

# Securing Rice, Reducing Poverty



Challenges and Policy Directions



Arsenio M. Balisacan      Leocadio S. Sebastian  
and Associates

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**Securing Rice,  
Reducing Poverty:  
Challenges and Policy Directions**  
OVERVIEW



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The Philippine Rice Research Institute (PhilRice), an attached agency of the Department of Agriculture, is the national lead agency for the planning, coordination, implementation, and monitoring of all rice research and development activities in the Philippines.

The Bureau of Agricultural Research (BAR), a line agency of the Department of Agriculture, is mandated to ensure that agricultural research be coordinated and undertaken for maximum utility to agriculture. The Bureau taps farmers, farmers' organizations, and research institutions, especially state colleges and universities, in the conduct of research for use by the Department of Agriculture of the Philippines and its clientele.

*Securing Rice, Reducing Poverty: Challenges and Policy Directions  
Overview*

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## Preface



**T**he rice sector in the Philippines is a conundrum. Its performance in the past twenty-five years has been poorer than that of most developing countries in Asia. Not only is absolute poverty and malnutrition high, their reduction has been also far slower than its neighbors'. Yet, the country's human capital is considerably stronger than—or at least at par with—that of most of these countries. The country also hosts the International Rice Research Institute; it also has an arguably world-class homegrown rice research arm, the Philippine Rice Research Institute. What has gone wrong?

Literature on rice is quite rich, yet very few of the recent works look comprehensively at the rice problem from a policy perspective. Moreover, available literature is likewise wanting in exploring the implications of recent technological, economic, and legislative development in the industry on household food security. This publication attempts to bridge this gap by providing a systematic, organized, and forward-looking assessment of the rice industry. Though focused on the rice economy, the book also provides a glimpse of what ails the agriculture and rural sector as a whole.

In undertaking this book-writing project, we owe a debt of gratitude to numerous individuals and institutions. We are grateful first and foremost to our authors for their interest and participation and for writing the kind of papers we wanted: empirically grounded and with a policy edge.

The project has been carried out through funding support from the Bureau of Agricultural Research (BAR) and the Philippine Rice Research Institute (PhilRice). We particularly want to thank Leocadio S. Sebastian, executive director of PhilRice, and Dr. Nicomedes P. Eleazar, director of BAR, as well as their staff.

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Director, SEARCA  
September 2006

## Introduction



Rice remains the staple food of the overwhelming majority of Filipinos. It accounts for 25 percent of the food expenditures of the poorest 30 percent of the population, or 15 percent of it if household expenses other than food are included. Rice prices, therefore, have a significant impact on the well-being of Filipinos, including the small rice producers, most of whom are net buyers of rice for household consumption.

Sadly, Filipinos are far from being more food-secure now than a decade or two ago. They are definitely less food-secure than the Thais, Indonesians, Vietnamese, and Chinese. Not only is absolute poverty and hunger incidence in the Philippines higher compared with that of most countries in Southeast and East Asia, but poverty reduction has also been so slow that the country has become the region's basket case.<sup>1</sup> At the current rates of poverty reduction, the country has a precarious chance of achieving its commitment to the first Millennium

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1. See A.M. Balisacan, "Why Does Poverty Persist in the Philippines? Facts, Fancies, and Policies," paper presented at the conference "Whither the Philippines in the 21st Century?" Institute of Southeast Asian Studies, Singapore, July 13-14, 2006.

Development Goal (MDG) of halving the number of its impoverished constituents. Moreover, at these rates, given the high level of absolute poverty today, the country's poverty incidence in 2015 would still be higher than that prevailing in Vietnam in 2003!

What has gone wrong?

Poverty is far more extensive and involves greater numbers in agriculture than in any other sector of the Philippine economy. Poverty incidence among agricultural households is about four times that in the rest of the population.<sup>2</sup> While only a little more than one-third of the labor force is in agriculture, two of every three destitute persons are dependent directly on agriculture for employment and sustenance.

Low incomes simply reflect low levels of productivity. In contrast to the Philippines' neighbors, agricultural productivity growth has been slow and, in recent years, declining.<sup>3</sup> Labor productivity—as well as other indicators of agricultural productivity—is much lower in agriculture than in other sectors, regardless of the commodity (rice, corn, coconut, animal, fish, etc.) farmers are working on.

Aggravating the situation is the rapid growth of population, which requires more food supplies and more jobs that offer decent incomes. But the expansion of productive employment opportunities outside the sector has also been quite anemic.

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2. Based on the 2003 Family Income and Expenditures Survey and on official poverty lines, poverty incidence in agriculture is 46 percent, while that in non-agriculture (industry and services) is 12 percent.

3. See E. Esguerra and C. Manning, "Regional Labor Markets and Economic Development in the Philippines," in *The Dynamics of Regional Development: The Philippines in East Asia*, ed. A.M. Balisacan and H. Hill (United Kingdom: Edward Elgar, 2006).

The declining trend of rice productivity, in particular, is again causing apprehensions not only because of its being the staple food but also because of its being the primary source of livelihood of the majority of the rural population. The average income of households that directly or indirectly engage in rice production is only a third of that of households engaged in industry and services.

Since the early 1960s, rice self-sufficiency and the improvement of small farmers' well-being are objectives that have been consistently enshrined in virtually all government programs, notwithstanding changes in administrations. Up to now, however, achieving a more sustainable growth in rice production continues to be a major challenge for policymakers.

This monograph summarizes the issues and recommendations presented in the book *Securing Rice, Reducing Poverty: Issues, Constraints, and Policy Directions*, which analyzes in detail the Philippine rice economy. This summary indicates options that may be taken to revive the rice economy and achieve an enduring rice security, while, at the same time, strengthening the sector's capacity to benefit from opportunities opened up by regional market integration and global trade reforms.

The first section provides a brief background on the major forces shaping the performance of the rice economy. The second section examines the policy options for achieving rice security in the wake of global and regional trade initiatives. It involves constructing "what if" scenarios, representing alternative policy regimes to effect changes in rice demand, supply, prices, farm incomes, poverty, and rural-urban migration. Finally, the third section provides policy recommendations for winning the war on rice insecurity and, hence, poverty.

# Major Stumbling Blocks to Achieving Rural Growth and Rice Security



**A**vailable, affordable, accessible, and safe rice for all and at all times: this is the essence of rice security. What has prevented the Philippine rice economy from achieving such? The answer is not straightforward, as it calls for an understanding of the issues and constraints facing not only the rice sector but the entire agricultural and rural economy as well. Indeed, broadly, what ails the rice sector is a microcosm of what ails agriculture and the rural economy as a whole.

## **Diminishing sources of agricultural productivity growth**

Despite its declining contribution to the country's national income, the agriculture sector accounts for more than one-third of the total labor force—rising to nearly one-half if agri-based manufacturing and service sectors are included. This makes it a prime mover of economic growth. A key to the agrarian success and, subsequently, economic success of many countries in Asia is the sustained increases in the agriculture sector's productivity. However, in recent years, productivity growth in the Philippines

has discernibly declined from the level achieved during the Green Revolution era. This is despite substantial policy changes put in place since the mid-1980s to invigorate the agriculture sector. It also occurred during a period of unprecedented expansion of trade in goods, capital and technology, and services opened up by the rapid economic transformation in the major countries of Asia and the Pacific.

Underpinning the productivity increases in the country's neighbors is technological change. But for technological change to occur, there must be investments in technology development appropriate to the country's resource constraints, socioeconomic conditions, and physical environments. Investments are also needed in support services, particularly infrastructure and institutions that would reduce the cost of doing business in rural areas to sustain the productivity-enhancing effects of improved technologies and to diversify the rural economy. These have not yet happened in the Philippines.

The country's investments in agricultural research and related activities, for example, have remained at a low level of 0.1 percent of the country's gross value added (GVA) in agriculture over the past ten years. This is far below the one-percent level recommended for developing countries and very much lower than the 2-3 percent observed in many countries. In the case of China, whose agricultural productivity has been growing at rates much faster than most countries in Asia, investments in R&D rose from 0.4 percent of GVA in the 1990s to 0.8 percent in the mid-2000s.<sup>4</sup>

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4. J. Huang, L. Zhang, and S. Rozelle, "China's Agriculture under Trade Liberalization: Past Performance, Future Prospects and Policy Implications," paper presented at the 5th Asia Pacific Agriculture Policy Forum, Jeju, South Korea, September 14-15, 2006.

## **Slow growth of employment opportunities**

Rapid growth of productive employment opportunities outside of agriculture is a typically notable feature of a vibrant economy. This is so for the major economies of Southeast and East Asia, but not for the Philippines. Particularly neglected is the development and growth of labor-intensive industries. Indeed, the development of small- and medium-scale rural industries has not been pursued with vigor, hence the limited potential for employment generation outside the agriculture sector. Nor has the private sector made aggressive investments to support agriculture-based enterprises in the rural areas. Moreover, investors regard smallholder agriculture as more risky and less profitable than commercial agriculture. With agricultural productivity declining and the corresponding increases in employment opportunities outside agriculture nil, the tendency for small farm households has been to expand farming to more marginal lands, including the ecologically fragile uplands. This movement has contributed to natural resource degradation, which, in a vicious cycle, leads to further declines in agricultural productivity.

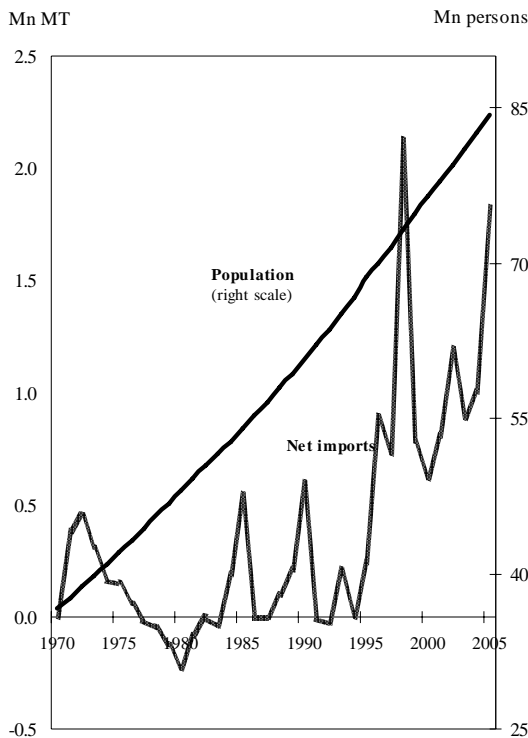
## **High population growth**

During the past three decades, mortality rates in all Southeast and East Asian countries declined almost at broadly similar rates. However, fertility rates declined much more slowly in the Philippines than in its neighbors. Consequently, while population growth rates declined substantially to well below 2 percent a year in such countries as Thailand, Indonesia, and Vietnam, the rate hardly changed at a high level of 2.3 percent a year in the Philippines. From a macroeconomic perspective,

this difference in the patterns of population growth between the Philippines and its neighbors is the single most important factor contributing to the much slower income growth and poverty reduction in the Philippines.<sup>5</sup>

Expectedly, in the case of the country's staple, the twin forces of rapid population growth and low rice productivity growth meant that rice consumption increasingly outpaced rice production, thereby necessitating rice importation (figure 1).

**Figure 1. Population and net imports**



5. See A.M. Balisacan, D.S. Mapa, R.G. Edillon, C.J. Tubianosa, and L.A. Lanzona, *The Population-Poverty Nexus: The Philippines in Comparative East Asian Context* (Quezon City: The University of the Philippines Press, forthcoming [late 2006]).

# Key Constraints to Strengthening the Rice Sector



## Closing the yield gaps

**A**verage gaps in rice yields across the country currently range from about 5 kg in the wet season to about 6 kg in the dry season. The gaps are attributable to various factors, including climatic differences (wet and dry), biological (poor seeds, weeds, pests), physical (soil nutrient, water management), and socioeconomic constraints (table 1). Overcoming these constraints could increase yield by as much as 150 percent.

Numerous technologies have been developed and used to harness the potential yield of rice even by small producers. Biotechnology, for example, has enabled the development of rice varieties that resist virulent pests and diseases or overcome water and macronutrient problems. But these technologies have yet to be fully exploited in the Philippines.

## Investment and governance

As has been stated earlier, rice research and development (R&D) represented only 0.10 percent of GVA

**Table 1. Possible sources of yield increase**

	Grainyield (t/ha/season)					
	Wet Season			Dry Season		
	Hybrid rice	Certified seeds	Good seeds	Hybrid rice	Certified seeds	Good seeds
<b>Maximum attainable yield</b> ( <i>limited only by climate and variety</i> )	9.20	8.00	7.20	11.50	10.00	9.00
<b>Yield with best nutrient and cultural management</b> ( <i>limited by lodging</i> )	7.36	6.40	5.76	9.20	8.00	7.20
<b>Yield when there are macronutrient (NPK) and water problems</b>	5.52	4.80	4.32	6.90	6.00	5.40
<b>Yield when there are micronutrient (zinc, zulfur, etc.), pests, and management problems</b> ( <i>crop establishment, land preparation</i> )	3.68	3.20	2.88	4.60	4.00	3.60

Note: Maximum attainable yield is based on inherent weather, hydrological (i.e., flooding), and soil (texture) conditions in the area. It fluctuates from year to year by  $\pm 10$  percent.

There is 15 percent increase in using hybrid seeds compared to inbred certified seeds.

There is 10 percent decrease by using good seeds compared to inbred certified seeds.

in agriculture. Similarly, investments for rural infrastructure development and other support services have dwindled from 0.24 percent of GVA in 1995-1999 to a mere 0.07 percent in 2000-2005. This is particularly true for irrigation, which contributes about 25 percent of rice production increases. This meager investment in the rice sub-sector has affected its production performance and weakened its competitive position in the world market vis-à-vis the other Southeast Asian countries.

Accompanying low investment has been the lack of accountability, coordination, and program focus in public spending for agriculture and natural resources.

## Rice market policies

The government's rice marketing policy aims to hit two birds with one stone: the provision of stable and high rice prices for farmers as well as stable and low prices for consumers. In working this out, the government has put in place various measures and interventions that have not only been difficult but also very costly. For example, the operations of the National Food Authority (NFA), which is mandated to market rice and other grains to stabilize supply and prices, have actually increased the volatility of domestic prices, reduced the welfare of both consumers and producers, discouraged the private sector from investing in efficiency-enhancing distribution and storage facilities, and bred corruption and institutional sclerosis.<sup>6</sup> Moreover, government spending in terms of financial subsidies to maintain such operations amounted to over Php 6.3 billion in 1998 and over Php 7.0 billion in 2004. This 1998 expense was far greater than the Php 1 billion provided to agricultural R&D in rice during that same period.<sup>7</sup>

## Land reform

Weak property rights on land have limited the farmers' access to credit needed to obtain inputs for their farm operations. The uncertainties created by the slow implementation of agrarian reform, particularly the negative effects of the

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6. See C. David, "Agriculture," in *The Philippine Economy: Development, Policies, and Challenges*, ed. A.M. Balisacan and H. Hills (New York: Oxford University Press; Quezon City: Ateneo de Manila University Press, 2003).

7. A. Balisacan and R. Edillon, "Poverty Targeting in the Philippines," in *Poverty Targeting in Asia*, ed. J. Weiss (UK: Edward Elgar, 2005).

Comprehensive Agrarian Reform Program (CARP) provisions pertaining to land ownership ceiling and transferability on land consolidation and the collateral value of agricultural land, have effectively inhibited private investments in agriculture and in the rural areas.<sup>8</sup>

### **Rural finance**

Private commercial banks finance commercial agriculture but avoid funding smallholder agriculture because of perception of risks, information asymmetry, high transaction costs, and financially unviable projects. A growing number of microfinance institutions provide loans to small borrowers but they are not keen on extending larger and longer-term loans for investment in machineries and other equipment that enhance labor productivity. Government financial institutions (GFIs), such as the Land Bank of the Philippines and Quedancor, face the huge challenge of becoming more strategic and catalytic institutions in rural financial markets. Thus, smallholder agriculture continues to rely mostly on informal credit markets, which charge high interest rates, to finance their simple investment requirements.

### **Rice extension**

Weak research-extension linkage, absence of adequate subject matter specialists' support by the Department of

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8. C. Habito, R.M. Briones, and E.M.S. Paterno, *Investment, Productivity and Land Market Impacts of the Comprehensive Agrarian Reform Program (CARP)*, Vol. 4, *CARP Impact Assessment Studies* (Quezon City: Department of Agrarian Reform, 2003).

Agriculture (DA) to the local government units (LGUs), top-down approach to extension delivery, and weak technical capacities of LGUs have been major impediments to the provision of a client-responsive rice extension. Weak governance in the provision of agriculture support services by the LGUs due to transitional problems of the devolution has aggravated the situation.

## Moving toward Sustained Rice Security



In search of improved availability of stable rice supply and access to food by households, several policy alternatives were examined for their impact on price and trade patterns, household incomes, rural to urban migration, and poverty incidence. Below are three crucial “what if” policy scenarios.

1. **Business-as-Usual (Base)** – This scenario represents a status quo on productivity programs and agricultural trade policies, including current tariff rate quota (TRQ) on rice imports. TRQs are meant to protect farmers by limiting the volume of rice imports and making imports expensive by imposing progressively high tariffs for volumes beyond a certain level.
2. **Market Access (MA)** – This scenario assumes progress in multilateral trade negotiations wherein the developed economies reduce and eventually eliminate their farm subsidies. This reduces production of heavily subsidized agricultural commodities including rice and lowers exportable surpluses in developed countries. In response to this

concession by developed countries, developing countries are required to replace TRQs with a cascading tariff schedule. In the case of rice for the Philippines, the scenario assumes the current TRQs to gradually drop to 10 percent over a period of ten years. No changes, however, were posited in domestic trade policies for other products.

3. **Governance & Market Recovery (GMR)** – This scenario combines “Market Access” above with an additional assumption that the Philippine Government would strongly commit to improved governance by replacing the potentially rent-seeking TRQs with low tariffs on imports across-the-board (in effect, balancing the protection of interests of domestic producers and consumers) as well as to increased investments in agricultural productivity. The latter requires the government to seriously craft productivity-enhancing policies, earmark and spend public money on low cost and efficient irrigation (expansion/rehabilitation), freshen up research and technology development budgets, put teeth to extension to fortify rice production base, encourage joint efforts with the private sector, and actualize many other policy reforms in favor of increasing productivity and incomes.

### **Projected rice production, consumption, prices, and trade**

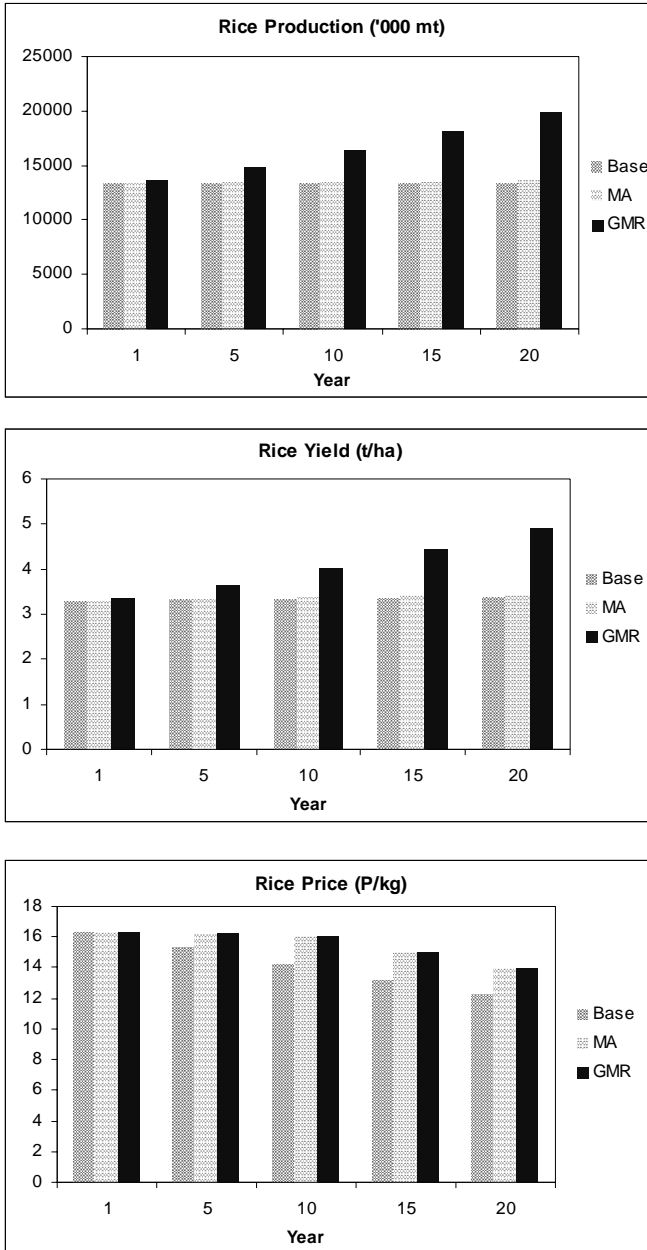
Figure 2 shows the simulation results for rice production, consumption, imports, and prices. Results under GMR give reasons to be optimistic, when domestic policy reforms for

increased investment on productivity-enhancing support services and infrastructure are undertaken simultaneously with trade policy reforms that enable the country to comply with its World Trade Organization (WTO) commitments. Rice production is projected to grow significantly primarily due to sustained increases in yield as well as due to the output response from the projected improvement in world rice price trend (figure 2a). Opening up of trade opportunities in developed economies barely makes any positive impact on Philippine agriculture, including rice. Higher world price trends arising from liberalized trade would not be strong enough an incentive to boost domestic production and could negatively affect the poor rice consumers.

The MA and GMR scenarios indicate the critical role of public investment in irrigation, research and development and extension, in particular, to help farmers realize higher yields.

The trend in projected prices deserves a brief note here. World food prices have been consistently declining over the past decades. This trend was applied to the business-as-usual scenario. Removal of trade-distorting subsidies in developed economies (as assumed in scenarios 2 and 3) would likely reduce exportable surpluses and may even change the pattern of world agriculture in favor of developing countries, particularly in labor-intensive crops such as fruits and vegetables. This could mitigate, if not reverse, the declining world price trend. Improvement in prices translates to domestic markets, hence, the subsequent rise, relative to the base, of domestic prices as shown in the simulation exercises. The kink in the price trend represents the adjustment that takes place with the implementation of the policy reforms (in trade and in domestic investment). The decline in prices accelerates when the reforms are already well in place (i.e., some time in the tenth year).

**Figure 2a. Projected rice production, yield, and prices**



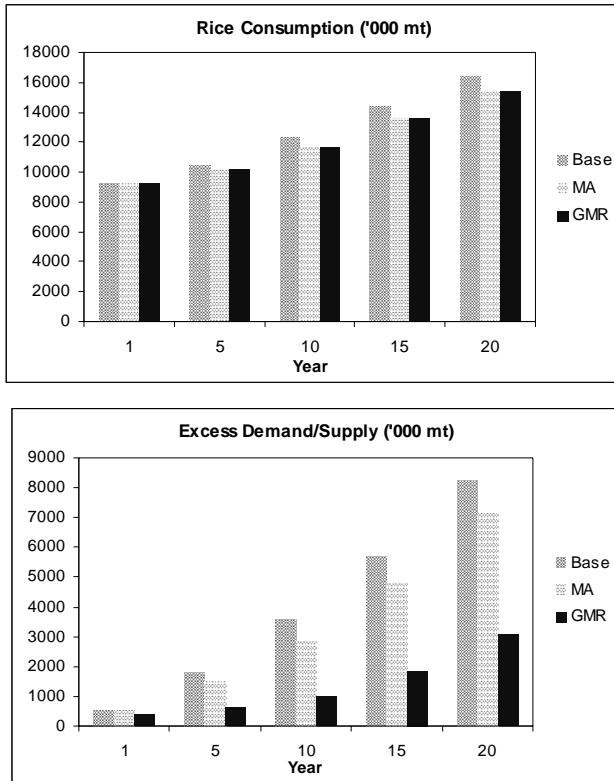
## **Impact on the general social welfare**

The impact of farm productivity increases on rural-to-urban migration and levels of poverty incidence is interesting to note. Projected increases in production accompanied by higher level of prices in scenario 3 translate to higher farm incomes that then result in relatively more rapid growth in the GVA in agriculture (figure 2c). A stronger agriculture sector could absorb a greater labor force and could slow down rural-urban migration. These are shown in figure 2d.

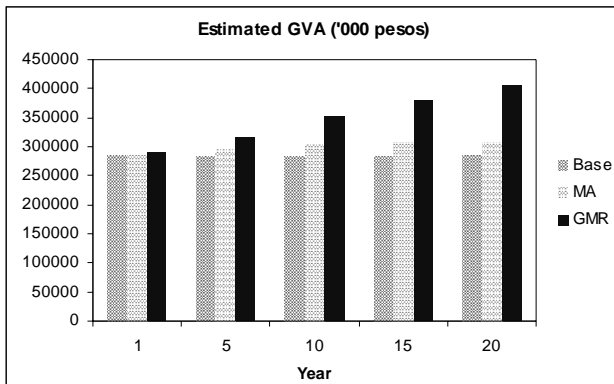
The additional effects of a stronger rice economy are shown in tables 2a and 2b, which illustrate the poverty reduction impact of scenario 3 across different sectors in the Philippine society compared with that of the business-as-usual projection results. The impact clearly varies by location and type of households as follows:

- Projection results show that the reduction in poverty incidence could reach an average of 12 percentage points over a five-year period at the national level. Across the three big island-groups in the country, however, incidence of poverty reduction is highest at 15 percentage points in Mindanao where current poverty incidence level is also the highest (table 2a).
- The current situation also indicates that poverty incidence is relatively higher among wage earners and self-employed workers in agriculture than those in non-agriculture, regardless of labor force categories. Again, the projection figures resulting from scenario 3 show much bigger improvements among these groups of workers than among those in the non-agriculture sector (table 2b).

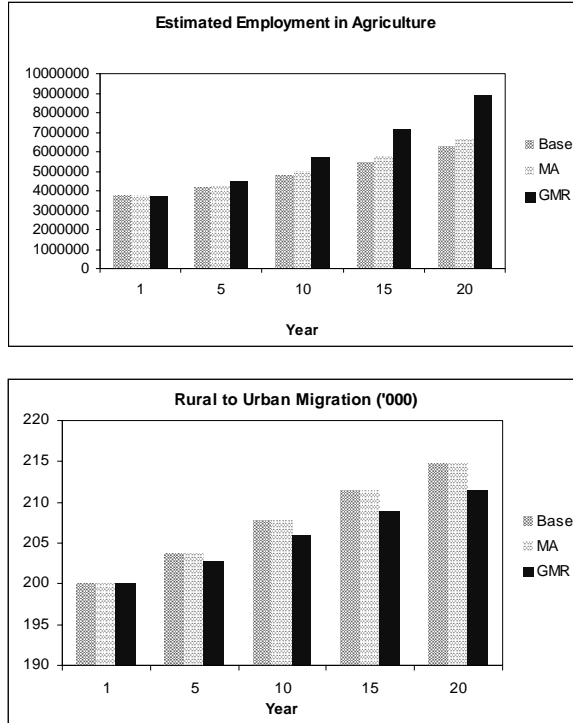
**Figure 2b. Projected rice consumption and imports**



**Figure 2c. Projected gross value added in agriculture**



**Figure 2d. Projected impact on employment and rural to urban migration**



**Table 2a. Impact of a package of governance and market recovery agenda, by geographical location**

Subgroup	Population share	Contribution to poverty	Poverty incidence			
			1st year	3rd year	5th year	
<b>By area</b>						
Rural	52.0	77.0	(57.4)	52.1	44.4	55.2
Urban	48.0	23.0	(36.6)	33.2	27.5	15.8
<b>By island group</b>						
Luzon	56.1	33.0	(26.4)	22.7	18.0	16.6
Visayas	20.9	31.1	(52.8)	47.3	41.0	38.6
Mindanao	23.0	35.9	(57.2)	51.7	44.8	42.3
Philippines	100.0	100.0	(39.0)	34.5	29.0	27.1

**Table 2b. Impact of a package of governance and market recovery agenda, by category of workers**

Subgroup	Population share	Contribution to poverty	Poverty incidence			
			1st year	3rd year	5th year	
Wage earners						
Agriculture	8.0	14.6	(71.3)	65.6	57.9	55.2
Non-agriculture	42.3	26.6	(24.5)	21.5	17.2	15.8
Self-employed						
Agriculture	21.0	38.3	(71.1)	63.7	55.5	52.8
Non-agriculture	14.2	10.9	(30.1)	25	19.3	16.9

The results as described above indicate that poverty reduction is relatively faster in sectors where the incidence is comparatively high at the initial period of the reforms.

## Implications and recommendations

Simulation results suggest that agricultural and rural development is central to any strategy for broad-based growth, rapid poverty reduction, and food security, especially since the poor are largely dependent on agriculture and related industries for employment and income. Trade reforms to comply with the WTO prescription for greater trade liberalization will not achieve that broad-based growth alone. Domestic policy reforms have to simultaneously take place in the form of intensified public investment in irrigation, extension, research and development, etc. Likewise, stronger attention must be given to the adoption of more appropriate and enabling policies that strengthen the response of rural non-farm sector to agriculture growth and sustain economic expansion. Proper application of modern science and technology through a robust and client-responsive research

and rice extension offers a pathway to sustainable rice security of an increasing population.

The crux of a research-extension strategy is identifying productivity changes that promote poverty reduction. Gaps in research, particularly on cross-cutting topics and issues, should be filled. For example, there is hardly any organized public-sector effort that provides scientifically generated inputs to policy design, implementation and monitoring or, in particular, to the ongoing trade negotiations and agriculture restructuring. While such research program would not, by nature, require large outlays, its payoffs could be substantial in terms of avoiding unproductive costs due to inappropriate policies or of missed reduction in poverty and hunger incidence.

Finally, rapid poverty reduction and sustained food security require synergy among complementary measures. A poverty reduction and food security strategy, linked with nutrition and access to health and social services, would create a more effective impact than when components confront the food insecurity and poverty problem independent of one another.

## Reversing the Trends for Greater Rice Security



As the policy simulation clearly indicates, the key to unlocking the poverty and rice insecurity puzzle in the Philippines is for the government to take a more aggressive stance toward encouraging strong investments and institutional and policy reforms in the agriculture sector. This section discusses what it would take to achieve the outcomes depicted in the GMR scenario, particularly in terms of investment requirements and necessary policy and governance reforms.

### **Investment requirements**

Table 3 shows the relative contribution of the key factors (i.e., R&D, infrastructure development, and extension) to growth in rice production. About 80 percent could be attributed to strengthened R&D (particularly to high quality and improved seeds, integrated crop management, and mechanization), improved rural infrastructure (particularly irrigation), and expanded outreach work to disseminate new knowledge and technologies. The remaining 20 percent could

come from overcoming the impact of environmental factors such as typhoons, drought, etc. through appropriate use of crop management practices.

**Table 3. Estimated contribution of different factors to growth in rice production**

Factors	Contribution (%)
1. R & D	25
• Seed (biotechnology, hybrid rice, certified seed, nutrition)	10
• Integrated crop management	10
• Mechanization	5
2. Infrastructure	40
• Irrigation	25
• Farm to market roads	5
• Transportation	5
• Postharvest	5
3. Extension	15
4. Environmental factors	20

Estimates of investment requirement were based on the above factor contributions of R&D, irrigation and extension, and their respective returns on investment (ROI). They are as follows: for R&D, 77.1 percent;<sup>9</sup> for extension, 80 percent;<sup>10</sup> and for irrigation, 18 percent.<sup>11</sup>

9. J. Roseboom, *Optimizing Investment in Agricultural Research, or The Quest for Prosperity*. International Service for National Agricultural Research (ISNAR). Research Report 23 (The Hague: ISNAR, 2003).

10. J.M. Alston, C. Chan-Kang, M.C. Marra, P.G. Pardey, and T. Wyatt, *A Meta-Analysis of Rates of Return to Agricultural R&D: Ex Pede Herculem?* (Washington, D.C.: International Food Policy Research Institute [IFPRI], 2000).

11. A. Inocencio and R. Barker, "Constraints and Opportunities in Water Resources and Irrigation Development in Philippine Rice Production," in *Securing Rice, Reducing Poverty: Challenges and Policy Directions*, ed. A.M. Balisacan, L.S. Sebastian, and associates (Los Baños, Laguna: SEARCA, forthcoming).

**Table 4. Partial investment requirements to increase rice production under governance and market recovery (at 2000 prices, in million pesos)**

Year	R&D	Extension	Irrigation	Total
2006	339	200	460	998
2007	340	200	462	1,003
2008	342	201	464	1,008
2009	344	202	467	1,012
2010	346	202	469	1,017
2011	347	203	472	1,022
2012	349	204	474	1,027
2013	351	204	476	1,032
2014	353	205	479	1,036
2015	355	205	481	1,041
Yearly average requirement	347	206	472	
Budget Appropriation, 2000-2004	293	47	106	

**Assumptions:**

- 1) Compounded growth rate of yield is 2.05 percent.
- 2) Required investment based on return on investment of 77 percent for R&D, 80 percent for extension, and 18 percent for irrigation.
- 3) The growth in yield attributable to R&D is 25 percent; extension, 15 percent; and irrigation, 25 percent.
- 4) Price of palay per metric ton is Php 8,040, at 2000 prices.

Table 4 shows the estimated partial investment (i.e., estimation includes only those for irrigation, R&D, and extension) to enable the country to achieve the projected yield growth of 2.05 percent under the GMR scenario. The total estimated amount ranges from Php 998 million in 2006 and slightly rising to about Php 1.04 billion in 2015 (at 2000 prices). The bulk of this investment would be channeled to support irrigation maintenance and small system construction that would range from Php 406 million in 2006 to about Php 481 million in 2015. The estimated average annual budget is about 345 percent more than the budget appropriation afforded to this development activity in 2000-2004. The required

investment for R&D is estimated to be in the range of Php 339 million in 2006 to Php 355 million in 2015, or an annual average budget of Php 347 million, which is about 61 percent higher than the 2000-2004 budget appropriation. Strengthening rice extension delivery system, on the other hand, would require investment that would start from Php 200 million in 2006 to reach Php 205 million in 2015, or an annual average budget of about Php 203 million, which is 331 percent more than the 2000-2004 budget appropriation. It should be noted that the budgetary allocations for these development activities suffered severe reductions in the 1990s.

### **Policy and governance reforms**

Policy and institutional reforms are crucial to getting the rice and agriculture sector moving again. The key ones, neither new nor revolutionary, are identified in this section. However, it should be underscored that in rapidly developing economies of Asia, these reforms have underpinned sustained rural growth and poverty reduction. Such reforms have not taken root in the Philippine context.

### **Go back to the basics: R&D, irrigation, information, education**

By making available appropriate packages of yield-enhancing technologies and supporting irrigation development as well as knowledge management, substantially improving rice yield at the farm level to close the yield gaps is within reach. To develop these technologies and to maximize their impact on farm production, it is imperative to improve the public rice R&D governance by enabling human resource incentives,

maintaining and improving research facilities, setting clear R&D objectives and priorities, institutionalizing impact assessment, and encouraging adaptive/participatory R&D. On the other hand, the rice extension programs have to be overhauled from their being top-down, centrally directed approach to one that is LGU-led, linked to the research systems, and focused on developing the technical and managerial capabilities of rice farmers to enable them to make informed production and market decisions.

Support for irrigation development should focus more on the rehabilitation of existing systems rather than on construction of new large-scale irrigation systems, transfer of operation and maintenance to farmers' organizations (but with government providing technical support), small-scale systems including the facilitation of privately owned shallow tubewells and promotion of crop diversification.

### **Create favorable investment climate**

Responsible governance demands the removal of archaic policies and regulations that raise the “cost of doing business” and impede private sector investment. The push for the dismantling of monopolistic and cartelistic arrangements in port-handling and inter-island shipping has to be vigorously renewed. To enhance private sector participation in rice storage and distribution, registration processes should be substantially streamlined and associated fees reduced. Rice importation should also be increasingly made a private sector domain, thereby relieving the NFA of the burden of handling rice imports (and the pressure for corruption associated with the handling of import quotas).

In view of the country's fiscal bind, the private sector has to take on an increasingly greater role in agricultural investment. Public-private sector partnerships have to be strengthened. A typical example of such partnership relates to the development, multiplication, and distribution of improved planting materials (seeds).

### **Mobilize credit and microfinance**

Policies should address the lack of investment credit and sustainable financing for smallholder agriculture, including rice farmers, and emerging rural enterprises; mitigate the negative impact of agrarian reform on credit markets; unclog rural lenders' inability to deal with systemic risks; and take advantage of the emerging agriculture supply chains.

Mobilizing funds for agriculture and rural development in the medium to long term would have to involve improved access to good governance in rural financial markets, credible regulatory regimes, and a credit information bureau that is accessible to lending institutions in the countryside. It also demands support for freer and more flexible land markets that would open untapped opportunities for increasing the level of welfare and incomes of rice farmers and other agrarian reform beneficiaries.

The attractiveness of GFIs greatly depends on how well they approximate the level of accessibility that informal lending provides. The input suppliers, traders, millers, and wholesalers usually perform the added role of credit providers in the rice supply chain. The key is determining within a given chain that particular participant—be they traders or organized farmer groups—that could more efficiently provide the services but at a cost less than that of informal

lenders. This will necessitate a modified lending structure that could easily be operationalized by local players who may be less qualified but equally effective as their counterparts in GFIs. Simple and less rigid structures, manned by chain participants themselves, will allow credit viability even at small-scale operations.

### **Empower the LGUs and civil society**

The decentralization of agricultural extension services was premised on the assumption that LGUs have better understanding of the constraints and needs of their farming constituents and thus can localize agricultural development plans and programs based on the physical and socioeconomic conditions of their localities. The devolution, however, has been beleaguered with concerns for lack of “absorptive capacities” of local governments, resulting in inadequately and inappropriately utilized extension services of devolved personnel. For the decentralization to work effectively, capacity-building for local government extension personnel should be strengthened, to thereby improve the delivery of adequate and client-responsive rice extension (i.e., one that considers variability in farming conditions as a basis for specific farm recommendations).

Nongovernment organizations (NGOs) and civil society can play an active role in planning, implementing, and monitoring agricultural and rural development programs. Such a role can help check enormous resource wastes and inefficiencies in the delivery of support services owing to the lack of program accountability, coordination, and focus among agriculture-related agencies of the government.

**Improve governance**

The execution of policy reforms and programs has to be done properly and with sincerity. Program funding must be in the form of a transparent and predictable grant system that addresses social equity, accountability, and lines of responsibility among the parties involved.

## Concluding Remarks



In addressing today's pressing issues vis-à-vis poverty and food insecurity, it is important not to lose sight of the key lessons on agricultural growth and development in Asia in the past half-century. One such powerful lesson has to do with enabling the rural poor through policy, investment, and institutional reforms that enhance the efficiency of domestic markets and provide improved access to technology, infrastructure, and education. This enabling environment allows rural growth benefits to be broadly based, thereby enhancing overall nutrition, human capital development, and productivity and economic growth in the medium to long term. Almost invariably, successful cases of rural development and poverty reduction show tenacity in the pursuit of efficiency-enhancing reforms. The key driver to these reforms has been neither globalization nor agricultural policies in developed countries or of their neighbors. Rather, it is—by and large—the internal realization that reforms are for the benefit of the country and its citizens.

In the Philippine context, the rice problem is a domestically generated one; its solution requires nothing less than a concerted domestic effort to unshackle the policy and

institutional bottlenecks preventing the rice sector from realizing its potentials. Fortunately, that effort is within our reach—even now.

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# List of Chapters and Contributors



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2. External Environment, Trade regimes, and Policy Options	Tirso B. Paris Jr. and Donato B. Antiporta
3. R&D	Leocadio S. Sebastian, Flordeliza H. Bordey, and Vida Lina Esperanza B. Alpuerto
4. Water Resources and Irrigation	Arlene B. Inocencio and Randolph Barker
5. Extension	Eliseo R. Ponce
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| 7. Seed System, Biotechnology, and Nutrition | George W. Norton and Sergio R. Francisco                             |
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| 12. Food Safety in Rice                      | Ma. Concepcion C. Lizada   |
| 13. Farm Sustainability and Organic Farming  | Rodrigo B. Badayos and Filma C. Calalo                               |

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**ERRATA OF THE MONOGRAPH, "SECURING RICE, REDUCING POVERTY:  
CHALLENGES AND POLICY DIRECTIONS"**

1. Page 8, first paragraph, second and third lines

range from about 5 kg in the wet season to about 6 kg, **should read**  
range from about 5 **mt** in the wet season to about 6 **mt**