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Editor's Notes

The United Nations General Assembly has declared 2004 the International Year of the Rice (IYR). It is a perfect recognition of the role of rice in reducing hunger and poverty and eventually achieving food security in many nations. The IYR is also a venue to promote improved production and development of sustainable rice-based systems that will contribute to environmental conservation and a better life for present and future generations.

Rice has shaped the cultures of the billions of people who depend on it for livelihood and nourishment. It has inspired many nations that have included this grain in ☛9

Inside the DRN

Revisiting RP's hybrid rice program*

Fiestas adorn the Philippine calendar, a testament to the Filipinos' fondness for eating and merriment. All kinds of gastronomic delights—pork, chicken, fish, and vegetable preparations—are served on the Filipino table. One essential element that stands out is rice in addition to its variants: *suman*, *bitso-bitso, biko, bibingka, valenciana, paella, arroz a la cubana, goto arroz caldo*, and more. Rice is indeed the perfect partner to everything.

Rice is the country's staple food, the main source of income for millions of farmers, and the flagship industry of an agricultural country like the Philippines. In more ways than one, it is the grain that shaped the cultures, diets, and economies of the Filipinos and the rest of the Asians. In fact, Asia accounts for 90 percent of the world's production and consumption of rice because of the region's favorable hot and humid climate.[1]

Thus, for most of us in Asia, rice is more than food: rice is life.

Rice environments

The country has two main climates—tropical wet, and tropical wet and dry. There are approximately 3.4 million hectares (ha) of ricelands in the country: 2.1 million ha (61%) are irrigated, 1.2 million ha (35%) are rainfed lowland, and 0.07 million ha (2%) are upland areas.[2]

Central Luzon is the Philippines' rice bowl wherein most of the irrigated rice is grown. The coastal lowlands and erosional plains in Mindanao and Iloilo produce the rest of the irrigated rice. Rainfed rice is mostly produced from the Cagayan Valley, Ilocos in Northern Luzon and the coastal plains of the Visayas region. Upland rice is grown from both permanent and shifting cultivation systems of rolling to steep lands scattered throughout the archipelago.

In Central Luzon, an intensified cultivation of irrigated rice has increased produce up to three times in a year.

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* A condensed and repackaged version of the study titled *Philippine hybrid rice program: a case for redesign and scaling down* presented by Dr. Cristina David, PIDS senior research fellow, in September 2004 in celebration of the 27th PIDS Founding Anniversary.

[1] Food and Agriculture Organization. 1998. Agriculture 21 [online]. Available at [http://www.fao.org/ag/magazine/9809/spot1.htm].

[2] Department of Agriculture, Philippines. 2002. GMA Rice Program 2002 [online]. Available at [http://www.da.gov.ph/programs/Rice2002/RiceMain.html].

There are, however, problems associated with the intensified system, which include yield stagnation, possible yield decline, and deterioration of irrigation systems because of the small and decreasing investments in the systems maintenance. Rainfed lowland rice, on the other hand, suffers from the uncertain timing of rain arrivals and drought on the same fields over the course of a single season or on different fields within a farm within the same season. Meanwhile, rice production in the upland rice areas endures weeds, drought, diseases, acidic soils, and soil erosion.

The following are generally the major constraints in rice production in the country:

- Typhoons and drought stress in rainfed areas;
- Rice tungro virus, bacterial leaf blight and blast, and major insects such as green leaf hoppers and stem borers;
- Problem soils in an estimated 1.2 million ha or about one half of the national rice hectarage;
- Degradation of irrigation infrastructures;
- Devolution of extension services at its initial stage that caused weak extension support; and
- Lack of clear policy on rice development.

Recent developments in the country's land use show that a number of rice lands located in urban and urbanizing areas have been and are being converted into subdivisions and industrial sites. This is expected to eventually result in long-term problems in rice production. Deteriorating irrigation schemes have also caused low production of rice in the country. Policies and technologies thus become crucial in slowing deforestation rates, controlling soil erosion, and converting cereal production systems to mixed systems with perennial crops on sloping lands.

Moreover, as Philippine population continues to rise in contrast to the level of rice production, the challenge facing the agricultural sector is how to increase the rice production of the remaining farm areas planted to rice.

The hybrid rice program as government's response: a background

The government's answer to this need is the introduction of hybrid rice seeds to Philippine agriculture. Hybrid rice is a new technology that promises better rice varieties and higher yields compared to the produce from traditional and inbred seeds.

For many years, rice farmers across the country have used conventional plant breeding methods because of the suitability of rice as a self-pollinated crop. Inbreeding or crossbreeding has also been utilized to develop new varieties that possess a combination of the parent seeds' desired genetic characteristics. Seeds from crossbreed varieties are stable and farmers can grow and reuse the seeds.

And while varietal breakthroughs in rice production using conventional plant breeding methods have taken place through successful research and development (R&D) activities conducted by the public sector, further efforts to develop higher-yielding varieties continued.

Hybrid rice (F1) was thus introduced in the Philippines in 1993. The hybrid rice technology took advantage of hybrid vigor or heterosis that allowed for greater yield. This breeding method, however, is said to be more favorable to cross-pollinated crops like the hybrid corn of the United States. The Philippine-based International Rice Research Institute (IRRI) started its research work on hybrid rice in 1979 and was able to develop the IR58025A only in 1986.

In 1964, China became the first country to undergo research on hybrid rice. Twelve years later, in 1976, its first hybrid variety was released. China showed the biggest adoption rate of cultivating hybrid rice at 50 percent compared to other

Asian countries. India undertook research on hybrid only in 1990 and released its first hybrid seedling in 1994 with a very low adoption rate of only 0.9 percent.

In 1992, Vietnam conducted its own hybrid rice research and released seedlings within the year. Unlike India, Vietnam posted a higher adoption rate of the hybrid seedlings at 10 percent. The Philippines became the fourth country to engage in a similar research and released its first hybrid seedling in 1993. The adoption rate however was low at 4 percent. Bangladesh started its research in 1997 and two years after in 1999, released its first hybrid seedling with an unknown adoption rate.

Four other Asian countries also conducted their research: Myanmar in 1997, Indonesia in 1998, Sri Lanka in 1996 and Thailand in 2001. All four countries have yet to release their first hybrid seeds.

Both the Philippines and India had low hybrid rice adoption rates due to the disparities in the quantity produced and the cost of production. The difference in the levels of yield between hybrid and inbred rice ranges from 12 to 16 percent, with the hybrid variety yielding the higher level. However, this is not enough to compensate for the difference in the high cost of producing hybrid rice and the low price that it fetches in the market. Comparatively speaking, the price that inbred seeds fetch in the market is also low but the cost of producing such seeds is relatively low as well. As such, farmers thus face lower profit per hectare of land that they plant to hybrid rice.

Promoting the hybrid rice program

At present, the Philippine government is promoting the hybrid rice program to develop the hybrid rice industry and encourage farmers to adopt the hybrid rice. The program is seen by the government to greatly contribute toward achieving self-sufficiency in rice and, ultimately, food security for the Filipinos.

The Philippine Rice Research Institute (Philrice) is the agency tasked to provide the training and technical backstopping of the program as well as the monitoring of the performances of seed growers of hybrid rice. On the other hand, research on rice varieties, seed production technology, and crop management are conducted by the private sector.

Before 1998, private seed-growing companies and a few private pharmaceutical institutions carried out research on F1 or hybrid rice seeds. These are: IRRI in the late 1970s, Cargill (now Monsanto) in 1981, Philrice in collaboration with IRRI and China in 1989, Hyrice in 1996, and Aventis (now Bayer Crop Science) in 1997. SL Agritech started its research in 1999

Table 1. Number of inbred and hybrid rice varieties approved and granted provisional certification of accreditation by the NSIC

	Inbred	Hybrid
Approved		
1994	4	1 (Magat)[a]
1995	12	-
1997	12	1 (Mestizo 1)
1998	1	1 (Panay)[b]
1999	2	-
2000	11	-
2001	2	-
2002	3[a]	2 (Mestizo 2 and 3)
2003	3	-
2004	5	3 (Bigante, SL8, MRH 005)[c]
Provisional accreditation		
2002	-	2 (Bigante and Magilas)
2003	-	2 (SL8 and Rizalina 20)

[a] *Magat was developed by Philrice; Mestizo 1 by IRRI/Philrice; Mestizo 2 and 3 by IRRI; Bigante by Bayer Crop Science; SL8 by SL Agritech; Panay, Magilas and MRH005 bby Cargill Monsanto, Rizaline by Hyrice.*

[b] *One of these (Matatag 9) was approved as a top gap variety without passing the usual requirements to combat black bug in Palawan.*

[c] *Recommended for Bicol and Mindanao*

Note: Bigante is recommended in irrigated lowland particularly in Nueva Ecija, Cagayan, Bohol, and Isabela. MRH 005 is recommended in irrigated lowland for dry and/or wet season, particularly in Nueva Eciija, Cagayan,General Santos City, Bohol, and Bukidnon and for areas of similar growing conditions as these NCT sites. SL-8 is recommended in irrigated lowland particularly in Nueva Ecija, Bohol and Bukidnon during the wet and/or dry season and for areas of similar growing conditions of these NCT sites.

Source: Bureau of Plant Industry

while the Philippine-Sino Center for Agricultural Technology (Philscat) followed in 2003. A number of inbred and hybrid rice varieties have been approved since 1994 and given provisional certification of accreditation by the National Seed Industry Council (NSIC) (Table 1).

Taking a closer look

As in any program that uses public or government resources, it is necessary to take a closer look and review the government's hybrid rice program.

One such review was done by Dr. Cristina David, a senior research fellow at the Philippine Institute for Development Studies (PIDS), in her presentation titled *Philippine Hybrid Rice Program: A case for redesign and scaling down* during one of the seminars in the series *Rice and the Filipinos: the last 100 years* held on September 21, 2004.

In her review, Dr. David acknowledged that hybrid rice is indeed an option to increase rice yields. However, because certain evidence points to the fact that adoption of hybrid rice by farmers in the Philippines in general seems to continue to wane in the country despite government's support and various incentives given to farmers for its promotion, it becomes important to take a closer look at the reasons for such and revisit the program's structure and design to see how suitable and effective it is to address the objective that it aims to pursue in the first place.

Herein lie the problems...

For farmers to adopt hybrid rice, the level of profit advantage in terms of yields and cost of seeds must work in their favor and provide them with benefits. The positive effect in the cost of additional inputs and risks as well as the difference in the output price are additional factors that may encourage farmers to use hybrid rice. Based on the estimated cost and returns from the use of hybrid rice seed by certain cooperatives in the country (Table 2), however, the net return of investment does not look profitable and beneficial to the farmers.

There are a number of factors to consider in the utilization of hybrid rice in the country, which may somehow explain why farmers do not find its use or adoption profitable. One is that farmers in the country need to buy F1 seeds every season because breeders or seed growers own the property rights to the seedlings. Seed growers are granted incentives by the government for growing the hybrid seedlings including a P5,000 grant per ha for the first 2-3 seasons, advanced seed payment in the early years of the seed, free parental lines, and, in certain cases, soft loans from government institutions.

Moreover, the government has allocated a sizable amount of money for seed procurement (Table 3) since 1999 for seed growers. The government procures the seeds at an administratively determined price that is still pegged at the same rate when the program started in 1998 (Table 4). The rate remains unchanged today even if higher yields and profits have been achieved by seed growers. While the estimated cost of hybrid seed production and distribution is high for the government (P6,100 per 20 kilogram bag), the cost for the private sector is low at P3,400. The cost of wastage alone because of seed

Table 2. Estimated costs and returns of hybrid rice seed (AxR) production per hectare in selected cooperatives (P/ha)

	ISGMPC	Roxas (DS2004)	San Manuel (WS2004)	Damsepco (WS2004)
Gross revenue	105,200[b]	130,000[a]	105,200[b]	
Cost of production[c]	43,250	60,474	56,178	
Estimated land rental[d]	20,000	20,000	20,000	
Net return	41,950	49,526	29,028	

[a] Assuming average yield of one t/ha and price of hybrid seed (F1) at procurement of P120/kg. Included also is one t/ha R line valued at P10/kg.
[b] Assuming yield of one t/ha, but 800kg/ha valued at P120/kg and 1150kg/ha valued at P8/ha
[c] See Appendix for details on cost of production
[d] Based on interviews of seed growers.
Sources: Isabela Seed Growers Multipurpose Cooperative
Roxas Seed Growers Multipurpose Cooperative
San Manuel Seed Growers Multipurpose Cooperatives

deterioration amounts to P800 for the government sector (Table 5). Little is being done by the government to strengthen regulations to ensure the quality of seeds. Farmers, on the other hand, are burdened by low yield, pest problems and poor seed quality.

Target areas for seed distributions are determined by the Department of Agriculture, a supply-driven distribution scheme that is contrary to the demand-driven needs of farmers. The size of target area is even bigger than the actual area planted to hybrids even with subsidies.

In the micro level, staffs from local government units (LGUs) sell the seeds to farmers, collect the repayment on credit and distribute other incentives. The staffs are given an additional P200 salary per month, although on an irregular basis, for selling hybrid seeds to the farmers. They also receive P200 per bag upon full payment of seeds to Philrice or P100 per bag from Bayer/SL Agritech. On top of the incentives given to farmers in the form of fertilizers and chemicals in the dry season (DS) and wet season (WS) of 2004, there were also discounts and giveaways ranging from P600 to almost P1,400 (Table 6).

The government's credit program for farmers who use hybrid seeds has a low repayment rate. The repayment rate of the plant-now-pay-later scheme up to the DS of 2003, for example, is only 40 to 50 percent while that of the WS of 2003 and up to both the DS and WS of 2004 even dropped to 5 to 8 percent. However, in most municipalities, farmers who were not able to pay were still given hybrid seeds to meet their targets.

To further promote the adoption of hybrid seeds, LGUs conduct trainings, provide technical backstoppings and monitor the progress of the farmers with regard to the adoption of the hybrid rice. Because of these activities, priorities of some LGUs may have been diverted away from more relevant local projects and addressing problems. Financial incentives provided to LGU personnel may also be distorting their work patterns.

David states that the structure of incentives may distort the farmers' choice of hybrids and between hybrids and inbreds. The distortion may lead farmers to grow less socially profitable hybrids over the more socially profitable inbreds. However, even with the support and incentives, the number of farmers planting hybrid seeds continues to decrease. In separate DS and WS of the years 2002 to 2004, selected municipalities in 11 provinces had varying but high dropout rates in the adoption of hybrid rice ranging from 50 to 99 percent (Table 7).

Of the municipalities with data for three to five seasons, Tarlac City had the highest

Table 3. Budget allocation for seed procurement (P000)[a]

1999	50,000
1999	25,000
2000	-
2001	322,394
2002	424,436
2003	289,000
2004	551,400
2005	550,000[b]

[a] This may not always be released in full.
[b] Revised August 2004, but original proposed budget was P1.3 billion including supplementary budget proposal.

Table 4. Government procurement price/subsidy and manner of distribution

	Procurement price/ subsidy (P/bag)	Distribution
Up to WS 2004		
Cooperatives/SUCs/ Individuals/SL Agritech	2,400	Thru LGUs; payments remitted to Philrice
Bayer/Monsanto	1,200	Thru input dealers but distribution thru LGUs widely observed; payments remitted to supplier
Starting DS 2005		
Cooperatives/ SL Agritech	1,750	Thru LGUs; payments remitted to supplier

Table 5. Estimated cost of hybrid seed production and distribution (P20 kg/bag)

	Government	Private sector
Procurement / field production cost	2,400	1,600[d]
Direct distribution cost of Philrice	300[a]	
Distribution / promotion cost	1,500[b]	1,800[e]
Cost of inspection	100	
Cost of wastage	800[c]	
Subtotal	5,100	3,400
Other incentives (fertilizer/others)	1,000	
Total (excl R&D)	6,100	

[a] *Excludes salaries of personnel and other direct cost of Philrice involvement.*
[b] *Based on conservative assumption that 1200 agricultural technicians (i.e, 2 ATs per municipality for a total of 600 municipalities) are involved in hybrid seed distribution.*
[c] *Assume 30% of hybrid seeds procured end up not being planted because of germination and purity problems*
[d] *Based on estimates of cooperatives as shown in Table -*
[e] *Based on estimates of Bayer Crop Science, which include cost of storage, freight, distribution, market development, and profits.*

Table 6. Other incentives provided to farmers per bag of hybrid seeds, dry and wet season, 2004

	Case 1[a]	Case 2[c]	Case 3	Case 4	Case 5	Case 6	Case 7
Fertilizers							
Inorganic	P500 discount	P500 discount	1 bag (P700)	P500 discount	Buy 1 take 2 (350)	P500 discount	2 bags (P1400)
Organic	-	-		-	-	2-4 bags (P600)	-
Zinc Suphate	10-15 kgs (P375)	-	3 kgs (P125)	5 kgs (P125)	-	-	-
Foliar	-		-	-	-	1-2 bottles[d] (P900)	-
Soil Conditioner	-	-	1-3 kgs[d] (P175)	1-3 kgs[c] (P175)	1-3 kgs (P175)	1-3 kgs[c] (P175)	-
Chemical							
BLB Stopper	-	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)
Kocide	1 bottle (300)[b]						
Others							
Multipurpose pavement/ 200 bags distributed							
.....Cash prizes to top yielders and top adoption rates.....							

[a] *Applies to Region II for DS WS 2004.*
[b] *Provided to those affected by bacterial leaf blight. Initial allocation to 20 percent of planted area to hybrid rice.*
[c] *Commonly found in Mindanao,Kalinga,etc.*
[d] *Provided in a few municipalities (e.g. in Leyte and Bataan)*

and most consistent average dropout rates from DS 2003 to DS 2004 (96 percent in DS 2003, 93 percent in WS 2003 and 99 percent in DS 2004) while Calapan, Mindoro had the lowest dropout rates in four seasons (46 percent in WS 2002, 66 percent in WS 2003, 52 percent in DS 2003, and 35 percent in DS 2004). Two municipalities, Abucay in Bataan and San Miguel in Bulacan, both registered a hundred percent dropout in the same dry season of 2003.

Notwithstanding the government's efforts, a study by Janaiah and Hossain (2003) states that the available hybrid rice technology is not enough to counter the downward trend of rice productivity in Asia. Only Vietnam and Bangladesh show good potentials for hybrid rice development because labor costs in said countries are low and irrigated areas are high. The study added that further research is needed to raise the yield advantage and improve grain quality of hybrid rice in Asia (Table 8).

Recommendations

David recommends the following measures for the government's hybrid rice program: scale down, redesign and focus on high potential areas and season.

First, the private sector, including the cooperatives, should take over the distribution and varietal development of hybrid seed since the government's actions and interventions on seed distribution had fared poorly. For a long time now, inventory carryover and costs of distribution have been high and credit repayments have been low in addition to the problem of low quality seeds. It is anticipated that the already high inventory carryover and procurement costs will increase by as much as 30 percent while the farmers' yields are expected

to decrease, thereby resulting in increased dropout rates and discouraging hybrid adoption.

In addition, proprietary rights to hybrids grown by public organizations are better bidded to private sectors while revenues should be shared between the institutions and scientists.

Second, subsidies may be provided at levels that are reasonable with a clear schedule of reduction. Instruments used should minimize distortions in farmers choice between hybrids and inbreds and ensure level playing field among seed suppliers. Subsidies may be in the form of tax breaks, technical assistance in R&D and seed production, and technology promotion through techno-demo farms, training, and others. As a compromise, the seed subsidy of P60/kg may continue to be provided until DS 2005 but should be reduced by P10/kg for each succeeding season. Moreover, price of seeds sold to farmers should be determined by the market through competition. Government should likewise stop its procurement and distribution activities.

Third, while subsidies on fertilizers and agricultural chemicas must be abolished, research and extension services on how to improve crop and water management for varietal improvement must be revitalized and prioritized.

Fourth, the government should likewise concentrate on the following:

- R&D on inbreds which will be a crucial input to an effective R&D on hybrid rice, and basic research, crop management, and seed production technology on hybrids;
- Technology promotion through techno-demo farms, training, others; and
- Strengthening of regulatory functions to protect quality of seeds (germination and purity).

Lastly, the subsidies on the testing of the Chinese propriety hybrid rice at ☛9

Table 7. Percentage of farmers who dropped out in selected municipalities in 11 provinces (2002 to 2004)

	DS2002	WS2002	DS2003	WS2003	DS2004	Percentage
Isabela						
Santiago City					48	48.00
Alicia				42	59	50.50
Aurora				54	68	61.00
San Mateo				69	56	62.50
Roxas					64	64.00
Mallig				68	66	67.00
San Manuel			94	60	53	69.00
Echague					76	76.00
Nueva Ecija						
San Leonardo					40	40.00
Muñoz				40	80	60.00
Sta. Rosa					70	70.00
Talavera	50	88	98	58	95	77.80
Tarlac						
Pura				50	67	58.50
Gerona					82	82.00
Tarlac City			96	93	99	96.00
Pampanga						
Mabalacat			71	71	55	65.67
Magalang			56	82	79	72.33
Guagua				73	90	81.50
Floridablanca				67	97	82.00
Lubao		71	91	72	97	82.75
Bataan						
Mariveles		60	57	32	86	58.75
Abucay		78	100	46	56	70.00
Balanga City	100	67	86	33	81	73.40
Pilar			100	33	88	73.67
Dinalupihan		100		71	70	80.33
Bulacan						
San Rafael				70	60	65.00
San Ildelfonso			90	84	81	85.00
San Miguel		94	100	86	75	88.75
Davao del Sur						
Hagonoy	71	52	66	72	76	67.40
Digos City	50	88	78	70	80	73.20
Magsaysay	73		98	100	60	82.75
Matanao	80	78	94	92	83	85.40
Mindoro Oriental						
Calapan City		46	52	66	35	49.75
Naujan					74	74.00

Table 8. Percentage yield, price, gross returns, total cost and net profits between hybrids and inbreds among sample farms

	Yield (t/ha)			% difference			
	Hybrid	Inbred	% diff	Price	Gross return	Total cost	Net profit
India							
1994 / 95	6.3	5.6	12	-8	2	12	-5
1997 / 98	6.9	5.9	16	-11	2.6	19	-5.0
2000 / 2001	6.8	6.0	13	-7	-2	18	-15
Bangladesh							
(1999 Boro)	6.4	5.6	14	3	16	23	9
Vietnam							
Wet 2000	6.1	5.0	22	.5	16	8	42
Dry 2001	6.3	5.2	21	-3	17	8	37

Source: Adapted from Janaiah and Hossain (2003).

Scientists trace evolution of rice varieties in the Philippines

From tall with drooping leaves to short or semidwarf with straight leaves—this basically describes the evolution in the characteristics of the different rice varieties in the Philippines from the pre-World War II period to the present. What factors led to these changes in physical characteristics of our various rice varieties?

At the recently held inaugural session of the seminar series on "Rice and the Filipinos: the last 100 years" jointly sponsored by the Philippine Rice Research Institute (PhilRice), the Philippine Institute for Development Studies (PIDS) and the Bureau of Plant Industry (BPI) in observance of 2004 as the International Year of Rice, three respected rice scientists in the Philippines traced the reasons and developments that brought about the discovery of the different rice varieties in the country.

Dr. John de Leon of PhilRice stressed that the new rice varieties developed after World War II were answers to the inadequacies of the traditional rice varieties. He cited the search for more improved and superior varieties as a logical response to address the need for an increased productivity level and a more secured per capita food consumption of a growing population.

His statement was confirmed by noted rice scientists, Dr. Tomas Masajo of PhilRice and Dr. Fernando Bernardo, formerly of the International Rice Research Institute (IRRI), who noted that the short or semidwarf high-yielding rice varieties discovered in the late 1960s were meant to counter the nonresponsiveness to fertilizers and sensitivity to sunlight of certain characteristics of traditional, prewar rice varieties.

The traditional varieties were tall with drooping leaves and had low yield. Once fertilizer was applied, the tendency of the plant was to grow taller with its leaves becoming luxuriant. Ordinarily, this should have been a positive trait but the height of the plant and weight of the leaves caused it to easily topple, leaving its grains prone to rat infestations and sub-sequent decays. This contributed to the variety's history of low yields. The scientists also cited the disco-very of a hybrid rice variety in recent years for the irrigated areas that is 10 to 15 percent more high-yielding than inbred varieties. This has been made available with the break-throughs in biotechnology. **DRN**

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their songs, stories, paintings and festivals. In the Philippines, a wealth of festivals with songs and dance honoring the harvest seasons are aplenty, especially in the provinces.

Taking off from this declaration, this year's celebration of the Development Policy Research Month (DPRM) in September and the PIDS Week in the third week of September likewise focused on rice. The celebration was highlighted by a display fair held at the NEDA sa Makati Building premises which showed samples of various rice varieties, rice production implements and a number of research/studies done by different institutions related to several topics and issues affecting rice. A series of seminars touching on *Rice and the Filipinos: the last 100 years* also took centerstage in this year's observance of the DPRM and PIDS week. Some of the topics discussed are hereby featured in this issue of the *Development Research News* (DRN).

For instance, one of government's answers to the increasing shortage of rice supply in the country is the introduction of hybrid rice. This new breed of rice provides higher yields that would make it possible for Filipino farmers to meet the huge demand for rice.

However, while the introduction of hybrid rice seems favorable to our neighboring countries like Vietnam and Bangladesh because of low labor costs and highly irrigated areas, the same scenario does not seem applicable to the Philippines. This issue's main article, *Revisiting RP's hybrid rice program* shows, for example, an increasing number of farmers who have stopped using hybrid seeds despite the various incentives provided by the Philippine government.

Why is this so? One reason given is the high cost of seed procurement and labor. As it is, the return of investment rate is neither profitable for and beneficial to the farmers.

There are also questions regarding the government's procurement of seeds from seed growers and assigning local government units to distribute the seeds to farmers.

These and other aspects all have an impact on millions of rice consumers in the country as rice is part of their daily lives.

It is thus in this spirit that this DRN issue is dedicated largely to stories about rice. **DRN**

Revisiting from page 7

Philscat must be reviewed in order to determine if the seed will be provided to companies. Otherwise, this violates the principle of a level playing field. David adds that the testing of the Chinese propriety hybrids and farm machineries must be considered as private undertakings. The collaboration of Filipino and Chinese scientists in Philscat must also be reoriented toward providing the country with high priority agricultural research, an area wherein the Chinese has competent experience.

It is the government's duty to assure that farmers would gain from the hybrid technology in terms of yields and net income as rice demand is seen to increase in the next 30 years by as much as 70 percent due to rapid population growth. Rice production is not only challenged by the scarcity of land and water but also of labor because of expected competition from fast-growing nonfarm economies. Only in a scenario where farmers can gain much and provide much to the bulging population can rice—specifically hybrid rice—be the answer to the Philippines' and its Asian neighbors' problem on self-sufficiency. **DRN**

Modern farming techniques key to RP's rice self-sufficiency

Developments in rice production practices, coupled with the discovery of a hybrid variety of rice, are expected to make the Filipino farmers globally competitive and boost the country's goal of achieving rice self-sufficiency. As such, research institutions like the International Rice Research Institute (IRRI) and the Philippine Rice Research Institute (PhilRice) should continue to pursue their search for modern farming techniques and modern varieties of rice.

In the second offering of the seminar series on "Rice and the Filipinos: the last 100 years" jointly sponsored by the Philippine Rice Research Institute (PhilRice), the Philippine Institute for Development Studies (PIDS) and the Bureau of Plant Industry (BPI) in observance of 2004 as the "International Year of Rice," two rice scientists in the Philippines traced the evolution of rice production practices over the last 100 years. They concluded that these methods have helped farmers maximize their productivity and reduce costs.

In their joint presentation, Dr. Eulito Bautista and Ms. Evelyn Javier of PhilRice noted that "operations evolved out of the need for greater efficiency and higher productivity," from the stage involving the preparation of the rice plots to rice milling.

Although the early period has been characterized by a single harvest per year and by field operations that were not necessarily done with efficiency, farmers were already looking at that time for better alternatives to conduct the field tasks that were mostly done manually or with assistance from their carabaos. During this period, there were less inputs as production of traditional plant varieties was limited by the type of varieties themselves. Labor productivity and efficiency were less of an issue then compared to the drudgery of conducting manual tasks.

However, the period spanning the introduction and diffusion of short statured, nonphotosensitive and early maturing high-yielding varieties, coupled with the availability of irrigation water, was quite different. During this period, demands for efficiency and time became of greater importance in order to attain the high yield potential of said modern varieties.

Bautista and Javier noted that direct seeding and mechanization as well as integrated nutrient and pest management will continue to be refined and practiced on a wider scale. They also stated that farmers will continue to adopt improved methods to plant rice and maximize the benefits from production as new and high- yielding inbred and hybrid varieties that cater to new environments and conditions are developed and introduced.

Research on land preparation, planting methods, fertilizer management, pest management, harvesting and threshing as well as drying and milling are actively being pursued and promoted. The IRRI, as in the past, continues to lead in both the development of rice varieties, management practices and tools to answer the needs of farmers at this time. **DRN**

Investment symposium highlights RDC week and DPRM celebration in Region II

The Regional Development Council (RDC) for Region II conducted an Investment Symposium on "Planning Investment Partnerships for Global Integration" on September 21, 2004 at the Romulo Hall, NEDA sa Makati Building, Makati City as a launching activity of the celebration of the RDC Week and the national observance of the Development Policy Research Month (DPRM).

The symposium was attended by representatives from regional line agencies, local government units, the academe and the private sector. The symposium served as a venue to present the investment prospects for the Cagayan Valley Region in consideration of its strategic position in the North Luzon Growth Quadrangle Area (NLGQA) as well as the performance of the region in terms of rice, corn and hog production alongside its neighboring provinces in Northern and Central Luzon.

The keynote speakers were Undersecretary Hermenegildo C. Dumlao, executive director of the NLGQA Project Management Office (PMO), whose presentation focused on Region II's investment priorities and prospects in the NLGQA, and Mr. Gumersindo D. Lasam, regional director of the Department of Agriculture (DA), who presented the Northern and Central Luzon (NCL) Cluster Market Assessment Report. Usec. Dumlao emphasized the integrated development efforts that the NLGQA PMO has been pushing since its creation in 1999. These include the establishment of transborder economic cooperation with the East Asian economies such as Taiwan, Japan, South Korea, China and Hongkong, and the implementation of programs and projects on agroindustry, tourism, environment, human resource development (HRD) and information technology (IT) that will spur the development of the NLGQA. Dumlao likewise discussed the investment priorities and prospects of Region II in the areas of infrastructure, agroindustry and tourism and the scenario of job opportunities in the growth area.

On the other hand, DA's market assessment report as discussed by Director Lasam consisted of comparative data on rice, corn and hog production, supply and demand, economics of production, and prices. Lasam's report observed that the Cagayan Valley Region shows significant comparative advantage in rice production, with Isabela as the top rice producing province in the entire country and Cagayan as number five. Furthermore, the region supplies 70 percent of the corn requirements of Northern and Central Luzon. Ilocos follows at 13 percent.

The symposium was a relevant and timely gathering of government and nongovernment officials to identify and recognize the attendant factors that affect regional growth and development, and the prospects of investments for Region II in the light of the growth and expansion efforts in north Luzon. The open forum which followed gave ample room for the clarification of issues, especially on road network development and agricultural production. **DRN**

NEDA Regional Director Milagros Rimando delivers the welcome remarks in the opening of the Investment Symposium higlighting the Cagayan Valley Region as an investment prospect in the country. Looking on are Undersecretary Hermenegildo Dumlao and DA Regional Director Gumersindo Lasam.

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Rice expert stresses importance of rice to Filipinos

"Rice is not only food but also art and culture to the Asian peoples, in particular, the Filipinos," stressed Dr. Emilio Javier, noted scientist and former president of the University of the Philippines System. He made the statement in his opening address during one of the seminars on "Rice and the Filipinos: The Last 100 Years" jointly sponsored by the Philippine Rice Research Institute (PhilRice), Philippine Institute for Development Studies (PIDS), and the Bureau of Plant Industry (BPI).

Javier, currently the chair of the Asia Rice Foundation, pointed out how various Asian societies where rice is a common denominator seem to have built their respective cultures around rice. Thus, there are festivals, songs, dances and religious customs with themes based on rice and its role in the people's daily activities. He also noted how rice has become an integral part of the very way of life of most Asian peoples, including the Filipinos.

This is, of course, evident in rice being a staple in the Asian daily diet. For Filipinos, in particular, especially for the poor, rice is a basic source of calorie. In this regard, Javier also encourages the eating of brown rice or the unpolished rice because its bran—a rich source of vitamins and minerals—has not been removed, thereby further increasing its nutritional value.

Javier noted that in recognition of the invaluable role of rice in the lives of millions of people, the United Nations General Assembly saw the value in honoring rice not simply as a crop but as life itself and declared 2004 as the International Year of Rice (IYR).

And it is no surprise, Javier said, that the Philippines, being one of the countries that place rice in the higher rungs of priorities, was the one that pushed for the idea of declaring 2004 as the IYR. That is how we value rice, he concluded. **DRN**