to more and better employment opportunities for labour, especially women, is true and acknowledged by the labourers (Singh, 2005). The labour intensity of vegetable crops, except potato, is much higher than for

traditional crops like wheat or paddy. The labour intensity is 3,600-4,000 hours per hectare for tomatoes (depending on whether it is a summer or winter crop), compared with only 740 hours per hectare for paddy (Gill, 2001). This has created a big employment boom in the contract production areas of the state, especially as the mechanisation of sowing and harvesting operations of paddy and wheat crops has reduced manual work to almost nothing. While employment has grown as a consequence of the labour intensive nature of the crops, accompanied by the emergence of some employment in processing, the wage levels have been pushed to subsistence levels as a result of the increased competition. This has come about through in-migration and the cessation of out-migration because of the higher incomes available locally. At the same time, those in work have to deal with insecure employment and poor working conditions.

According to Gill (2001), during the mid-1990s, three-quarters of all workers employed in the state's vegetable production sector were hired labour. Further, female labour accounted for 58 percent of the total labour hours, compared with 34 percent in paddy. And 49 percent of all those working in the vegetable production sector was hired female labour, compared with 25 percent in paddy. In tomato production alone, female labour accounted for almost 60 percent of the total labour hours. Child labour accounted for about 3-4 percent of the total labour hours in vegetable crops, as part of family labour. However, a woman's wage is only 75 percent of a male worker's wage; a child worker receives only half that of a male worker (when paid a daily wage rather than a piece rate wage).

6.2.5 Labour in tomato fields

Women and girls mostly transplant and harvest tomatoes as such workers are more available, cost less, are more honest and better suited to picking and transplanting jobs (Singh, 2005). Mothers with infants also work in contract farms and infants and children remain on the farm throughout the day, with implications for their health and nutrition. There is a piece rate system of wages linked to

output, i.e. Rs. 2-2.5 per crate of tomatoes picked (a crate contains 20 kg. of tomatoes). Thus, the more a woman or girl picks in a day, the better she gets paid. Harvesting one acre of tomatoes takes 15-20 women two days as one woman can pick only 25-30 crates a day. Wages go up when tomato harvesting competes with that of potato and wheat in some areas (Singh, 2005). But wages soon become depressed with the large seasonal inflow of migrant male labour to the state. In fact, migrant agricultural labour accounts for 25 percent of the total agricultural labour force in the state (Gill, 2000). The daily wage rate for female workers is only two-thirds of that received by men. In tomato harvesting, half-day wages are also common as harvesting should be completed before noon (Singh, 2005).

6.2.6 Labour in potato fields

Potato cultivation, especially under contract, has increased women's employment; a large number of women can be seen picking and grading potatoes during harvest time, though in general, female labour accounts for only 38 percent of all labour used in this crop (Gill, 2001). Generally, female labour is preferred for these jobs as they require patience and care, yet women's pay amounts to only two-thirds of that received by men. A lot of child labour is also used, especially for grading. Even mothers with infants can do such work, which is generally in one place and under the shade of some tree or in a shed (Singh, 2005). Daily wages are generally paid for harvesting; usually Rs. 40/day for women and Rs. 20/day for girls. Groups of workers may receive a fixed payment contract to harvest an entire potato field; this was Rs. 500 per acre in 1999-2000. Group labour contracts were also noted for seed cotton weeding in Andhra Pradesh (Ramamurthy, 2000). Bagging potatoes is a separate labour activity and is paid at the rate of Rs. 5-10/bag (Singh, 2005). In some cases, women members of the contract grower households supervise potato grading, especially when the produce is graded at the grower's farmhouse. This is preferred as most of the grading labour is female, and it is easy and more effective for a female member of the farming household to control their work.

As shown in these case studies, contract farm production is primarily carried out by female labour, and increasingly by young girls. There is a need to address the whole question of a changing agrarian production structure under CF from a gender perspective, especially issues associated with transfer of skills, choice of technology, organisation of labour, working conditions and terms of work.

There has been a variety of corporate responses to the problem of child labour, ranging from withdrawing operations from affected countries; dismissing child workers, thus abruptly affecting people's lives; abandoning the factory-based mode of production in favour of contracting work to home-based producers; to adopting a code of conduct for child labour; and finally, acknowledging child labour as a problem and working to eliminate its practice (Bissell et al., 2002; Frenkel and Scott, 2002). Instead of banning child labour as proposed by some of the international agencies and the agribusiness players in the developed world, a better approach would be to improve conditions for working children, as such work contributes to the family income on which the child's well-being depends. A ban on child labour in Bangladesh, for example, only aggravated the problem as the children went from jobs in garment factories to much worse jobs, such as breaking bricks in the hot sun or even prostitution. Thus, a ban on child labour under pressure can be counter-productive (Kar, 2002).

Seed multinationals Monsanto, Emergent Genetics, Hindustan Lever, Syngenta, Advanta and Proagro (a subsidiary of Bayer) as well as some big Indian seed companies, have agreed to co-operate with the MV Foundation in Andhra Pradesh — Magsaysay award winner Dr Shantha Sinha is the group's general secretary — to eliminate child labour from the cotton seed industry. These developments took place four to five months after the publication of a report on child labour in hybrid cotton seed production by the India Committee of the Netherlands (ICN). It was revealed that almost 250,000 children under fourteen years of age, mainly girls, work on hybrid cotton farms in Andhra Pradesh for long hours under

hazardous conditions. Unilever and Hindustan Lever Limited (HLL) — its Indian subsidiary that markets several popular brand-name products, e.g. Close-Up, Surf, and Lipton - have rejected the accusation of using child labour in hybrid cotton seed production. Unilever stated that it made sure that its suppliers complied with the agreement not to use child labour. Both HLL and 'Paras' (in which HLL now has a 26 percent share) were present in Hyderabad (India Together, accessed on 27 July, 2006).

Non-government organisations (NGOs) and government agencies need to monitor working conditions and wage rates in CF in order to prevent long hours of work, temporary employment, exposure to hazardous pesticides and below minimum wages. The employer should make provision for childcare, such as creches; and both NGOs and government should provide education and skill building facilities. If the education level of these children improves, they will be able to get out of these fields and escape poverty and exploitation. The literacy of both girls and women seems to have a bearing on the incidence of female child labour (Rustagi, 2002).

There have been many programmes at the state level to eradicate the practice of child labour. For example, there were more than a dozen such government programmes during the 1980s and 1990s in the state of Karnataka and there are also a dozen NGOs working to eliminate the practice of child labour in various districts of the state (Gayathri, 2002). The NGOs' strategies, in general, include supporting the children with health and education facilities and offering income compensation for children and their parents. But, while NGOs are doing good work at the micro level, it does not add up to a major strategy to address the huge problem of child labour. This is partly because of a piecemeal approach, lack of scale and sustainability, and high costs, as well as the dominance of donor demands and competition between NGOs. What is required is an holistic and integrated approach focusing on all the activities which involve children in a given area, followed by replication of programmes on a larger scale in a sustainable manner (Wazir, 2002).

7. Agribusiness in Sri Lanka

Sri Lanka is a small but highly populated country. A large majority of Sri Lanka's population (75%) still lives in rural areas and depends on agriculture or related agribusiness activities directly or indirectly for their livelihoods. The land holdings are small, on the average, being only 0.6 hectare with 71 percent cultivating less than one hectare land each and 90 percent cultivating less than two hectares of land each. Further, 86 percent of the land is state owned and there is a ceiling of 50 acres for private land ownership. But, an amendment in 1981 made it possible to lease land above 50 acres. This has led to companies opting for out-grower or CF schemes instead of corporate farming. Though the contribution of agriculture to GDP is down to 20 percent now, its textile and garment sector which accounted for 51.6 percent of total exports in 2005, is now facing increasing competition from countries like China after the phasing out of the quota regime in early 2005. Sri Lanka's agribusiness sector is rather diversified and has a long history of serving international markets with products like rubber, tea, and spices due to its early adoption of an outward oriented development strategy. Consequently, exports account for 30 percent of its GDP and imports 37.5 percent which are considerably higher than those for India (9.1 and 10.7) and lower than those for Thailand (56 and 48.9).

7.1 Tea and Rubber Sectors

Tea and rubber account for 2.6 percent and 0.4 percent of GDP respectively and 9 percent and 1.5 percent, respectively of agricultural GDP. Small holders account for 42 percent and 71 percent of all tea and rubber holdings in Sri Lanka. They also account for 4.7 percent and 7 percent of all agricultural land (Wickramasinghe et al., 2003).

7.2 Fish and Fisheries Products Sector

In the year 2000, the fisheries sector contributed 2.6 percent to the GNP. The Sri Lanka fisheries industry maintains a positive trade balance, even

though, in terms of quantity, imports were four times that of exports. In 2000, shrimps/prawn and tuna exports accounted for about 54 percent of the total exports of fish and fishery products and Japan was the main market for Sri Lankan exports. The fisheries sector employs a wide spectrum of people of different ethnic and religious background and socio-economic status. Of the coastal, offshore and inland fishing sectors, coastal fisheries have made the most important contribution to the production of fish in Sri Lanka (60% in 2000) compared with 20 percent by offshore and 10 percent by inland fisheries. Most fish in Sri Lanka are landed in fresh form with the catch kept in fresh form at the bottom of the hull. Only the multi-day offshore fishing vessels are equipped with large insulated iceboxes or built in ice holds with varying capacities. Wet fish which were marketed mainly within coastal areas earlier, have now become popular all over the country. Landings of fish are marketed to consumers, assemblers, fish traders or the Ceylon Fisheries Corporation (CFC). Some assemblers consign the fish to the wholesalers operating on a commission basis at the St. John's fish market in Colombo. Fish is then distributed throughout the island through wholesalers and the retailers. CFC directly sells fish through their retail shops. There is no well-established marketing channel for fresh water fish and they are marketed through retailers (Ariyawardana, 2005).

7.3 Livestock and Dairy Sector

Dairy industry is one of the most important industries within the livestock industry of Sri Lanka. Overall, the livestock industry is highly integrated with agriculture and it contributes around 8 percent to the gross value of agricultural production. Approximately, one third of the land holders have livestock as part of their enterprise mix either in combination with crops or as a sole enterprise. It is estimated that around 3.5 million people in the country are involved in livestock rearing. Cattle (15,57,000), buffaloes (694,000), goats (495,000),

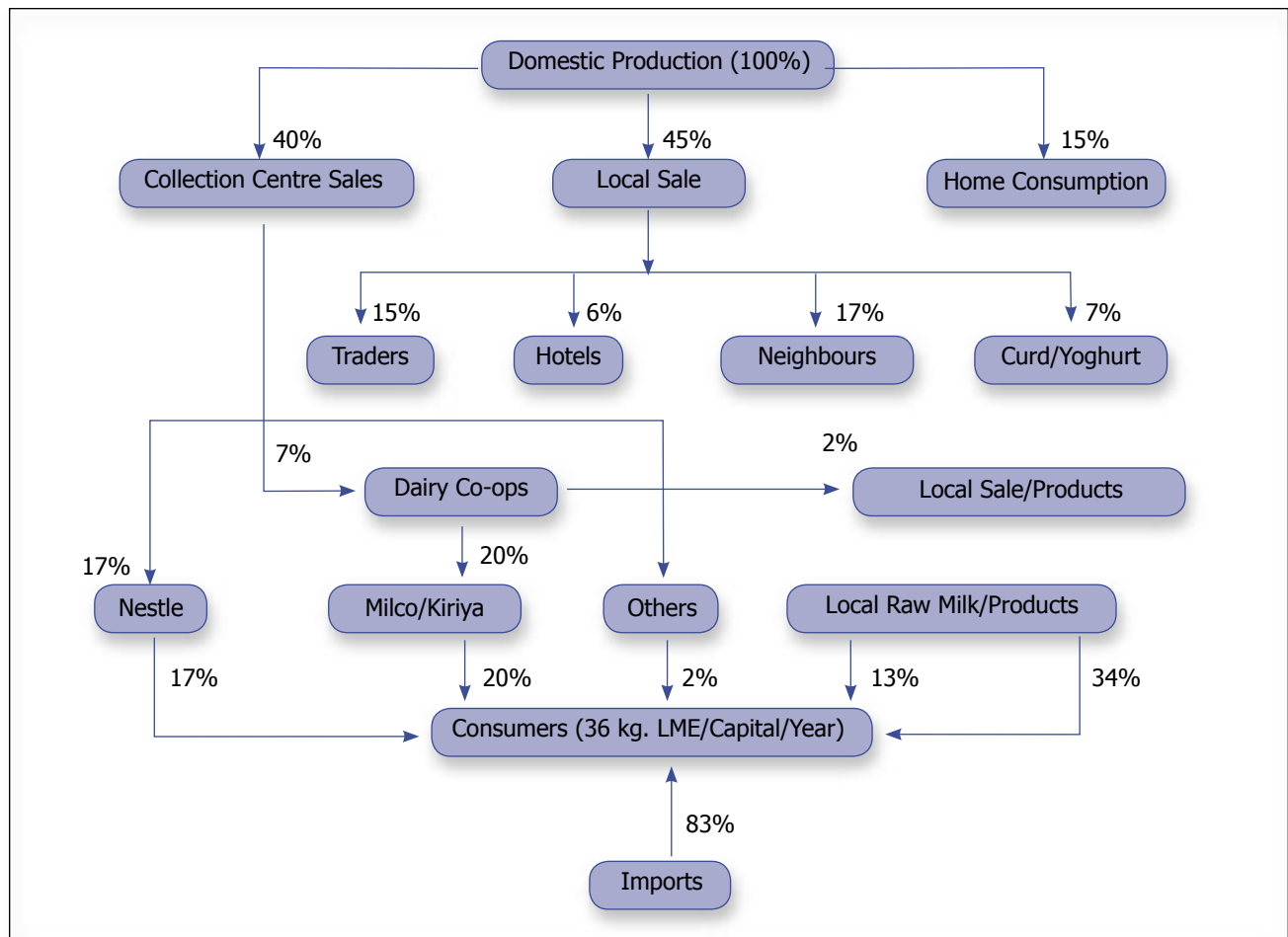
pigs (71,000) and poultry (10,62,2000) are the major livestock sectors in the country. The wet zone shows the highest average milk production level of cow of 7-8 litres per day whereas the dry intermediate zone shows the least productivity of 1.5-2 litres (Ariyawardana, 2005).

The formal processed dairy market consists of small primary dairy cooperatives, larger local cooperatives, district level cooperatives, dairy cooperatives unions, and a network of collection points and milk chilling centres operated by the cooperatives or the main dairy processors such as Kiriya Milk Industries of Lanka (Pvt) Ltd. (KMILL; formerly Milk Industries of Lanka Company Ltd.), Nestle Lanka (NLL), and International Dairy Products Ltd. (IDPL). The informal dairy sector consists of small private milk collectors, small local processors of traditional dairy products and small

retailers as well as dairy producers who sell directly to hotels and restaurants or to consumers. Poultry is another well organised sector in Sri Lanka (see figure 6 below and figure 7 on the next page).

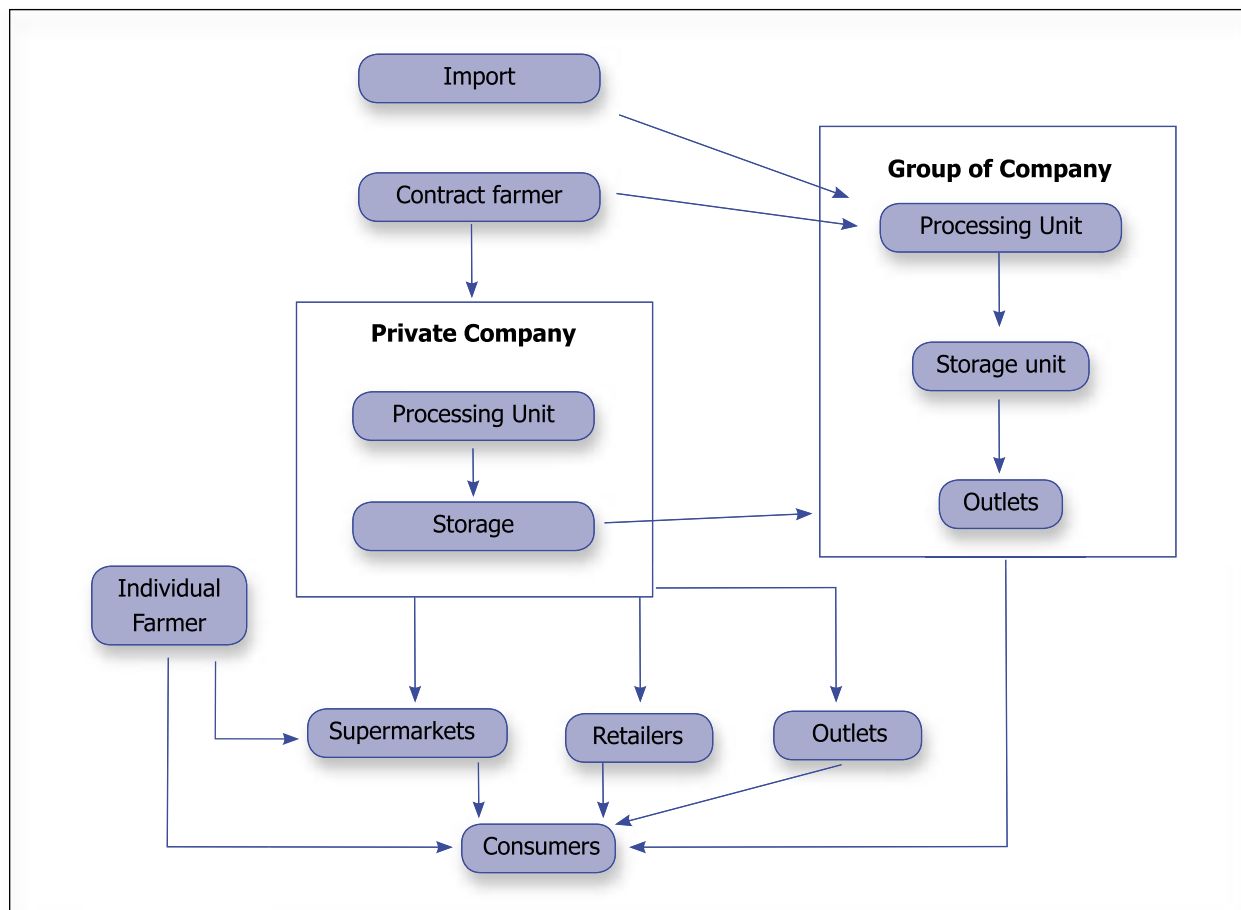
There are 300 export companies in the agribusiness sector exporting multiple products. It is estimated that 30-40 percent of the country's agricultural production is lost because of poor post-harvest handling against an acceptable level of 20 percent. But, FDI in the agricultural sector was only 2.7 percent of the total in 2000. The agribusiness value chains in Sri Lanka, with the exception of some new and younger companies, are not well organised and efficient as these are fragmented, not co-ordinated with other agents in the chain, and driven by historical 'trading mentality' looking for short-term financial gains (Andreas et al., 2006).

Figure 6
Milk/Dairy Channels in Sri Lanka (% of Production)



Source: Ariyawardana, A. (2005)

Figure 7
Broiler Supply Chain in Sri Lanka



Source: Ariyawardana, A. (2005).

7.4 Horticultural Supply Chains

A study of vegetable supply chains created by newly-emergent supermarkets revealed that the supermarkets with small number of outlets procured from the traditional vegetable market through intermediaries known as vegetable suppliers. Those with a larger number of outlets (7-8) procured from growers on order, through vegetable collectors, who travel around the rural areas and procure from the roadsides. There are no contracts with growers by the supermarkets or export-oriented value chains. There are forward sales contracts between growers or suppliers and buyers mediated by banks, government agencies or NGOs as facilitators and accepted as collateral by the Bank of Ceylon and other commercial and development banks (Andreas et al., 2006). Similarly, supermarkets with very large number of outlets have regional vegetable collection centres where farmers and vegetable collectors bring their produce

and the centres buy only good quality produce on the spot. These supermarkets have promoted quality consciousness among growers by paying for quality produce higher prices than the local market, reduced post harvest losses by procuring at the local level. These improvements were possible due to a lesser number of intermediaries in these chains than the traditional market chain (Perera et al., 2005; Andreas et al., 2006).

Only fair trade and organic trade companies (e.g. Renuka Agro Exports in organic coconut and Lanka Organics which works with 1300 growers for various organic products and whose tea is fair trade certified by FLO) have a strong linkage with primary producers as the very process and market demand it and they are growing. Here too, outgrower schemes where the agribusiness company leases out land to the growers who work under company supervision of the farms,

or work on their own farms under contract are the norm for backward co-ordination. But, these schemes were not socially inclusive as they had minimum land and basic know how as criteria for being eligible for the scheme. Also most of the

value chains were not buyer driven as they were not structurally linked to any large international buyer and were operating through middlemen who enjoyed the confidence of farmers (Andreas et al., 2006).

8. Agribusiness in Bangladesh

The economy of Bangladesh is predominantly agrarian with the agricultural sector accounting for 31.6 percent of the GDP in 1997-98 at 1984-85 prices, 84 percent of its population residing in rural areas and 63.2 percent depending on the agricultural sector for employment (Ahmed, 2003). Within the agricultural sector, the crop sector contributes 71 percent, forestry and fisheries 10 percent each and livestock 9 percent. Agricultural exports accounted for 10.4 percent of all exports in 1997-98. The sector has seen major policy changes in the recent past like liberalisation of trade in micro irrigation, fertilisers, agricultural machinery, and seed industry which has encouraged the private sector involvement and imports. The country also exports high value crops like vegetables to European countries. The major export agribusiness sectors are potato, shrimp and seeds. Potato is the third largest food crop after rice and wheat and is now being exported to neighbouring countries like Malaysia, Singapore and Sri Lanka. Similarly, fisheries is the third largest export earner after ready made garments and knitwear accounting for 7.74 percent of the total exports in 1996-97 (Sikder, 2000). The total cultivated area of horticultural crops is about 0.69 million hectare which covers about 5 percent of the total cropped area (BBS, 1996). The area and production of fruits in 1995-96 were 181,000 ha and 14.88 million tonnes respectively. Banana constitutes 42 percent of the total production of fruits in the country (<http://www.hridir.org/countries/bangladesh/index.htm>, accessed on 02 August, 2006).

8.1 Livestock Sector

It contributes 6.5 percent in the GDP of the country. The production of milk was 1.58 million

tonnes in 1995-96, 1.59 million tonnes in 1996-97 and 1.62 million tonnes in 1997-98. The production of meat was 0.54 million tonnes in 1995-96, 0.58 million tonnes in 1996-97 and 0.62 million tonnes in 1997-98. The numbers for egg-production were 2830.9 million in 1995-96, 3020.0 million in 1996-97, and 3252.5 million in 1997-98 (http://banglapedia.search.com.bd/HT/L_0115.HTM, accessed on 02 August, 2006). The total number of dairy farms in 1997-98 was 29649, and there were 30,760 duck farms and 60,670 poultry farms besides 53,200 beef fattening programmes in Bangladesh (Alam, 2003).

8.2 Forestry Sector

The share of the forestry sector in the economy is continually declining, primarily because of a ban on felling in many areas. Production of timber and fuel wood has fallen by more than 50 percent since the felling ban was introduced in 1988-1989. The contribution of forest-based industries to GDP is small and is increasing at a very slow rate. At the national level, the total value added by the forestry sector totals to about 7 percent of the total value added by the agricultural sector and is about 2.3 percent of national GDP. Bamboo provides the greatest contribution to GDP, followed by timber, fuel wood and non-wood forest products. The share of fuel wood's contribution to GDP has been increasing, while that of timber has been decreasing. The forestry sector provides employment of about 0.8 million workdays. Among forest-based industries, cottage-scale industries provide the greatest employment. Annual round wood production is estimated at about 28 million cubic metres. About 80 percent of the production comes

from private sources, mainly homestead woodlots. Annual per capita wood consumption for all purposes is among the lowest in the world.

An estimated 80 percent of Bangladeshi wood production is used for fuel; most of the remainder is converted to sawn wood. Bangladesh also produces cultural papers based on hardwood and non-wood fibres, and some hardboard panels for the domestic market. Paper and paperboard comprise the bulk of Bangladeshi imports of forest products. Important non-wood forest products used in Bangladesh include fodder, grasses for thatching, matting and ropes, bamboo, tannins, essential oils and medicinal plants (<http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=5081&siteId=18308&langId=1&geoId=3>, accessed on 02 August, 2006).

8.3 Fisheries Sector

The fisheries sector is important for Bangladesh's economy. It accounts for some 4 percent of GDP and more than 11 percent of annual export earnings. The sector provides income to some 1.5 to 2 million full-time fisher folk and for around 12 million part-time fisher folk. Furthermore, fish producers are among the extremely and moderately poor people, male as well as female. About 70 percent of the country's population is rural, of which 50 percent live in poverty and more than one in five live in extreme poverty. Sixty percent of the national protein is supplied from fish. Within the sector, the inland capture fisheries contribute

51 percent, aquaculture 21 percent, the marine industrial fishery 1 percent, and the marine artisanal fishery 27 percent to the total production. Demand for fisheries products is strong and is expected to continue to grow.

The majority of people living in coastal communities make their living from fishing, and unlike inland fishing communities they almost totally depend on fishing. Fisheries in Bangladesh, and in particular marine and brackishwater fisheries, are faced with a dilemma. Fisheries provide the people of Bangladesh with protein at a reasonable price; it generates employment, income and foreign exchange. Inshore marine and estuarine fisheries are particularly under stress due to over-fishing, environmental and habitat degradation, and multiple uses of water systems. For different types of fisheries, different market outlets are found. (<http://www.fao.org/fi/fcp/en/BGD/body.htm>, accessed on 02 August, 2006).

Chittagong is the main landing site for marine and inland fisheries as well as aquaculture products. Barisal, Noakhali, Comilla and Mymensingh are important landing places for inland fisheries and aquaculture. No recent landing figures in volume or value are available. Table 16 gives the extent of shrimp farming in the southwest coastal region. But, there are also issues of long working hours, hazardous working conditions, and exploitation of labour, especially female labour in these farms (table 17, table 18 and table 19).

TABLE 16
Total Number of Ghers and Area under Shrimp Farming in Southwest Coastal Region (Bangladesh)

District	Number of ghers*	Area in hectare	Bagda (Brackish water)		Golda (Fresh water)	
			Number of ghers	Area in hectare	Number of ghers	Area in hectare
Khulna	37,908	51,667	4,606	38,906	33,302	12,761
Bagerhat	45,023	59,393	11,336	44,439	33,687	14,954
Satkhira	10,868	45,885	10,213	44,929	655	696
Total	93,799	1,56,945	26,155	1,28,274	67,644	28,411

* The fields under shrimp culture.
Source: Tutu (2004).

TABLE 17
Number of Working Hours/Day (Bangladesh)

Name of Upazila*	Type of work	No. of working hours			No. of working hours per week		
		Men	Women	Child	Men	Women	Child
Bagerhat	Shrimp	16	-	-	7	7	5
	Non-shrimp	10	9	9	7	7	5
Batiaghata	Shrimp	16	-	-	7	-	-
	Non-shrimp	10	9	7	7	7	5
Debhata	Shrimp	16	9	-	7	7	-
	Non-shrimp	11	9	-	7	7	-
Dumuria	Shrimp	16	8	6	7	7	6
	Non-shrimp	11	8	-	7	7	-
Rupsha	Shrimp	14	10	8	7	7	5
	Non-shrimp	11	9	6	7	7	5
Koyra	Shrimp	12	8	5	7	7	5
	Non-shrimp	10	9	5	7	7	4

* Sub district.
Source: Tutu (2004).

TABLE 18
Hazardous Conditions for Workers in the Shrimp Farms (Bangladesh)

Upazila*	Hazardous condition
Bagerhat	- Injuries related to work
Batiaghata	- Over time works and low wage rate
Debhata	- Have to work in times of natural disasters
Dumuria	- No financial security
Khulna	- Health problem
Koyra	- Terrorism
Mongla	- Virus infection
Morelgong	- Wage deduction in times of illness
Paikgacha	- Injuries during conflict between owners
Rampal	- No health facility - Work of polluted environment

* Sub district.
Source: Tutu (2004).

TABLE 19
Harassment of Female Workers in Shrimp Farms (Bangladesh)

Upazila*	Hazardous condition
Bagerhat	- Discriminatory wage rate
Batiaghata	- Vulgar comments
Debhata	- Physical torture
Dumuria	- Continuous work in cold water
Khulna	- Rape
Koyra	- Verbal abuse
Mongla	- Indecent remarks
Morelgong	- Low prestige in the community
Paikgacha	
Rampal	
Shyamnagar	

* Sub district.
Source: Tutu (2004).

8.4 Major and Emerging Players in Agribusiness

8.4.1 The PRAN Group

The Pran Group's flagship — The Agricultural Marketing Co Ltd — was formed in 1985 by its founder, Maj Gen Amjad Khan Chowdhury (Retd) and delved into various agricultural activities in Bangladesh including farming demonstration plots for various HYV fruits and vegetables, exports in fresh form, fertiliser distribution, canning, bottling, pickling, pulping, dehydration and the crops of mango, rice, peanuts, moong dal and tomato. While the mango and tomato are pulped/processed at the factory strategically located in nearby Natore, the aromatic rice is milled at the modern rice mill set up in Rangpur. In 2003, it had a total of six factories in food processing. The farmer groups agree in advance to grow certain crops during an appropriate period. PRAN provides seeds/saplings at cost and technical expertise, the individual retains ownership of his land, works on it and if possible funds the cultivation himself with assistance from local agricultural/commercial banks if needed. All these operate smoothly because PRAN provides the most important element, a buy-back umbrella paying pre-determined prices for all the harvest. Over the last three years (1999-2002), a band of closely knit contract growers has emerged who are now beginning to perform with increasing confidence. Only a lack of management capacity (not capability) has restricted PRAN's loyal contract growers to just over 3,000 families on about 4,000 acres of land. PRAN's sales have increased — 10,000 fold from a mere Tk. 200,000 in 1992, employment has increased over twenty fold from less than 200 in 1992, with 80 percent of its work-force being poor women mostly from the rural area. PRAN's investments have increased twenty fold in just seven years from a miniscule Tk. 20 mill. From nil in 1996-97 PRAN products are now exported to over 50 countries in all continents except South America and total over US\$ 2 million p.a.

Major player in soyabean is National Agri Products Limited (NAPL) which is promoting soya seed production (Sikder, 2000). Bangladeshi

entrepreneurs are just at the initial stages of developing CF and, therefore, have limited experience in this field of activities. Apart from scores of private entrepreneurs involved in different areas on wide varieties of experiments, there are some well-known entrepreneurs in this area — i.e. NGOs like BRAC and Proshika.

8.4.2 BRAC (Bangladesh Rural Advancement Committee)

BRAC (Hortex) — the second largest NGO in Bangladesh, has a project of agricultural exports. Under the technical support of Hortex foundation, it developed contract growers to produce and supply vegetables fulfilling the requirement of European Retailers' Good Agricultural Practices (EUREPGAP). In many ways, BRAC is a pioneer in this field and in collaboration with the Hortex Foundation in 1997, ventured into CF for producing French bean. It began with 61 farmers in 1997-98 producing 32 metric tonnes of vegetables that expanded to 965 farmers producing 272 metric tonnes of vegetables by December 2002. Farmers have been trained to use less of pesticides and chemical fertilisers and use more of organic fertilisers. They have also been told the ways and means to attain the objective of producing healthy and clean vegetables. Sometimes seeds are supplied to farmers, sometimes credit is ensured and sometimes training is imparted depending on the need of the hour (Bayes and Ahmed, 2003). The BRAC experiment has shown that farmers could rely on an entrepreneur to provide seeds and other inputs and buyback the produce at a rate higher than what is available in the market. But it has also established that while the farmers benefited substantially, the full potential of the product's export could not be achieved because of non-availability of adequate cargo space in airlines at a reasonable price to airfreight the products to its market abroad.

8.4.3 Proshika

Proshika is one of the largest NGOs in Bangladesh. It is not only a micro finance institution but also an institution that inducts social indicators in its

TABLE 20
Grower's Price in Traditional and Modern Marketing Chain, 2003

Products	From Proshika		From vendor		Grower price as % of consumer price	
	Grower price	Super market price	Grower	Rural market price	Proshika	Vender
Gourd	13 Tk/pc	22 Tk/pc	9 Tk/pc	18 Tk/pc	59	50
Papaya	5 Tk/kg	10 Tk/kg	4 Tk/kg	7 Tk/kg	50	55
Brinjal	14 Tk/kg	22 Tk/kg	11 Tk/kg	24 Tk/kg	64	46
Bitter gourd	16 Tk/kg	20 Tk/kg	15 Tk/kg	24 Tk/kg	80	63
Green banana	1.3 Tk/pc	3 Tk/pc	1 Tk/pc	2 Tk/pc	43	50
Green pepper	13 Tk/kg	40 Tk/kg	11 Tk/kg	24 Tk/kg	33	46
Arum	4 Tk/kg	10 Tk/kg	3.5 Tk/kg	12 Tk/kg	40	29
Kakor	8 Tk/kg	16 Tk/kg	6 Tk/kg	15 Tk/kg	50	40

Source: Bayes and Ahmed (2003).

innovative initiatives. Of late, Proshika embarked on crop diversification activities embracing contract growers in some specified areas of Bangladesh. Proshika provides credit, training, seeds and other opportunities to farmers to grow mostly 'green vegetables' where farmers have to adhere to health and sanitary rules. Its intervention shows that grower remuneration has improved substantially (table 20).

Many more NGOs and RD agencies have also made forays into agribusiness. A Memorandum of Understanding (MoU) was signed between PRAN Group, a large agro-based industry of Bangladesh and RDRS Enterprise Private Ltd on 7 July 2005 under the mediation of Small Farmers and Agro-forestry Development Programme (SFADP) implemented by the Department of Agricultural Extension (DAE) with financial assistance from the German Technical Cooperation (GTZ). Under this Memorandum, RDRS and PRAN will work together to assist the small and marginal farmers of greater Rangpur-Dinajpur region to ensure quality production and marketing. In this regard,

RDRS will provide training to the farmer groups on improved cultivation techniques and primary processing and PRAN will procure agricultural commodities produced by RDRS supported farmer groups (RDRS, Bangladesh Konka Newsletter, June-July, 2006).

8.5 Value Chains

In Bangladesh, employment in the value chains driven garment industry was found to be prone to poor and exploitative working conditions with high worker turnover. Not many workers regarded their job as a sustainable option for the future (Kabeer and Mahmud, 2004). In the Dhaka city, reportedly, there are about 36 super markets that deal in agricultural products. These super markets have grown within the last three years. Very few of them buy directly from farmers but NGOs have been stepping into procuring products from farmers under the CF system. In the whole retail chain, dominated by middlemen and agents, NGOs and super markets are increasingly playing a pivotal role (Bayes and Ahmed, 2003).

9. Organic Produce Chains in South Asia

The newly-emergent organic produce supply chains across Asia have also been excluding small producers due to reasons of high certification costs, the smaller volumes they produce, and tighter control by the chain leaders in the absence of any local market outlets for the organic producers (Raynolds, 2004; Singh, 2004a). In fact, this is the result of the dominance of organic produce markets retailed by supermarkets in the West, for which organic produce is targeted. Today, Nike is the largest consumer of organic cotton in the world. In 2003, 3 million pounds of the 120 million pounds of cotton it consumed was organic. Nike projects that in 2004, approximately 30 percent of all Nike apparel cotton materials contained some percentage of organic cotton, and 47 percent of all cotton-containing Nike apparel garments (more than 48 million) were manufactured with materials that contained a minimum of 5 percent organically grown cotton. Nike's goal is for all of its cotton apparel to contain at least 5 percent organic cotton by 2010. Retailer Coop Switzerland is the second-largest consumer of organic cotton, using 2 million pounds in 2003 (Speer, 2005).

The "supermarketisation" trend is evident in many countries: in Australia, Chile and the United Kingdom, three to four chains own up to 70

percent of food sales. Most large food companies have acquired organic brands and small firms, set up partnership with organic companies, or have their own organic lines. Mergers and acquisitions of organic brands and companies impact production, processing, certification and distribution pathways: in California, 2 percent of organic growers represent 50 percent of organic sales; Coleman owns half of the United States' organic pastures; Hain-Celestial is the world's largest processor of organic foods (annual revenues of US\$400 million); Tree of Life is the world's largest organic food distributor (US\$3.5 billion of sales); the Hein-Heinz partnership has 71 percent of the global market share of organic baby foods. This industry concentration sets prices, limits farmers' return, leverages supply and controls market access: In 2001, Horizon Organic reported a 200 percent increase in profit (net sales US\$160 million) but actually cut contractually-promised premium to farmers after it was bought out the Organic Cow of Vermont, decreasing farmers' income by US\$15 000 per family. Thus, opportunities are mixed with risk for the integrity of organic principles (Scialabba, 2005). India is one of the major producers and exporters of organic products. Appendix table A 2 gives a profile of the major players and their product portfolios and markets.

10. Conclusions

The above review and analysis of the nature, profile and functioning of agribusiness sector in south Asia shows that the sector is quite diverse in its content ranging from pure commodities being sold to highly sophisticated processing sectors with major value addition taking place. Different sectors, driven by their markets are at different stages of restructuring of their backward linkages with primary production sector. But, most of them are in for a major change in terms of number and

nature of players and the nature of vertical coordination of the various crop and commodity sectors. Some sectors like perishable produce esp. fruits and vegetables, fisheries, and milk including organic are already witnessing new systems of coordination of production and processing activity wherein new players including MNCs are making an entry and working indirectly (Sri Lanka) or directly (India) with primary producers due to the demands of the market in terms of timing of

availability and quality of produce. It is important to examine the implications of such changes as most of the primary producers in the region are marginal or small producers who face various constraints dealing with markets and market drivers. Contract farming is spreading fast as a mode of co-ordination of procurement activity. The Indian evidence on this mode of co-ordination shows many positive and ill effects of the system especially on small and marginal producers who are the bulk of the primary production sector in these countries. There are issues of small producer exclusion, biased contracts, lack of effective delivery of various services, including procurement. The impacts on labour, especially female and child, have been negative in terms of gendering of tasks, discrimination in wages and lack of proper working conditions and

regular employment. In some other regions like Bangladesh, NGOs are making an entry in the agribusiness sector by directly involving in contract farming and working with food supermarket chains. There are also issues of environmental liability and natural resource use due to the overexploitation of certain resources like fisheries, land and water. There is a need to understand various commodity and product sectors in agribusiness sector from the small producer perspective to design relevant policies and interventions so that they are not left out of the process of agro-industrialisation of the sector due to the application of biotechnology and information technology. There is also need to look at the institutional and organisational dimensions of the agribusiness sector for better understanding for policy design and action.

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Appendix

TABLE A 1

Major Agencies, Crops/Commodities, Locations and Types of Contract Farming in India

Organisation	Crop/commodity	Place	Terms and conditions
Hindustan Lever Limited	Chicory cultivation	Nadiad Anand Mehsana Jamnagar Districts	Seeds are given free of cost to the farmers Per acre 40 bags are to be supplied by the farmers to the company Each bag has to contain 50 kgs of chicory Payments will be made within 15 days of delivery of chicory Two inspections of the crop before harvest The crop has to be harvested and cut into different sizes and dried for 15 days after harvest by the farmer Rs.100/20 kgs will be paid by the company
Hindustan Lever Limited, Nijjer Agro, BEC Foods, Bhilai Chhattisgarh, Sun Sip Ltd.	Tomato Paste	Zahura in Punjab and Karnataka, Amritsar in Punjab and Sirsa in Haryana, and Chhattisgarh	Pepsi's plant was acquired in 1995 alongwith the contract farming system in Punjab
Hindustan Lever Limited	Tea	Assam and Nilgiris	
Pepsi	Chilli paste, ginger, garlic, basmati, potato	Sangrur and Jalandhar in Punjab Maharashtra Karnataka and MP	The guarantee covers around two tonnes production per farmer while the balance can be sold in the open market.
WIMCO	Mango products	Andhra Pradesh	
Foodpro	Tobacco	Andhra Pradesh	
National Dairy Development Board's F & V project at Mongolpuri in Delhi	Fruit concentrate Tomato puree Vegetables and fruits and sells 250 tonnes of F&V daily through 279 retail outlets in Delhi	Delhi, Haryana, Himachal Pradesh, Rajasthan and UP.	Fruits and vegetables are procured from 100 growers' associations with membership of 18000 growers
Maxworth Orchards	Fruits and vegetables	Tamil Nadu	
Cadbury India	Cocoa	Karnataka	
WIMCO, BILT, ITC and JK Paper	Match and paper (poplar and eucalyptus)	Punjab, Haryana, UP and MP	

TABLE A1 (Contd...)

TABLE A 1 (Contd...)

Major Agencies, Crops/Commodities, Locations and Types of Contract Farming in India

A V THOMAS Natural Products Ltd. Kochi	Marigold and caprica chillies	Hindupur in AP, Sathyamangalam in TN and Karnataka	Total of 6000 acres under contract farming.
MSSL	Guar Gum	Uttaranchal	
C & M Group of Nashik, Markfed, Punjab, Tina Oils and Chemicals, Maharashtra, ITC-IBD, MSSL	Maize and Soyabean cultivation for poultry feed plants	Nashik in Mah, Punjab and MP	2036 farmers for maize and 150 for soyabean. The Nashik District Central Cooperative Bank, the Dena Bank, SBI and Bank of Maharashtra have participated in the project. Tripartite agreement would be signed by the company, the respective farmer and NABARD, which would finance the farmers. The company has procured 20 tonnes of high yielding seed varieties of maize and 10 tonnes of soyabean seeds and about 30 tonnes of chemical fertilisers.
Green Agro Pack, Global Green, Sterling Agro, Ken Agri Pack, Unicorn Agro Tech, Golden Sluis, Bharat Copper, Koelman India, Vishal Natural Products, BHC Agro India	Gherkins	Mostly in Karnataka and AP	Small acreage under gherkin for each grower (0.25-1.0 acres)
Global Ostrich and Chamundi Hatcheries	Ostrich farming	Karnataka.	The Australian firm provides breeding stock, technical knowhow and a buy-back guarantee
Reliance Agrotech Pvt Ltd.	Cashew, mango, bamboo and teak (Proposed)	MP	
Godrej Agro Navabharat AP Oilfed Palmtech of ITC	Oil Palm	AP (West, and East Godavari and Krishna districts in AP, Karnataka, Gujarat and Mizoram	Under the AP Oil Palm Act, zonalisation of procurement whereby farmers would be tied to processors in their area and buying by others has been barred. It has been made obligatory on the part of the farmers to deliver palm bunches to the business enterprises

TABLE A 1 (Contd...)

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Major Agencies, Crops/Commodities, Locations and Types of Contract Farming in India

Suguna Broilers, Pioneer, Sri Venkateshwara, Swathi	Broiler chickens	Mostly in AP and TN	<p>A farmer having a minimum of 5000 sq.ft area of poultry shed is provided with day-old chicks, along with their own feed</p> <p>Around 45th day grown birds are collected at an average live weight of 2.00 kg. per bird.</p> <p>Growing charges at a specific rate per kg. is paid to the farmers</p> <p>If the farmer improves on the standards set in terms of weight, mortality and feed to liveweight, he gets an additional incentive. If his flock results are lower than the standard, deductions will be made from growing charges paid</p>
United Breweries, Ugar sugar, PAFC	Barley	Punjab, Karnataka	
Sukhjit Starch Ltd., MSSL	Maize	Punjab, Tamil Nadu	
Coimbatore Cots and Coatings Ltd, Appachi, Super Spinning Mills and Syngenta, Rasi Spinning, Vardhman, Nahar, Agrocet, Pratibha, Maikaal bioRe, Arvind, Mafatlal, Ashima	Cotton including organic cotton	Anaikatti-Attapadi hill ranges in Coimbatore, Tamil Nadu, Punjab, Gujarat, and MP	
Nestle, private dairies in Gujarat, HLL	Milk	Punjab, Gujarat, Uttar Pradesh	Nestle follows two types of contracts— direct legal with large farmers with more than 25 animals and indirect (through agents with legal contracts) for small farmers with a few cattle/buffalo only. The latter mode dominates procurement
KHDC's Naddukara Agro Processing Co. (NAPC), Ion Exchange, Pune, Dabur India	Pineapple including organic	Kerala, Maharashtra and West Bengal	

TABLE A 1 (Contd...)

TABLE A 1 (Contd...)

Major Agencies, Crops/Commodities, Locations and Types of Contract Farming in India

Adat Farmers' Co-operative Bank for Nest Group, Cochin, Trissur (Kerala), Satnam, Markfed, L&T, KRBL, Agrocel, Rallis, Escorts, EID parry, HLL, Pepsi, DCM-Sriram, MSSL, Satnam, Amira foods, Grain tech, and DD intl.	Ordinary paddy and basmati paddy including organic basmati paddy	Kerala, Punjab, Haryana, and Uttaranchal	(1000 hectares by 2300 farmers in Kerala for the AFCB)
Pepsi, McCain, Chambal Agritech, MSSL, NSC, SSCs and hundreds of other private companies	Potato seed and other vegetable seed	Pb., Haryana, HP, Maharashtra and other states	There are two systems of contract farming: One, growers are selected from a number of villages scattered over a large area as is the case with many small seed companies and the SSCs. Secondly, a few villages are selected for intensive coverage of farmers as in the case of Advanta India Ltd (formerly ITC Zeneca) which offers a seed village scheme under which 5000 farmers produce seeds from the parental line seeds supplied by the company. Further, there are direct contracts as well as indirect contracts through seed production organisers.
Pepsi, Nijjer, OSGF, Kerala	Spices like chilly, ginger and garlic, including organic	Punjab, Kerala	
Hundreds of private sugar mills esp. Shakti sugars, Renuka sugar	Sugarcane	UP. Pb., Mah. Guj, Karnataka and TN	
PAFC, M&M, HAFED, Foodpro in AP and Prime Bio products, Marico Industries	Sunflower, safflower	Punjab, Haryana, Tamil Nadu, Maharashtra	
Rallis for HLL, Markfed Punjab	Wheat	MP and Punjab	
Pepsi, McCain, Golden Fries, MSSL, DSCL (HKB), NAFED	Potato	Punjab, Maharashtra, Karnataka, MP, Haryana, and Tamil Nadu	
A M Todd & Co, HAFED	Mint	Punjab and UP, Haryana	
Sami Labs, Himalaya intl., Dabur, Nandan Agro, Hexagon, A V Thomas	Medicinal plants and herbs and vanilla	Uttaranchal, Karnataka, and Kerala	

TABLE A 1 (Contd...)

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Major Agencies, Crops/Commodities, Locations and Types of Contract Farming in India

Jain irrigation, SYP agro, Garlico industries Ltd., Mark Hort Potatoes (India) – a subsidiary of MARKFED Punjab, and many small players in Saurashtra region	Onion, White Onion and garlic	Gujarat, MP	
Bharati (field fresh), Shyam Telecom, Keventer Biotech, Tata Tea	Vegetables	Punjab, WB and Rajasthan	
Bannari Amman group	Jatropha (for bio diesel)	Coimbatore, Tamil Nadu	(2000 acres)
JK paper, BILTSEWA, ITC	Poplar and eucalyptus	Orissa, AP and MP	
Natural Remedies Pvt. Ltd.	Coleous	Karnataka	
L&T, HAFED	Safed Musli	Chhattisgarh, Haryana	
HAFED	Turmeric	Haryana	
Sungrow	Beetroot	Punjab	
Mohan Breweries and Distilleries, Shiva Distilleries, Dharani Sugars and Chemicals, Riverway Agro Products	Jatropha (amrjyot)	Thiruvallur, Karur, Dindigul, Erode and Coimbatore, Virudhunagar, Tirunelveli and Thoothukudi (all in TN)	80000 ha. 3800 ha. 2100 ha. all in 2005-06 The last two were yet to plan their operations
PAFC	Hyola (rapeseed), Guargum, Castor	Punjab	

Source: compiled from various popular and research sources including field research.also: <http://www.tn.gov.in/policynotes/agriculture-2.htm> (accessed on 07 August, 2006, for Jatropha.)

TABLE A 2

Indian Organic Products, Players and Markets (Domestic and Export)

Product	Players	Quantity (tonnes/y)	Season	Markets
Tea	Arya Tea Co. Ltd, Kolkata; Bombay Burmah Trading Corporation, Coimbatore; Chamong Tea Pvt. Ltd., Kolkata; Hindustan Lever Ltd., Nilgiri; Tea Promoters India, Kolkata.	3500	Throughout the year	Domestic: Mumbai, Bangalore, Delhi & Hyderabad Export: Australia, Germany, Japan, Netherlands, UK, USA.
Coffee	Arogya Organic Coffee Cultivators, Chikmagalur Bombay; Burmah Trading Corporation, Coimbatore.	600	Monsoon (June to September)	Domestic: Bangalore, Chennai, Hyderabad, Mumbai and Delhi Export: Australia, Germany, Japan, Netherlands, Sweden, UK, USA.
Spices	Accelerated Freeze Drying Co. Ltd., Cochin; Cochin Spice Ltd., Cochin; Lotus Spice Ltd., Cochin; Peeremade Development Society, Idduki; Unicorn Natural Products Ltd., Hyderabad, Organic Spice Growers' Forum.	700	Throughout the year	Domestic: Bangalore, Chennai, Hyderabad, Mumbai, Delhi Export: France, Germany, Japan, Netherlands, South Africa, Singapore, UAE, USA.
Rice	Indian Organic Food, Delhi; Ion Exchange Enviro Farms, Pune; Grewal's Organic Agriculture Farms, Sirsa; Agrocel Industries, Mandvi, Picric Ltd., Sonapat; Sunstar Overseas Ltd., Bahalgarh (Haryana), Satluj Organics, Delhi; Pciric Ltd, Delhi.	3500	Kharif: April to September Rabi: November to February	Domestic: Bangalore, Chennai, Hyderabad, Mumbai, Delhi Export: Japan, Singapore, UAE, USA, Canada, Germany.
Wheat	Giraff International, Hissar; Grewals Organic Agriculture Farms, Sirsa; L & T Overseas Ltd., Bahalgarh; Sunstar Overseas Ltd., Bahalgarh.	1400	Kharif: April to September Rabi: November to February	Domestic: Mumbai, Bangalore, Delhi & Hyderabad. Export: Australia, Germany, Japan, Netherlands, UK, USA.
Pulses	Grewals Organic Agriculture Farms, Sirsa; Ion Exchange Enviro Farms, Pune; Pratibha Syntex Ltd., Indore, Fab India, New Delhi.	400	March to May	Domestic: Mumbai, Chennai, Bangalore, Delhi, Hyderabad Export: Japan, Singapore, Germany, UAE, Saudi Arabia.
Pulses	Grewals Organic Agriculture Farms, Sirsa; Ion Exchange Enviro Farms, Pune; Pratibha Syntex Ltd., Indore, Fab India, New Delhi.	400	March to May	Domestic: Mumbai, Chennai, Bangalore, Delhi, Hyderabad Export: Japan, Singapore, Germany, UAE, Saudi Arabia.

TABLE A2 (Contd...)

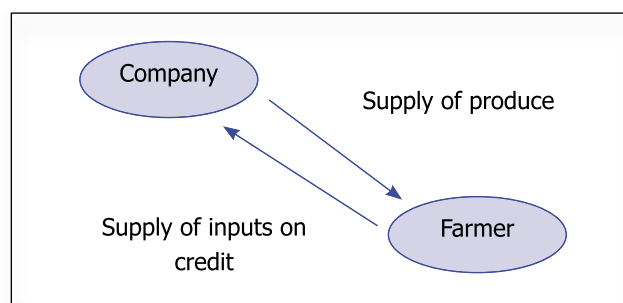
TABLE A 2 (Contd...)

Indian Organic Products, Players and Markets (Domestic and Export)

Oilseeds	Enfield Agrobases Pvt. Ltd., Chennai; Grewals Organic Agriculture Farms, Sirsa; Ion Exchange Enviro Farms, Pune.	100	Kharif – April to September	Domestic: Negligible Export: European countries
Fruits & Vegetables	Grewals Organic Agriculture Farms, Sirsa; Mahesh Agri Exim Pvt. Ltd., Surat; Ion Exchange Enviro Farms, Pune; IQF Foods Ltd., Bangalore; Namadharis Fresh, Bangalore; Picric Ltd., New Delhi, Fab India, New Delhi	2500	Throughout the year	Domestic: Mumbai, Chennai, Bangalore, Delhi & Hyderabad Export: Australia, France, Germany, Italy, Sweden, Switzerland, Netherlands, USA, UK
Cashewnut	Narayan Ganesh Prabhu Zantye & Co. Goa; Trading Organic Association, Goa.	375	March to June	Domestic: Nil Export: European countries
Others: Cotton, medicinal herbs & extracts, aloe vera,	Pratibha Syntex Ltd., Indore; Agrocel Industries, Mandvi, Maikaal bioRe Pvt. Ltd., Mhow; Rohini Herbal, Chennai; Khadinge Plants and Herbs Pvt. Ltd., Chetna project of Solidaridad and ETC India in AP	Cotton 1200, Herbs 250		Domestic: Mumbai, Bangalore, Delhi, & Hyderabad Export: Australia, Belgium, Germany, Switzerland, Italy, Japan, Netherlands, UK, USA.

Source: Org-Marg, 2002
Fieldwork, Various Publications from – APEDA, Tea Board, Spice Board and Coffee Board) and own updation.

**FIG. A 1
Bi-partite Contract Farming Model**



**FIG. A 2
Tri-partite Contract Farming Model**

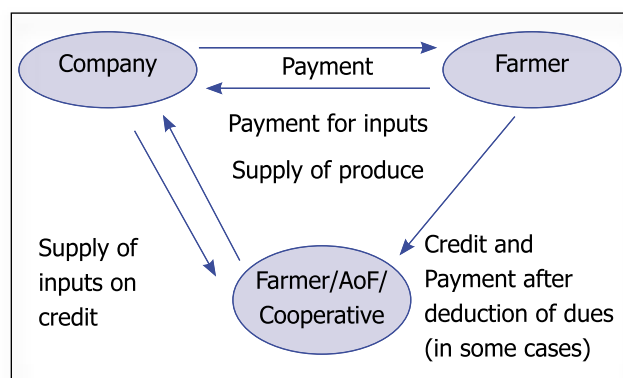


FIG. A 3

State-led Contract Farming System in Punjab (original model)

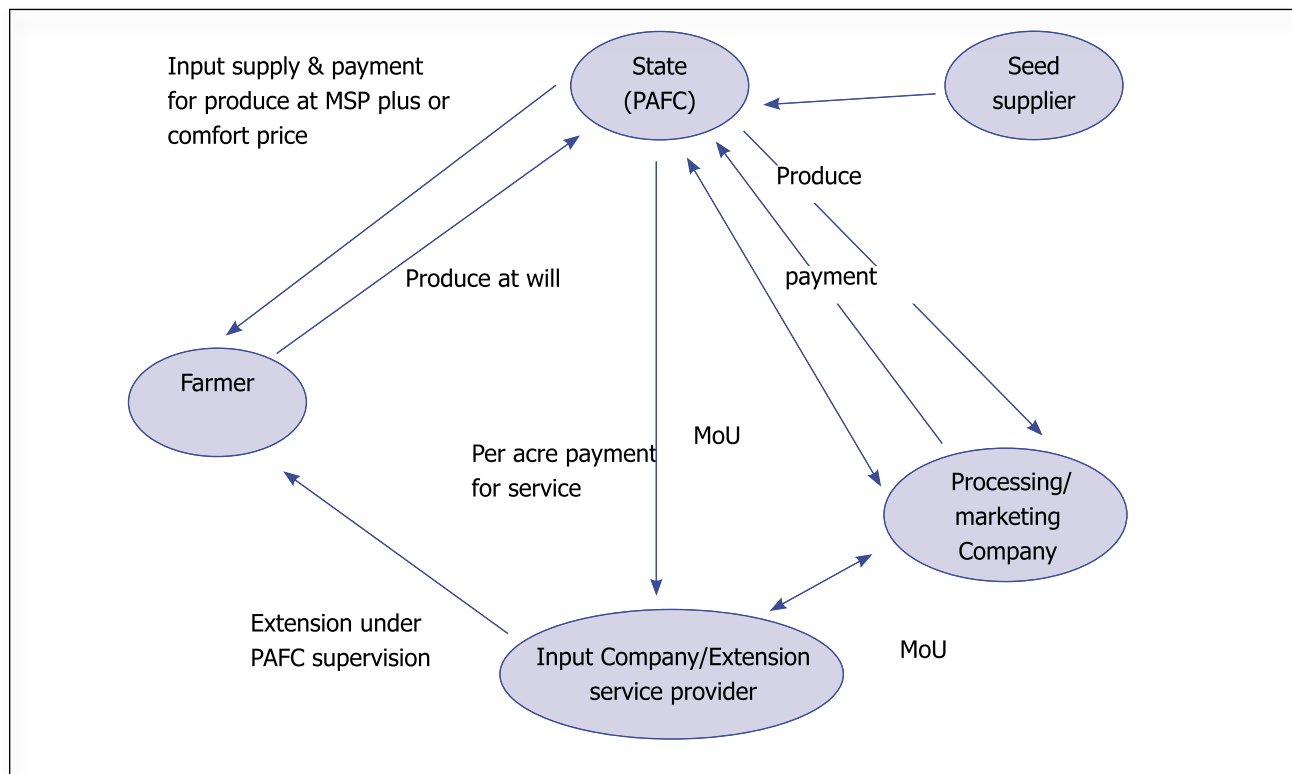


FIG. A 4

State-led Contract Farming System in Punjab (revised model)

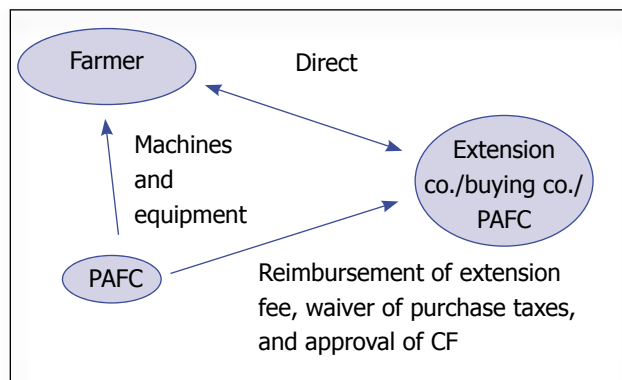


FIG. A 5

The Quad-partite Contract Farming Model

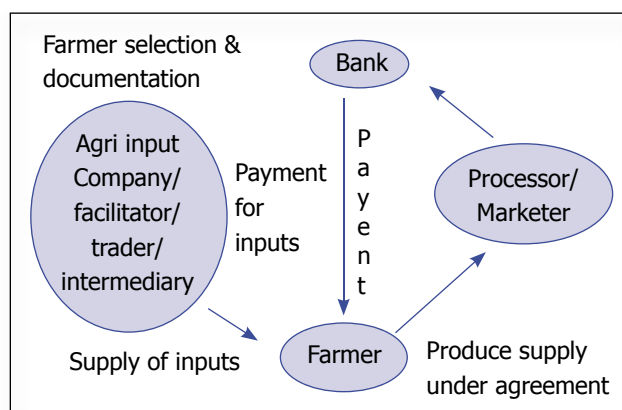


FIG. A 6
The Six-partite (networking) Contract Farming Model

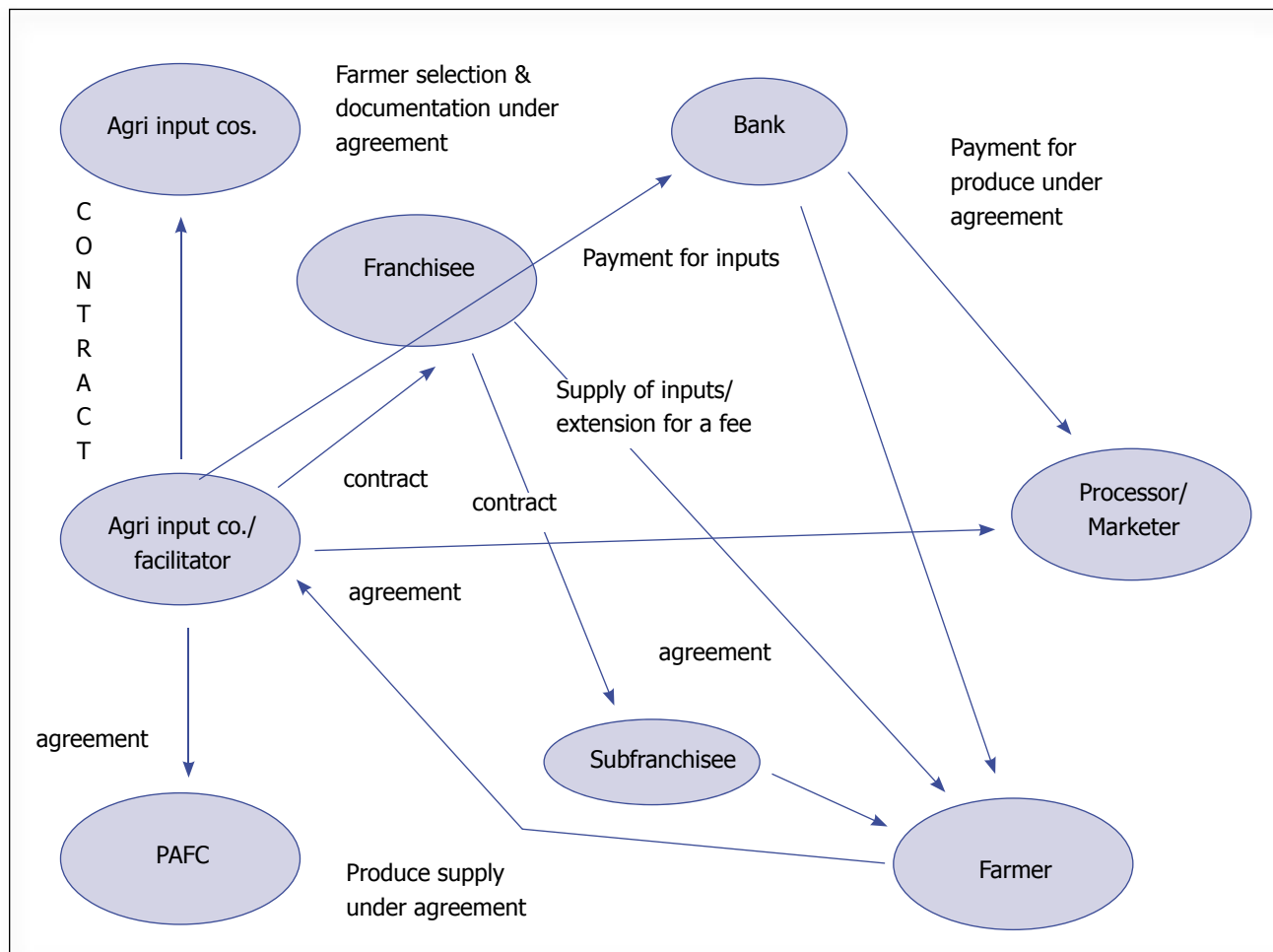
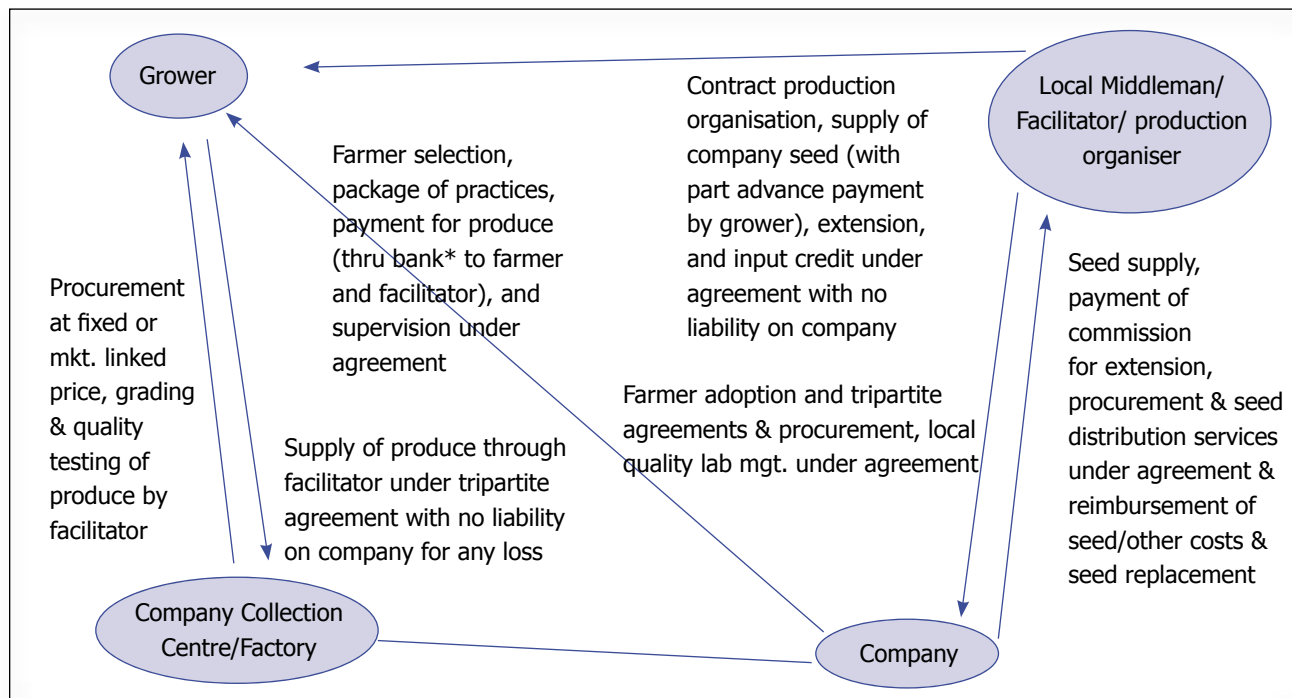


FIG. A 7
Tri-partite (Intermediary) Model of Contract Farming



* Bank finances contract production @ Rs. 10,000/acre (NABARD norm is Rs. 13,000/acre for the given crop) at 7.5 percent rate of interest. It receives the money from the company for payment to the farmer for his produce, from which it pays the facilitator (as per authorisation given by the grower), deducts its own dues, and transfers the remaining amount in the farmer's bank account.

MAKE TRADE FAIR campaign aims to secure a fair deal for 650 million poor people depending on agriculture so that they have the Power to Decide the pace and scale of opening up of their agriculture markets to ensure food security, livelihood security and rural development

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