

TECHNICAL WORKING PAPER

# PHILIPPINES: AGRICULTURE PUBLIC EXPENDITURE REVIEW



The World Bank Group in the Philippines  
Supporting Islands of Good Governance



THE WORLD BANK GROUP

East Asia and the Pacific Region  
Rural Development, Natural Resources, and Environment Sector Unit

## DISCLAIMER

*Technical Papers are published to communicate the results of The World Bank's work to the development community with the least possible delay. The typescript manuscript of this paper therefore has not been prepared in accordance with the procedures appropriate to formally edited texts. Some sources cited in the paper may be informal documents that are not readily available.*

*The findings, interpretations, and conclusions expressed herein are those of the author(s), and do not necessarily reflect the views of the International Bank for Reconstruction and Development / The World Bank and its affiliated organizations, or those of the Executive Directors of The World Bank or the governments they represent.*

*The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgement on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.*

A TECHNICAL WORKING PAPER

**PHILIPPINES: AGRICULTURE  
PUBLIC EXPENDITURE REVIEW**

JUNE 2007

Rural Development, Natural Resources and Environment Sector Unit

Sustainable Development Department

East Asia and Pacific Region



**THE WORLD BANK GROUP**



## ACKNOWLEDGMENTS

This report is a product of the World Bank's Rural Development, Natural Resources and Environment Sector Unit of the East Asia and Pacific Region.

The core task team includes Messieurs and Mesdames Sergiy Zorya (Task Team Leader, EASRE), Felizardo K. Virtucio (EASRE, Agricultural Policy), Yvette Guinto (Consultant, Public Expenditure Management), Amy Beasley (Consultant, Rice Policy), Marife Ballesteros (Consultant, CARP), Carolina V. Figueroa-Geron (EASRE, Rural Development), Idah Z. Pswarayi-Riddihough (EASRE, Natural Resource Management) and Yoshiharu Kobayashi (EASRE, Water Resources and Irrigation).

The report was prepared under the overall guidance of Mr. Stephen Mink (Lead Economist, AFTPI) and Mr. Rahul Raturi (Sector Manager, EASRE). The Peer Reviewers are Mr. Donald Larson (DECRG), Ms. Mona Sur (SARES) and Mr. David Dawe (FAO). Valuable comments were also received from Mr. Yasuhiko Matsuda (EASPR). Mr. Andrew Mendoza (EACPF) provided assistance in coordinating logistics, layout, and printing.

The AgPER report substantially draws on earlier work by the World Bank, International Rice Research Institute, Philippine Rice Research Institute and Philippine Institute for Development Studies. The support and information of the Department of Budget and Management, the Department of Agriculture, the Department of Agrarian Reform, the National Economic and Development Authority, the Department of Finance, and the National Food Authority is gratefully acknowledged.

The financial support of the Australian Agency for International Development (AusAID) is gratefully acknowledged.

## ACRONYMS AND ABBREVIATIONS

AFMA	Agriculture and Fisheries Modernization Act
AgGVA	Agricultural Gross Value Added
AgPER	Agriculture Public Expenditure Review
AJD	Agrarian Justice Delivery
ARB	Agrarian Reform Beneficiaries
ARC	Agrarian Reform Community
CARP	Comprehensive Agrarian Reform Program
CPI	Consumer Price Index
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DBM	Department of Budget and Management
DENR	Department of Environment and Natural Resources
GMA	<i>Ginintuang Masaganang Ani</i>
GOCC	Government-owned and -controlled corporation
FAP	Foreign-assisted project
LAD	Land Acquisition and Distribution
LBP	Land Bank of the Philippines
LGU	Local Government Unit
MFO	Major Final Output
M&E	Monitoring and evaluation
NIA	National Irrigation Administration
NEDA	National Economic and Development Authority
NFA	National Food Authority
PARC	Presidential Agrarian Reform Council
PBD	Program Beneficiary Development
PCAMRD	Philippine Council for Aquatic and Marine Resources Research and Development
PCARRD	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
PhilRice	Philippine Rice Research Institute
R&D	Research and Development

# TABLE OF CONTENTS

Executive Summary .....	ix
1 Introduction.....	1
2 Recent Developments in the Agriculture Sector.....	3
3 Public Expenditures and Pro-Poor Agricultural Growth: Some Principles and Key Lessons from International Experience.....	9
4 Trends in the Aggregate Level of Agricultural Public Expenditures in the Philippines .....	12
5 Allocative Efficiency of Public Spending In the Department of Agriculture.....	16
5.1 Major Final Output 1: Production Support.....	20
5.2 Major Final Output 4: Irrigation Investments.....	25
5.3 Improved Allocative Efficiency of Public Expenditures: A Shift from Private Subsidies to Public Goods .....	28
6 Rice Self-Sufficiency in the Philippines: Benefits, Costs, and Moving Forward .....	33
6.1 Overview of the Philippine Rice Industry.....	33
6.2 How is the Policy for Rice Self-Sufficiency Currently Pursued?.....	35
6.3 What are the Welfare Effects of the Rice Self-Sufficiency Policy? .....	39
6.4 Are There Better Policy Instruments to Increase Net Social Welfare While Supporting Agricultural Producers? .....	47
6.5 What is the Appropriate Role for Government and Associated Policy and Budget Reforms to Support Rice Sector?.....	54
7 Department of Agrarian Reform .....	59
7.1 DAR as the CARP Implementing Agency .....	59
7.2 Synthesis of Economic and Social Impact of CARP.....	63
7.3 Improving the Allocative Efficiency of DAR's Expenditures.....	70
8 Policy Recommendations.....	73
9 Annexes.....	77
10 Statistical Appendix.....	83
11 References .....	104

## LIST OF FIGURES

1. Sectoral gross value added per worker in the Philippines, 1995-2005 (pesos).....	5
2. Diversification of farmland in rice-based farm households by province.....	6
3. Public spending on agriculture, 1998-2005 (million pesos, in real terms).....	13
4. Estimated functional structure of public expenditures by MFOs, (appropriations), 2001-2007 (million pesos and in percent to total) .....	17
5. Estimated distribution of obligations (AFMA) for DA by commodity, 2000-2005.....	18
6. Economic composition of DA-OSEC expenditures, 1998-2005 (million pesos).....	19
7. Percentage of rice area that is irrigated in the East and South Asia .....	26
8. Rice production and consumption in the Philippines, 1978-2005 .....	34
9. Trends in farm-gate prices of <i>palay</i> , 1991-2003 (US\$ per ton) .....	36
10. Variations in domestic and world market prices, 1987-2005 (pesos per kg) .....	37
11. The snapshot of the average situation in the rice market, 2000-2005.....	39
12. Schematic presentation of welfare effects of rice import protection on consumer, producers, and budget in the Philippines, average 2000-2005.....	40
13. Relationship between changes in inventories, tax subsidy and NFA's deficit, 2000-2006 (million pesos) .....	45
14. Labor wages and gross national income per capita across Asia .....	46
15. Structure of marketing costs and margins in the Philippines and Thailand (as % of wholesale price) .....	48
16. Components of wholesale rice prices in the Philippines and Thailand (pesos per kg) .....	48
17. Dry season nitrogen use by farmers compared with profit-maximizing use at the experiment station.....	53
18. DAR expenditures (actual obligations), 1998-2005 (million pesos) .....	60
19. Post-LAD scenarios presented in 2006.....	62

## LIST OF TABLES

1. Agriculture's share in national economy of the Philippines, 1980-2005 .....	3
2. Contribution to growth in AgGVA, 1999-2005 (in percent share to total growth) .....	4
3. Trends in productivity: Philippines, Thailand and Indonesia .....	5
4. Structure of agricultural gross value-added, 1980-2005 (in percent to total AgGVA) ..	6
5. Trends in nominal rate of direct and total assistance of major agricultural products in the Philippines, 1980-2004 (in percent) .....	8
6. Trends in nominal rate of direct assistance of major agricultural products in the Philippines, 1990-2004 (in percent) .....	8
7. Effects on productivity and poverty of public expenditures .....	11
8. Trends in total public expenditures on the agriculture sector, 1998-2005 (million pesos)	13
9. Total public spending on agriculture as a percentage share in total budget expenditures, gross domestic product, gross agricultural output and agricultural value-added .....	14
10. Rising share of NFA's deficit in GOCC's total deficit, 2000-2006 .....	14
11. Share of allotments in total appropriations by programs, 2000-2005 .....	18
12. Economic and functional composition of DA-OSEC budget of 2007 ('000 pesos).....	20
13. Local and foreign finance in DA's budget (obligations), 2000-2005, (million pesos)...	20
14. Estimated structure of MFO 1, 2001-2005 (million pesos) .....	21
15. Other incentives provided to farmers per bag of hybrid seeds, dry and wet season .....	22
16. Area planted to hybrid rice as percentage of target area and total rice area .....	22
17. Distribution of sample municipalities by percent drop out rate (in percent) .....	22
18. Estimated cost of hybrid seed production and distribution (pesos per 20 kg/bag) .....	24
19. Summary of the existing public irrigation investments as of December 2005 .....	25
20. Estimated opportunity costs to develop new irrigation systems .....	27
21. Public spending on agricultural R&D and research intensity ratio in the Philippines, 2000-2005 (million pesos, actual obligations) .....	29
22. International comparison of rice production in 2005 .....	34
23. Per capita rice consumption, 2000-2004 (grams per day) .....	35
24. Household expenditure on different types of rice, 2003.....	38
25. Welfare effects of the rice policy in the Philippines, 2000-2005 (billion pesos) .....	41
26. Household rice expenditures (as percentage of total expenditures).....	42
27. Income loss due to high rice prices across deciles, 2003.....	42
28. A comparison of different types of rice farmers in the Philippines, top and bottom quintile, 1996-1997 .....	43
29. Fiscal costs of NFA's operations, 2000-2006 (million pesos).....	44
30. Total welfare costs of rice policy, 2000-2005 (billion pesos) .....	45

31. Simulation of reduction in import tariffs.....	50
32. Simulation of reduction in import tariffs and reduced margins.....	51
33. International comparison of production costs, 1999 (US\$ per hectare) .....	51
34. Economic composition of DAR's expenditures, 1998-2005 (million pesos).....	60
35. Land acquisition and distribution by the DAR, as of December 2006 (million hectares).....	61
36. Studies on the investment impact of Agrarian Reform Program .....	63
37. Studies of the agrarian reform's impact on the land productivity of the ARBs .....	66
38. Studies on poverty impact of agrarian reform.....	67
39. Poverty measures, agrarian reform beneficiaries .....	68
40. Local and foreign financing of DAR's budget, 2000-2005.....	72

## EXECUTIVE SUMMARY

1. **Notwithstanding its high growth and poverty reduction potential, Philippine agriculture continues to under-perform.** A weak policy environment and public expenditure support do not encourage growth and competitiveness in the sector. Farm incomes have kept lagging non-farm incomes mainly because of the low agricultural productivity and the slow out-migration from the sector. Philippine agriculture has the potential for higher growth through crop diversification, but traditional low-value commodities continue to dominate production (and land use). At the same time, dynamic high-value products with high export potential and income growth, such as tropical fruits, are not provided with sufficient level of government support to generate significant benefits for the sector and beyond. The choice of producing the traditional (mainly import-competing) agricultural products is determined by their continued support through high import tariffs, non-tariff barriers, and budget expenditures.<sup>1</sup> This has artificially raised the profitability of these products thereby encouraging the distortion of resource allocation within agriculture and between the agriculture and the non-agriculture sectors.

2. **The distortions have been the largest in the rice sector.** The welfare costs of rice self-sufficiency were estimated to reach PhP68 billion per year or 1.6 percent of GDP during 2000-2005 and these are expected to keep rising if the current policy continues. These costs are disproportionately born by the poorest Filipinos. Instead of contributing to the broadly shared growth in the agriculture sector, the rice self-sufficiency policy has increased income disparity within the sector since only 40 percent of rice farm households obtained the two thirds of benefits from price support.<sup>2</sup> Meanwhile, the poorest members of the rural community such as small rice farmers, non-rice farmers, marginal fishers, upland dwellers, and landless laborers, as well as the urban poor, bear the costs of the high rice prices that result from the current rice policy. The rice policy has also retarded crop diversification and, together with other protected import-competing wage goods, raised the costs of living in the Philippines, putting upward pressure on wages and undermining competitiveness of unskilled labor.

3. **The allocation of public expenditures has reflected the policy bias toward traditional commodities, mainly the policy supporting rice self-sufficiency,** diverting scarce fiscal resources from provision of necessary public goods that would have benefited most farmers and agribusinesses and not just rice producers. During 1998-2005, a more than twofold increase in the agricultural public spending was largely directed to production subsidies, large-scale irrigation systems and the National Food Authority (NFA)'s operations on rice importation, stock keeping, and distribution. The production subsidies (largely to the rice sector) and irrigation investments (designed to produce mainly rice) accounted for 60 percent of the Department of Agriculture's Office of Secretary (OSEC) expenditures, while the share of NFA's stabilization and tax subsidy in total agricultural budget (excluding DAR) increased from 4.6 percent in 2001 to 30.4 percent in 2005. An emerging concern is the non-budget aspects of NFA's fiscal costs, i.e. the rapidly rising contingent liabilities associated with NFA's borrowing. In 2006, they surged to PhP16.4 billion compared to already high PhP10 billion in 2005.

---

<sup>1</sup> The major import-competing products are rice, corn, sugar and poultry.

<sup>2</sup> Based on Dawe (2006c), this comprises about 12 percent of all agricultural households.

4. **The best way of increasing the impact of public expenditure on pro-poor agricultural growth in the Philippines is to improve the composition of expenditure rather than increasing its level.** Improved allocative efficiency within its current level of spending should be given priority because a large percentage of agricultural public expenditures are allocated to subsidies that do not provide much benefit to most farmers and fisherfolk but detrimental to productivity growth and agricultural diversification. A focus on expenditure composition would also support the government's fiscal consolidation efforts, necessary to create an investment climate conducive for growth in both agriculture and non-agriculture sectors.

5. **The reallocation of agricultural budget expenditures would produce greater effects with a reform of the policy of rice self-sufficiency.** Actually, an effective reallocation of expenditures is possible only within a strategic adjustment in rice self-sufficiency policy because this policy drives public expenditures. Government may wish to replace the policy of rice self-sufficiency with a policy to support food security at the household level. Such a change would entail adjustments in both budget and agricultural trade policies. The adjustments can be implemented gradually over several years, starting with a realignment of the agricultural budget composition, away from commodity-specific support, toward public goods provision and market development support. Specifically, the **gradual realignment of DA's budget composition** may contain the following elements:

- **Phasing out production support.** Production support is economically distortionary and fiscally expensive. The hybrid rice seed commercialization program, for instance, unintentionally supported the better-off farmers who had access to irrigation and modern farming techniques. It, therefore, contributed to the increasing inequality within the sector and discouraged crop diversification. In the short term, some production subsidies to food-insecure farm households without ready access to markets can be provided, but even those should be time-bound, targeted and closely monitored and evaluated.
- **Increasing the sustainability of investments in irrigation.** The benefits would be larger when public expenditure is directed to rehabilitation of existing gravity irrigation systems while the expansion into new irrigated areas is done through the support of small-scale irrigation systems. Small-scale irrigation systems require less investment costs compared to the larger-scale irrigation systems, have shorter gestation periods, yield higher productivity, give farmers a greater degree of control over their irrigation water, and provide more options for crop diversification. To ensure that the existing large-scale irrigation systems are well-maintained and that the large-scale systems do not reduce the financial attractiveness of smaller-scale irrigation, institutional reforms to allow a full cost recovery and self management of national irrigation systems by irrigators associations would be desirable. The rationalization of the National Irrigation Administration to make it more lean and efficient would be an appropriate complement to these measures.
- **Shifting expenditures to market-related Major Final Outputs (MFO).** A critical role for the government is to invest in essential public goods, in particular infrastructure (rural roads and wholesale markets), market information, research and development, and food safety and quality. These investments would be beneficial as they would reduce marketing and *palay* production costs, allowing rice farmers to generate higher incomes even at lower consumer rice prices and allowing non-rice farmers to benefit from public goods.

- **Designing and implementing appropriate monitoring and evaluation of public expenditures and programs.** MFOs are useful devices for measuring government agencies' performance in producing targeted policy outputs, but by design, these are not meant to provide information about real impact of publicly-funded programs. The absence of a regular and accessible system for outcome and impact evaluations makes it difficult to have objective public policy debates and to change the current approaches to public expenditure and agricultural policy in the Philippines.

6. **A more fundamental step to enhance the effectiveness of agricultural policy, both in strengthening the sector's international competitiveness and in contributing to hunger mitigation and poverty reduction, would require trade reform and revisiting NFA's policy mandate.** These measures would have the additional benefit of eliminating the sources of NFA's current financial difficulties which are expected to worsen in the coming years. Improvements in NFA's operational efficiency could reduce some costs in the short term but are unlikely to produce significant cuts in the medium to longer term. The recommended trade reform may include the following strategic elements:

- **Replacing the quantitative restrictions for rice imports with import tariff.** The Philippines is due to lift its quantitative restrictions on rice imports by 2012 and this is an opportunity to reduce the effective import protection, simplify import procedures, allow the private sector to profitably import rice, and refocus NFA's mandates on regulation and emergency stock-keeping.
- **Successively reducing import tariff.** Lower rice prices in the Philippines will be effectively attained only by reducing the current prohibitive import tariff levels. The medium-term goal would be to reduce the rice tariff to a more moderate level. Otherwise, the economic benefits for consumers and producers (through lower marketing costs) from mere "tariffication" would likely be small.
- **Separating NFA's regulatory and trade functions.** NFA may continue its responsibility for keeping buffers for emergency and safety net reasons but not for market interventions. International experience shows that the purpose of stabilization is to insure against risks associated with international commodity price movements. However, within a fairly wide band, the system should allow domestic prices to move freely and buffer only very high or very low international prices. This would promote private agribusiness development and also free substantial public funds to be allocated to other priority public good investments.
- **Optimizing the volume of public stocks.** The Philippines is prone to typhoons and other natural calamities that severely damage agricultural production and incomes of poor farmers. Thus, the role of public stocks can be re-defined to focus on disaster mitigation and safety net programs, thereby reducing its volume to minimize the fiscal losses from foregone interest and physical deterioration of stocks. The shift in policy emphasis from price stabilization to emergency assistance would also have more impact on the poor.
- **Encouraging private sector marketing system.** The private sector requires incentives to import rice. Private import is a long-term financial business which requires secure access to the right to import rice, not just in 2007, but over the longer term. The annual quotas for import are unlikely to encourage the private sector to invest in logistical infrastructure, contracts with exporting countries and knowledge in trading and marketing. A strong

government commitment to fully withdraw from commercial import and lower import tariff might be needed to create proper incentives for the private traders to satisfy domestic demand in rice in a timely and cost-efficient manner.

7. **Reforms may be opposed by those who benefit from current policy, thus, short- to medium-term compensation mechanisms may be needed.** As experience in other countries shows, direct transfers to farmers may be considered as a compensation mechanism that softens the impact of trade reform in the short run, while favoring adjustment and diversification of the agriculture sector over the medium to longer run. Decoupling production from price support was the cornerstone of agricultural policy reform in Mexico and Turkey, for example. A design of a compensation package in the Philippines, however, is not straightforward. It requires a consideration of several issues, such as the eligibility criteria (rice versus non-rice farmers and poor rice farmers versus non-poor rice farmers), mode of payments, validation of historical data on yields and land areas, an identification of landowners and the exact location and size of their land plots, the price gap to be compensated, a cap on fiscal transfers, phase out period for subsidy, penalties for misreporting, etc. A compensation mechanism, therefore, needs to be thoroughly designed if this strategy would be used to ease the reluctance to trade and budget reforms.

8. **Another key element for pro-poor growth in the rural areas is a well-functioning land market.** The delays in completion of Comprehensive Agrarian Reform Program (CARP) divert large budget expenditure from other uses and are likely to hamper agricultural pro-poor growth. Evidence suggests that, so far, CARP has not contributed much to unlocking the poverty problem in the rural areas. Although the agrarian reform beneficiaries are reported to have increased investments and improved their welfare, these positive effects have been negated by (a) the reduced investment of land acquisition and distribution-pending landowners, (b) the lower access of the landless poor to tenured and other rental agreements, and (c) a rural finance market hampered by a distorted land market. In addition, the limited poverty impact of CARP is explained by several exogenous factors, i.e. increasing population, scarcity of cultivated land, and slow growth of farm and non-farm employment opportunities in the countryside. The following actions are being recommended to improve the operational efficiency and effectiveness of CARP:

- **Completing land acquisition and distribution.** While the intensification of fund generation and a validation of the revised land balance are prerequisites to complete the land acquisition and distribution, serious efforts are also required to overcome institutional and legislative hurdles. These hurdles include cumbersome land valuation procedures, tedious documentation process, ineffective coordination of land reform-related activities among the CARP implementing agencies, counterclaims by landowners at DAR Adjudication Board, and bias of some local governments toward land conversion in view of higher tax revenues from lands devoted to non-agricultural uses. Addressing these hurdles would be essential for improving the effectiveness of CARP.
- **Developing a strategy for converged delivery of public services to rural areas.** This might include the following directions: (a) continued delivery of support services in agrarian reform communities (ARC) where DAR has prior commitments; (b) inclusion of non-agrarian reform beneficiaries in ARC programs; (c) expansion of support service coverage to new reform beneficiaries in areas only if there are no other providers; (d) strengthening of partnerships for service delivery with other agencies; and (e) preparation of a time-bound exit strategy focusing on areas with strong local government units (LGU) and geographic overlaps with other departments, as well as on LGU capacity building, in order to carry out long-term provision of frontline support services.

## 1. INTRODUCTION

1. Despite its high potential to grow and reduce poverty, Philippine agriculture continues to under-perform. A weak policy environment and public expenditure support do not encourage growth and competitiveness in the sector. This Agriculture Public Expenditure Review (AgPER) assesses the ways of increasing the impact of public expenditures on broad-based agricultural growth in the Philippines.

2. The AgPER presents recent developments in the agriculture sector of the Philippines in Chapter 2. It describes the farm structure, sector growth, performance compared to nearby countries and the level of agricultural diversification. The presentation of development of price incentives helps to understand the bias toward import-competing products and whether current public expenditures strengthen or negate that bias.

3. The AgPER provides lessons from international experience on the role of public expenditures in a pro-poor agricultural growth in Chapter 3 and follows with an analysis of trends in the aggregate level of expenditures for the agriculture in Chapter 4. The AgPER establishes a knowledge base on the relative share of agricultural budget spending in GDP, total budget expenditures and agricultural output and then compares this base with those in some East Asian neighbors and other countries, and asks the question: *Are current public expenditures aligned with fiscal discipline and fiscal consolidation agenda of the Government of the Philippines?*

4. The review of allocative efficiency of public expenditures begins with the Department of Agriculture in Chapter 5. This establishes a knowledge base on the composition and efficiency of public expenditures. *Are they being allocated to the right priorities that are likely to foster pro-poor agricultural growth?* Well-managed and properly allocated public expenditures, based on rational policies, are important pre-condition for broad-based growth. Thus, significant efficiency and impact gains could be achieved by shifting from less to more effective types of expenditures even without a budget increase.

5. Since public expenditures are driven by policy, their reallocation is possible within strategic adjustments in agricultural policies. In the Philippines, largest gains can be expected from adjustments in rice policy, given that the rice sector gets the lion's share of public resources within the agriculture sector. The AgPER focuses on this dominant agricultural policy goal and estimates the efficiency gains from the policy and budget reforms described in Chapter 6. The analysis identifies the main winners and losers of policies supporting rice self-sufficiency, quantifies the welfare losses and gains, and proposes concomitant policy reforms. Along with trade liberalization, these include recommendations to reduce the marketing and production costs of rice, as well as further clarification of the proper role of government in the sector.

6. The review of DAR's public expenditures in Chapter 7 covers the implementation period of CARP. It analyzes the public spending across three MFOs during 1998-2005. It also presents

the synthesis of the existing economic and social impact assessments of CARP and derives the lessons from this synthesis to improve allocative efficiency of public expenditures in the context of completion of CARP and post-CARP developments.

7. The major policy recommendations are presented in Chapter 8. They aim to encourage the broadly shared economic growth through a better allocation of public expenditures and agricultural policy adjustments.

## 2. RECENT DEVELOPMENTS IN THE AGRICULTURE SECTOR

8. Despite the declining share in the Philippine output, agriculture remains an important sector of the country's economy. It accounts for 15 percent of the national GDP and nearly 40 percent of employment (Table 1).<sup>3</sup> Some analysts estimate that agribusiness as a whole (adding in forestry, agro-processing, production of agricultural inputs, and agricultural trade) contributes about 40 percent of the GDP and two-thirds of national employment (World Bank, 2005b). Nevertheless, rural poverty remains a major component of total poverty as some 70 percent of the country's poor live in rural areas. Thus, agricultural performance remains crucial to the nation's development and poverty reduction goals: a fact emphasized by the Medium-Term Philippine Development Plan 2004-2010.

**Table 1: Agriculture's share in national economy of the Philippines, 1980-2005**

	1980-1990	1991-2000	2001-2005
GDP	21.7	19.5	14.8
Employment	47.5	39.9	36.4
Exports	8.4	7.8	6.9
Imports	18.6	8.2	4.0

Source: NSCB (2006) and NBAS (2006).

9. Philippine agriculture is mainly characterized by growing traditional crops on small family-owned farms. There are about 4.8 million farms in the Philippines, covering 9.7 million hectares. A typical farming system consists of major crops with rice, corn, and coconut as common base crops, and a few heads of livestock and poultry. Two-thirds of all farms are no larger than 3 hectares. Eighty-five percent of all farms are no more than 5 hectares (DA, 2006b). In 2002, the average farm size was reported to be 2 hectares, falling from 2.2 hectares in 1991 (NSO, 2002). This is mainly due to the population growth but also due to CARP which seeks to distribute 8.1 million hectares of land to agrarian reform beneficiaries (DAR, 2006a).<sup>4</sup> Under CARP, a farm household cannot own a farm larger than 5 hectares.

10. Agriculture has recently grown at historically high rates fueled by the non-crops sub-sector. If 1998 - the year of El Niño - is excluded from the analysis, the gross agricultural output grew at about 5 percent per year, while the agricultural gross value added (AgGVA) increased by 3.8 percent annually during 1999-2005. *Where did this growth come from?* The bulk of it was fueled by non-crop sources where government financial support was far less than what was given for rice. Fisheries provided the strongest impetus accounting for 37 percent of the sector's growth (Table 2). Crops closely followed contributing over one-third of AgGVA growth. This was, however, not a commensurate contribution given that most farmers are from this subsector. *Palay* contributed 13 percent, or about one-third of crop growth, in spite

<sup>3</sup>Agriculture includes crops, livestock and fishery.

<sup>4</sup> Recently the land balance was increased by additional 1.3 million hectares (refer to Chapter 3.3.2).

of the fact that it accounts for 31 percent of total harvested area.<sup>5</sup> Crop growth leaders were bananas, mangos, pineapples, and other fruits. Poultry and livestock accounted for 21 percent of total growth.

**Table 2: Contribution to growth in AgGVA, 1999-2005 (in percent share to total growth, cumulative)**

Sub sector/Commodity		1999-2005
Crops		36.8
Livestock		7.3
Poultry		12.2
Agricultural activities and services		6.3
Fishery		37.3
Total AgGVA		100.0
<i>Memo items: Harvested area (thousand ha) in 2003</i>		
<i>Palay</i>	4,006	12.5
Corn	2,140	4.0
Coconut	3,124	2.6
Sugarcane	389	1.8
Banana	410	1.8
Other crops	2,931	14.0

Source: NSCB (2006).

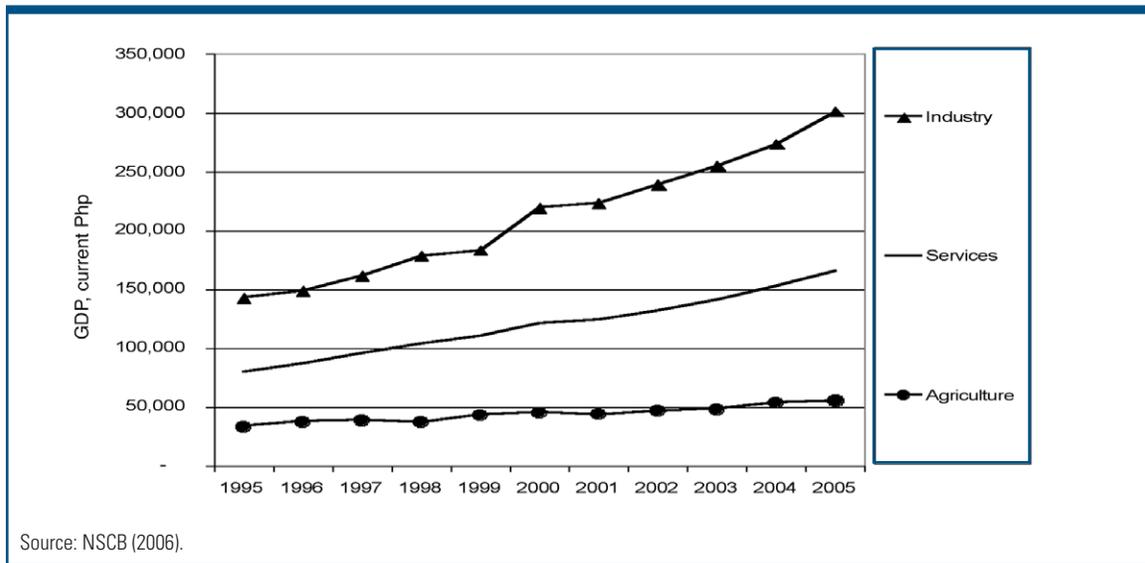
11. Despite the rising agricultural output (and continued high protection), farm income has increasingly lagged behind non-farm incomes. In 1995, AgGVA per worker was 24 percent and 42 percent that of industry and services, respectively (Figure 1). In 2005, the ratio between agricultural and industrial per capita gross value-added and between agricultural and service per capita gross value-added fell to 18 percent and 38 percent, respectively. Two factors played a role for such a development: (a) the slow outflow of workers from the agriculture sector and (b) the low agricultural productivity.

12. The out-migration of agricultural labor in the country was lower than that of Indonesia and Thailand, partially explaining the weaker productivity growth in the Philippines. Butzer and others (2003) report this out-migration rate is greatly and directly proportional to the labor-absorbing capacity of the non-agriculture sectors, more so than even the level of marketable skills among farmers and fishermen. Thus, the creation of nonagricultural jobs can offer new opportunities for many agricultural workers even for those with relatively poor education and skills.

13. Low agricultural incomes have also resulted from the heavy reliance on increases in physical inputs rather than on total factor productivity (Table 3).<sup>6</sup> During 1980-1998, the total factor productivity in the Philippines grew by 9 percent, compared to 27 percent in Thailand and 49 percent in Indonesia.

<sup>5</sup> *Palay* is a local term for unmilled grain of rice or paddy rice.

<sup>6</sup> Total factor productivity is the composition of land, labor and capital productivities.

**Figure 1: Sectoral gross value added per worker in the Philippines, 1995-2005 (current pesos)****Table 3: Trends in productivity: Philippines, Thailand and Indonesia**

	1961-1998	1961-1980	1980-1998
<b>Philippines</b>			
Growth rate of output, percent per year	2.6	3.8	1.4
Shares in growth:			
Factors	90	74	91
Total factor productivity	10	36	9
<b>Thailand</b>			
Growth rate of output, percent per year	3.4	3.8	3.2
Shares in growth:			
Factors	8	66	73
Total factor productivity	32	34	27
<b>Indonesia</b>			
Growth rate of output, percent per year	3.4	3.7	3.2
Shares in growth:			
Factors	56	57	51
Total factor productivity	44	43	49

Source: Mundlak and others (2002).

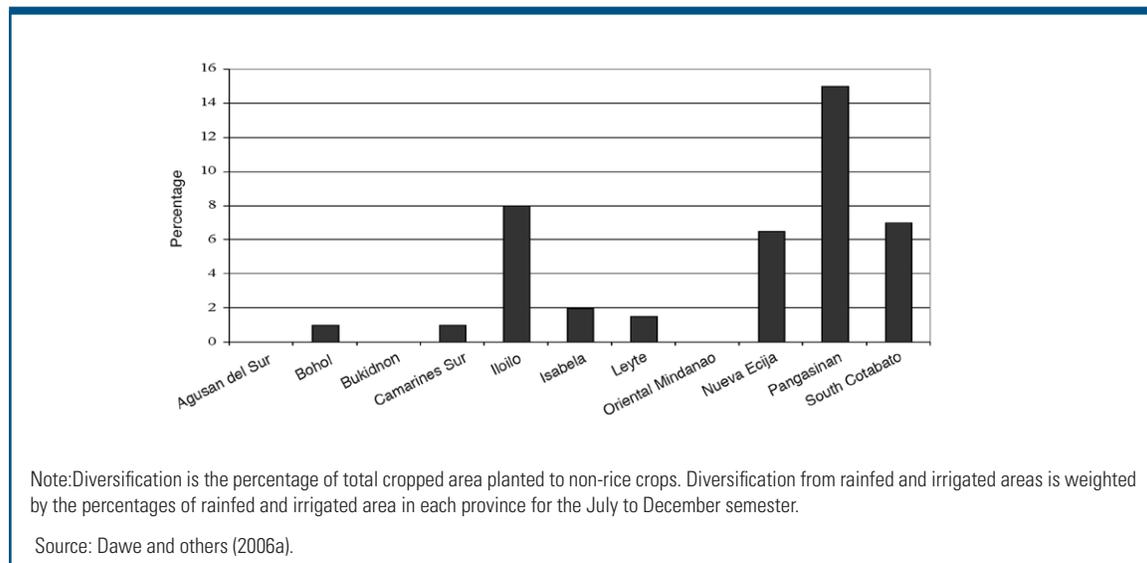
14. The low agricultural productivity in the Philippines is largely explained by slow agricultural diversification. Relatively few rice farmers have diversified their cropping patterns. The share of crop-harvested areas that are devoted to non-rice crops varies in different provinces, with the largest share of only 10 percent reached in Pangasinan and Iloilo (Figure 2).<sup>7</sup> Meanwhile, Nueva Ecija and South Cotabato posted even less shares at 5 percent.<sup>8</sup> This is in spite of the fact that rice farming provides employment for less than 40 days per year (Dawe, 2006a) with

<sup>7</sup>According to Dy (2006), the diversification of coconut farmers is similarly non-existing.

<sup>8</sup> If the farms were used entirely for rice in the wet season and entirely for other crops in dry season, the diversification percentage would be 50 percent.

an annual net income of PhP16,650 for an average rice farm size of about 1.8 hectares in 2004, which is only 20 percent of the annual household poverty threshold (NEDA, 2006).

**Figure 2: Diversification of farmland in rice-based farm households by province**



15. The structure of agricultural production has hardly changed over the past two decades, with traditional low-value crops continuing to dominate. Despite the increased AgGVA share of livestock products from 16 percent in 1980-1990 to 23 percent in 2001-2005, the rate of agricultural diversification in the country has been rather modest (Table 4). Crop production continues to account for more than half of AgGVA with *palay* contribution increasing from 14.5 percent in 1980-2000 to 15.9 percent in 2001-2005. The crop production structure remains unchanged. The dominance of traditional rice, corn and coconut accounted for 82 percent of the total harvested area in 2004, only 3 percent lower than in 1990. In contrast, the share of the harvested areas under bananas and pineapple remained at 0.35 percent between 1990 and 2004. Despite high potential, the share of bananas in total AgGVA remained very low compared to the traditional crops supported by the government programs. The fishery sector's share fell to 15 percent in 2001-2005 from 21 percent in 1980-1990.

**Table 4: Structure of agricultural gross value-added, 1980-2005 (in percent to total AgGVA)**

	1980-1990	1991-2000	2001-2005
<b>Crop production, total</b>	<b>59.8</b>	<b>57.8</b>	<b>57.3</b>
<i>Palay</i>	14.4	14.8	15.9
Corn	6.4	5.2	4.5
Coconut	8.0	5.9	4.7
Sugarcane	3.7	3.0	2.9
Banana	2.6	3.0	3.8
Other crops	24.7	25.9	25.5
<b>Livestock, total</b>	<b>15.6</b>	<b>21.1</b>	<b>22.9</b>
Beef and Pork	9.6	13.0	13.8
Poultry	6.0	8.1	8.9
<b>Agricultural activities and services</b>	<b>4.1</b>	<b>4.6</b>	<b>4.7</b>
<b>Fishery</b>	<b>20.5</b>	<b>16.5</b>	<b>15.2</b>

Source: NSCB (2006).

16. The Philippines is among the top producers and exporters of tropical fruit products in the world. The major fruits are banana, mango, and pineapple. This sector has performed very well in terms of yield, output growth, and income generation. The Philippines' share of the world's banana production was about 8 percent in 2004, following only Thailand (24 percent) and Brazil (9 percent).<sup>9</sup> The growth of Philippine banana production was faster than the global rate. Between 1992 and 1997, production expanded by 26 percent and from 1997 to 2004 it grew by 83 percent. The Philippines has also succeeded in expanding banana export in contrast to Ecuador and Costa Rica, the two largest world banana exporters. The Philippines' share in the world banana export grew from 4 percent in 1997 to about 7 percent in 2003, implying a gained competitive advantage over its competitors.

17. The Philippines account for 11 percent of world production of pineapples, second only to Thailand. Recently, however, production in the Philippines has slowed down to 0.7 percent compared to the expansion of world production by 18 percent.<sup>10</sup> Despite this decrease, the Philippines retains the highest yield (315,027 hectogram per hectare), compared to Thailand (233,370) and Indonesia (90,160). Of the four pineapple products exported, only canned pineapple exports declined (Digal, 2005).

18. The Philippines is an important world mango producer. The country's share of world production in 2004 was 3.4 percent, albeit decreasing from its years of large area expansion between 1992 and 1997.<sup>11</sup> The Philippines is the second largest exporter of fresh mangos in the world, earning US\$45 million in 2003. The Philippines was also the second largest world exporter of mango juice in 1997 although it dropped to effectively zero in 2003 (Digal, 2005).

19. Looking to the future, the Philippines has great potential for agricultural diversification. This diversity suggests that there is a great scope to improve overall sector performance and thus its contribution to general economic growth. Soils, climate, and the degree of economic development of different provinces will affect diversification in the Philippines. Some provinces have many options for alternative crops while others have fewer. But as a whole, the potential is great and if realized, would produce many benefits.

20. *Why was there little agricultural diversification so far?* The answer lies in the bias of incentives toward traditional commodities. Recently, these incentives have experienced a significant increase, however, to the detriment of consumer welfare and resource allocation efficiency. The average "nominal rate of direct assistance" to Philippine agriculture increased from 14 percent in 1980-1984 to 30 percent in 2000-2004 (David and others, 2007).<sup>12</sup> Moreover, the total rate of assistance rose from 1 percent in 1980-1984 to 23 percent in 2000-2004 because of the decreased

---

<sup>9</sup> Refer to Table A1. All tables with prefix-A are found in Statistical Appendix (Chapter 10).

<sup>10</sup> Refer to Table A2.

<sup>11</sup> Refer to Table A3.

<sup>12</sup> The methodology for estimating "rate of assistance" is similar to the widely-used OECD methodology for "rate protection". During 2006-2007, the World Bank project (which prepared reports for many countries, including the Philippines) adjusted the original OECD Producer Support Estimates to the Bank's methodology of producer assistance and the new term "rate of assistance" was introduced to distinguish between the Bank and the OECD estimates.

assistance to non-agriculture (Table 5). Import-competing products, such as rice, corn, sugar, and poultry, have been supported the most through high import tariffs and non-tariff barriers (Table 6), while the support of export products was close to zero. This artificially raised the profitability of major import-competing commodities, thereby encouraging the distortion of resource allocation within agriculture and between the agriculture and the non-agriculture sectors.

**Table 5: Trends in nominal rate of direct and total assistance of major agricultural products in the Philippines, 1980-2004 (in percent)**

	1980-1984	1990-1994	1995-1999	2000-2004
Direct rate of assistance				
Agriculture total	14	25	25	30
Importable	27	36	49	43
Exportable	-12	-3	-2	-3
Rate of assistance of non-agriculture	13	9	8	7
Total rate of assistance of agriculture	1	16	17	23

Note: Nominal rate of direct assistance is defined as ratio of domestic wholesale price to export or import border reference price. Total rate of assistance is defined as direct assistance to agriculture minus direct assistance to non-agriculture.

Source: David and others (2007).

**Table 6: Trends in nominal rate of direct assistance of major agricultural products in the Philippines, 1990-2004 (in percent)**

	1990-1994	1995-1999	2000-2004
Rice	21	53	51
Corn	63	79	55
Sugar	49	97	79
Coconut copra	-15	-8	-14
Coconut oil	7	1	6
Beef	26	15	-17
Pork	25	21	-8
Poultry	57	42	52
Others	10	5	5

Note: Nominal rate of direct assistance is defined as ratio of domestic wholesale price to export or import border reference price.

Source: David and others (2007).

21. With this background, the next chapters review public spending on the Philippine agriculture between 1998 and 2005. The following chapters seek to answer two main questions: *Do public expenditures follow the same bias as the policy incentives? How can the impact of public expenditures be increased?* This review takes into account the importance of agriculture for pro-poor economic growth and argues that public expenditures, if allocated to the right priorities and used efficiently, can indeed play a decisive role in providing stimulus for an enhanced agricultural performance and better livelihood opportunities in the rural areas of the Philippines.

### 3. PUBLIC EXPENDITURES AND PRO-POOR AGRICULTURAL GROWTH: SOME PRINCIPLES AND KEY LESSONS FROM INTERNATIONAL EXPERIENCE

22. International experience has established conclusively that expenditures on public goods - such as agricultural research, extension services, education, and rural infrastructure - are indispensable for agricultural growth, competitiveness, and poverty reduction (Fan and Rao, 2003; de Ferranti and others, 2005; Lopez, 2005). These growth-enhancing public expenditures<sup>13</sup> bring about the highest returns and, at the same time, encourage private capital in the sector. Thus, it would be informative to contextualize the review of agriculture public expenditures in the Philippines within the backdrop of important lessons derived from international experience.

23. Investments in public goods provide factors of production that the private sector rarely supplies but are complementary and essential to private investments. Well-designed public investment can complement private investments and contribute greatly to increasing productivity in agriculture and other sectors. It helps lubricate the economy and aids in maximizing production of the most valued goods and services as well as in responding flexibly and intelligently to new investment opportunities. In other words, expenditures on public goods create assets that are complementary to private capital and the absence of such expenditures would adversely affect the value of human capital and result in the underinvestment in a variety of socially beneficial projects.

24. However, public spending does not always have positive and sizable effects. Public spending creates a favorable environment for agricultural growth and poverty reduction, if and only if, the following conditions are met:

- It is consistent with fiscal discipline and sustainable economic framework;
- It is allocated to the right priorities;
- It avoids government failures.

25. If these conditions are not met, the effects of public spending on agriculture are likely to remain very small because private sector job creation is slowed down, resources are misaligned, and excessive public spending in agriculture results in macroeconomic misalignments.

26. An enabling macroeconomic environment is a necessary pre-condition for pro-poor agricultural growth. Public expenditure policy is a form of direct economic intervention. Like other interventions, public spending on agriculture should be part of a market-friendly approach to economic policy and supportive of development and adjustment goals (van Blarcom and others, 1993). Excessive agricultural public spending can lead to high or

---

<sup>13</sup>In the AgPER, the term “growth-enhancing expenditures” is interchangeably used with Philippine-used term “market-related MFOs”.

rising budget deficits that can result in different types of macroeconomic imbalances (e.g., higher inflation and misaligned exchange rate) causing lower economic growth and weaker demand for farm products. By investigating the underlying factors in agricultural growth, Gardner (2005a) found “macroeconomic stability” and “real income growth in the non-agriculture economy” as among the most important factors explaining agricultural growth in 85 developing countries during 1960-2001. That’s why public spending on agriculture should remain consistent with the aggregate fiscal discipline.

27. Public expenditures should be allocated to areas with the highest social payoffs for growth and poverty reduction. This underscores the importance of having the right mix of public expenditures. Using data from 10 Latin American and Caribbean countries for 1985-2000, López (2005) investigated the impact of total public expenditure and its mix on agricultural per capita income, controlling for trade openness and the per capita GDP share of the non-agricultural sector. The major finding is that the structure or composition of such expenditures is important for per capita agricultural growth. A reallocation of 10 percentage points of total public expenditures from subsidies to public goods would increase per capita agricultural income by an average of 2.3 percent; this is obtained without increasing total expenditures.<sup>14</sup> These impacts are significant mainly because they capture both the positive effect of increasing the provision of public goods and the positive effect of reducing the distortions created by subsidies, which negatively affect the quantity and quality of private investments. In contrast, increasing public expenditures (without changing their composition) was found to be much less effective in raising per capita agricultural incomes: a 10 percent expansion of government outlays caused only a 0.6 percent increase in agriculture income.

28. The bias in the mix for one type of good or the other has not only efficiency implications but also important *equity implications*. Studies by the International Food Policy Research Institute in India (Fan and others, 1999) and China (Fan and others, 2001) imply that public investments which have the highest effects on growth are also likely to be most pro-poor. In India, the most effective rural poverty reduction investments were roads, followed by agricultural research and development (Table 7). In China, the most important contributors to poverty reduction (in terms of number of poor reduced per 10,000 Yuan) was education (8.80) followed by agricultural research and development (6.79), and then roads (3.22).

29. Provision of public services and the correction of market failures should not result in government failures. Market failures are not always a sufficient justification for government interventions. If addressed wrongly, a well-intended correction may result in severe and even more costly government failures. Information and governance weaknesses are some of the major reasons behind government failures. Millions of farmers each make unique decisions regarding production, consumption, sales, use of inputs, and leisure at different time and places. Centrally made decisions based on average figures might not suit many farmers. Thus, such unintended negative effects could cause a well-intended intervention to fail and waste public resources.

**Table 7: Effects on productivity and poverty of public expenditures**

	INDIA			CHINA	
	Marginal impact of additional Rs100 billion at 1953 prices (%)	No. of poor reduced per Rs billion		Return to agricultural production (Yuan/Yuan invested, %)	No. of poor reduced per 10,000 Yuan
		Poverty	Productivity		
Agricultural R&D	0.48	6.98	91.4	9.59	6.79
Irrigation	-0.04	0.56	7.40	1.88	1.33
Roads	0.87	3.03	156.0	2.12	3.22
Education	0.17	0.43	31.7	3.71	8.80
Electricity	0.02	0.02	2.90	0.54	2.21
Rural telephone	-	-	-	1.19	1.13
Soil and water	0.04	0.00	6.70	-	-
Rural development	-0.15	n/a	27.8	-	-
Health	-0.02	n/a	4.0	-	-

Source: Fan and others (1999) and Fan and others (2001).

30. An example of government failures, through governance weakness and political economy across East Asia, is the continued subsidization of high-yield seed varieties. At the early stages of the Green Revolution, seed subsidies were justified to help ease the introduction of new technologies, reduce the risk of initial adoption, and support market development. But now high-yield rice varieties cover a large proportion of areas sown to rice across Asian countries. This suggests that many farmers have already mastered the technology and that their land allocation decision to cultivate high-yield varieties or other crops is dictated by the profitability of crops, not by unfamiliarity (or familiarity) with the technology. Thus, the continuing provision of input subsidies serve only to increase private profit margins at the expense of broader agricultural growth, and at the expense of public expenditures. “The art of public policy making, therefore, is to know when to introduce government intervention and when to withdraw. The common mistake is to forget the withdrawal part, leading to unsustainably high costs - a dilemma that most Asian countries [including the Philippines]<sup>15</sup> are confronted with today” (Cummings and others, 2006). With this background, the next chapter will assess the consistency of public spending on Philippine agriculture with the previously described principles of effective public expenditures management and with the goal to attain growth while reducing poverty.

<sup>14</sup> In the López (2005) study, the public goods expenditures include those on technology generation and transfers, soil conservation, sanitary and phytosanitary protection, communications and information services, rural infrastructure, and social services (e.g., education and health). For private goods, expenditures include commodity-specific subsidies, marketing assistance and promotion, subsidized credit, and irrigation.

<sup>15</sup> Insertion added by the authors.

## 4. TRENDS IN THE AGGREGATE LEVEL OF AGRICULTURAL PUBLIC EXPENDITURES IN THE PHILIPPINES

31. Trends in public expenditures for Philippine agriculture are presented at a consolidated level to the extent possible during 1998-2005. DA's expenditures include the Office of the Secretary, 13 attached agencies and 11 attached government-owned and -controlled corporations (GOCCs).<sup>16</sup> DAR's expenditures include the financing of CARP in the context of land acquisition and distribution, delivery of agrarian justice and provision of public services to the agrarian reform beneficiaries.<sup>17</sup> The AgPER does not include the Department of Environment and Natural Resources which focuses on the management of environment and natural resources, and does not consider Local Government Units since the AgPER focuses on national-level management of public expenditures.

32. Public expenditures for agriculture and fisheries increased more than twofold during 1998-2005, totaling PhP47 billion in 2005 (Table 8). The cumulative spending for the period is P252 billion, 42 percent of which was executed by DA-OSEC, while 16 percent (and 23 percent of DA's consolidated spending) was allocated to GOCCs, mainly to NFA. The share of GOCC in DA's spending grew over time, from 4.1 percent in 2002 to 45 percent in 2005. Farmers, however, have not benefited much from GOCC allocations since they were largely used for interventions in the rice market and financing import duties charged for rice imports. For DAR, about 30 percent of its budget was spent on landowner compensations under CARP, while about 32 percent of the total 2000-2005 budget was allocated to the delivery of public services to the agrarian reform beneficiaries.

33. Public expenditures for agriculture also grew in real terms. The total spending increased by 52.3 percent between 1998 and 2005.<sup>18</sup> The growth of real spending was the highest during 2002-2005, due to the increase in rice imports which determined tax subsidies (Figure 3).

---

<sup>16</sup> A full list of DA-financed agencies and corporations is presented in Annex A.

<sup>17</sup> The level of consolidated public spending is analyzed using the DBM data on gross budget allocated to DA and DAR. This gross budget includes (a) Regular Appropriations, (b) Automatic Appropriations, (c) Continuing Appropriations and (d) Budgetary Adjustments (i.e., transfer of savings, transfers from miscellaneous personal benefits fund; pension and gratuity fund). "Automatic appropriations" include grant proceeds (including customs duties and taxes derived from monetization of commodity grants), retirement and life insurance premium of personnel, proceeds from sale of unserviceable equipment, etc. "Continuing appropriations" cover the unobligated or unreleased appropriations for operation and maintenance costs and capital outlays of the previous year(s), and any long-term funding from special fund created by law.

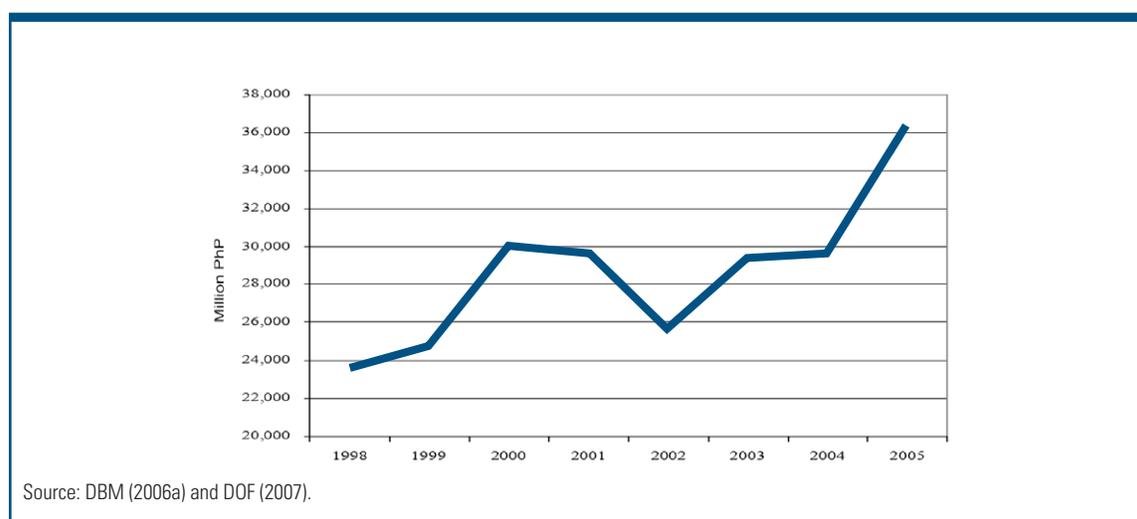
<sup>18</sup> Refer to Table A5.

**Table 8: Trends in total public expenditures on the agriculture sector, 1998-2005 (million pesos)**

	1998	1999	2000	2001	2002	2003	2004	2005
DA	16,749	17,046	19,831	21,903	18,678	24,787	19,757	30,218
Office of the Secretary	12,628	14,224	14,782	15,795	12,994	11,227	12,036	12,498
Attached agencies	1,243	2,078	2,416	2,710	3,388	2,206	2,171	3,129
Attached corporations*	2,878	744	1,071	3,399	779	11,362	5,500	13,620
Others	-	-	1,561	-	1,517	-	-	971
DAR	4,885	6,741	10,310	9,708	9,672	8,771	16,045	16,855
Landowners compensations	1,952	1,014	4,013	2,885	2,854	516	534	3,874
Delivery of public services	809	1,676	1,219	754	490	956	1,004	1,493
<b>Total spending</b>	<b>21,634</b>	<b>23,787</b>	<b>30,141</b>	<b>31,611</b>	<b>28,350</b>	<b>33,558</b>	<b>35,802</b>	<b>47,073</b>

Note: \* This includes NFA's stabilization and tax subsidies.

Source: DBM (2006a) and DOF (2007).

**Figure 3: Public spending on agriculture, 1998-2005 (million pesos, in real terms adjusted for inflation)**

34. In relative terms, the public spending on agriculture remained stable and moderate in spite of its growth in absolute terms (Table 9). In 2005, the shares of agricultural public spending in total expenditures and GDP were 5 percent and 0.8 percent, respectively. These shares increased only slightly in 2005 compared to 1998. As a proportion of AgGVA, however, the dependence of agriculture on public spending grew from 4.7 percent to 22.1 percent, showing the tendency toward greater reliance of farmers on public programs instead of generating more income from market operations.

35. International comparison shows a relative under-spending by the Philippines on agriculture. Measured as a share of agricultural spending in total GDP (adjusted by the size of the sector), the Philippine spending has been comparable to neighboring Lao PDR and Vietnam.<sup>19</sup> However, it is lower than what other middle-income countries, like China and Thailand, were spending. It is however consistent with the more limited fiscal capacities of the Philippines relative to higher-income countries.

**Table 9: Total public spending on agriculture as a percentage share in total budget expenditures, gross domestic product, gross agricultural output and agricultural value-added, 1998-2005**

	1998	1999	2000	2001	2002	2003	2004	2005
Total Public Spending (Central Government)	4.22	4.03	4.64	4.45	3.64	4.06	4.04	4.99
Total GDP	0.77	0.76	0.85	0.82	0.67	0.72	0.68	0.80
Gross agricultural output, incl. fishery	4.00	4.16	5.51	5.43	4.53	5.12	4.64	5.76
Agricultural value-added	5.58	16.12	19.57	19.83	17.18	19.80	20.28	26.42
Agriculture + Fishery value-Added	4.69	13.02	15.93	16.25	14.16	16.40	16.91	22.06

Source: Data from Table 8, NSCB (2006) and NBAS (2006).

36. International experience also shows that lower fiscal spending does not necessarily translate into lower agricultural competitiveness. What matters the most is the mix of spending. It is well-known that huge farm subsidies in the United States and the European Union, for example, have failed to increase farm competitiveness, while lower spending in Brazil and Australia did not prevent their farmers from being highly-competitive on the world markets.<sup>20</sup>

37. The country-specific circumstances matter, too. The international benchmarking of public spending on agriculture should not be considered as standards for appropriate levels of expenditures. The Philippine circumstances should also be taken into consideration. While the budgetary spending on agriculture in the Philippines is not excessive and thus is not a cause of concern from the point of view of maintaining aggregate fiscal balance, an emerging concern is the non-budgetary aspects of the fiscal costs due to the rapidly rising contingent liabilities associated with NFA's off-budget borrowing. These borrowings have substantially grown in recent years in order to cover NFA's surging deficit which resulted from importing rice, distributing it, buffering stocks, and covering the administration costs.<sup>21</sup> During 1998-2005, NFA's cumulative deficit totaled PhP27.7 billion (Table 10). In 2005, the deficit equaled PhP10 billion and in 2006 it grew to PhP16.4 billion. NFA's share in GOCC's total deficit rose from 8 percent in 2000 to 43 percent in 2005. The rising debts increase the likelihood that the government would have to step in and absorb them. Chapter 6 shows that NFA's deficit is caused by the efforts to support the policy of rice self-sufficiency and thus can be reduced only by reconsidering that policy.

**Table 10: Rising share of NFA's deficit in GOCC's total deficit, 2000-2006**

	2000	2001	2002	2003	2004	2005	2006
NFA's deficit, million pesos	1,897	2,274	8,086	3,689	1,836	9,978	16,430
Total deficit of GOCC, million pesos	22,581	32,832	25,937	39,649	85,412	22,987	n/a
Share of NFA in total GOCC's deficit, %	8	7	31	9	2	43	n/a

Source: DOF (2007).

<sup>19</sup>Refer to Table A4.

<sup>20</sup> Refer to Table A4 on fiscal spending on the agriculture sector in different countries.

<sup>21</sup> Some off-budget borrowing is made to overcome the liquidity constraint. Since NFA has to first pay the duties and then get reimbursed through the tax subsidy, it might lack cash at hand to pay these duties (and cover other operational deficits). As a result, it has borrowed from the market (which is only possible with implicit government guarantee). As a whole, however, NFA's total borrowing has consistently exceeded the tax subsidy in recent years in order to service its debts and fulfill the policy mandate that forces NFA to "buy high and sell low" (refer to Table 29 and Table A25 for information on NFA's total costs and NFA's balance sheet).

38. With this in background, **the way to increase the benefits of agricultural public spending in the Philippines while reducing its fiscal costs would be to alter the mix, rather than the level of expenditures.** This is notwithstanding the fact that the aggregate agricultural spending as a share of total budget expenditures and of GDP remain at moderate levels. Improving allocative efficiency within the current level of spending should be given more importance because it supports the government's fiscal consolidation efforts and thus creates an investment climate conducive for economic growth. Moreover, a large percentage of public expenditures, allocated to subsidies and other private goods such as NFA's operations, has not really benefited farmers and fisherfolk and has not spurred broadly shared growth. Therefore, substantial efficiency gains could be achieved by improving the expenditure composition alone without increasing its level.

## 5. ALLOCATIVE EFFICIENCY OF PUBLIC SPENDING IN THE DEPARTMENT OF AGRICULTURE

39. This chapter analyzes the functional (by MFOs) and economic (capital and recurrent expenditures) structures of DA's expenditures. Data used for this analysis are from DA's records that usually report lower levels of spending than what are reported in the Department of Budget and Management (DBM) records (used for reviewing the aggregate levels of expenditures in Chapter 4). The distinction is mainly because DA covers the budget prescribed by the Agriculture and Fishery Modernization Act (AFMA) of 1997, while DBM's records reflect fiscal obligations from all types of appropriations plus funds from other sources, including the Calamity Fund and the Priority Development Assistance Fund of Congress.

40. Where data allows, judgments on allocative efficiency are made based on actual obligations.<sup>22</sup> As a whole, budget allocations in the Philippines can be analyzed according to the four key steps of the budget process: (a) appropriation, (b) allotment, (c) obligation, and (d) cash disbursement.<sup>23</sup> Allotments have been usually lower than appropriations due to either fiscal constraints resulting in cuts for all departments as a whole, or the failure of a department such as the DA to provide consistent and clear records of past and future allocations of obligated funds so it can receive the next releases of DBM. Obligations are the best proxy of actual expenditures spent by the line departments each year. Typically, the obligated funds are 10-15 percent smaller than allotments. This happens particularly for capital outlays for irrigation and other infrastructure that require a complicated process of bidding or contracting, or in the case of last year's release of allotment not being obligated by the end of the fiscal year. There is no consistent data on the cash disbursements of DA's agencies. Interviews with the budget departments revealed that, on average, the actual cash disbursements were typically 10 percent below the actual obligations while the disbursement rate across commodities and programs were significantly biased towards GMA rice and irrigation investments.

41. DA-OSEC budget comes from regular appropriations and special purpose funds. The regular funds primarily support DA's expenditures for general administration and for support to operations. The special purpose funds largely support DA's operations generally embodied in the AFMA. Special purpose funds are also the source of budget support to GOCCs.

42. In terms of the composition by major final output, DA's largest expenditure was on irrigation services (MFO 4) and production support (MFO 1).<sup>24</sup> These two MFOs accounted for 60 percent of DA's total appropriations during 2001-2007 (Figure 4).<sup>25</sup> This priority has

---

<sup>22</sup> Some date sets are incomplete for 1998-2005 due mainly to unavailability of records.

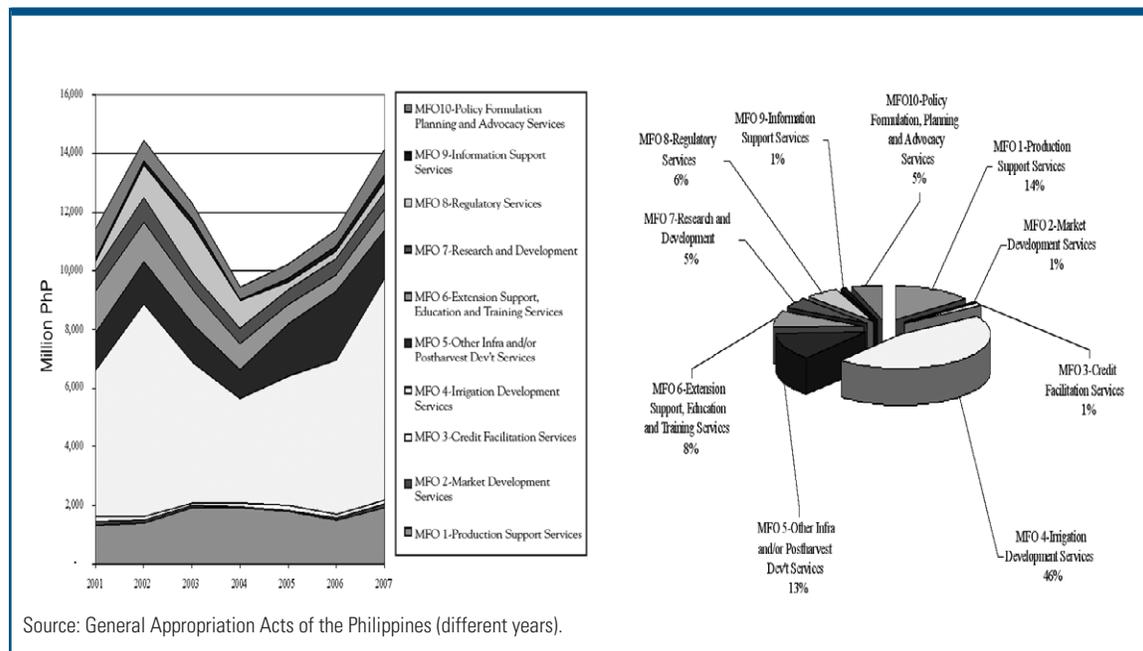
<sup>23</sup> Annex B provides the explanation of distinct differences between these categories.

<sup>24</sup> Detailed description of the MFOs is presented in Annex C.

<sup>25</sup> For 2007, data is on planned expenditures. Refer to Table A8 and Table A9. Since there is no available data on actual obligations by MFOs for 2001-2007, appropriations are used. A detailed disaggregation of "obliged expenditures" by DA for 2000-2005 is reported in Table A12. In the past (during 1989-1998), production support and irrigation accounted for only 35 percent of DA's total spending (David and Inocencio, 2000)

been strengthened over the last two decades. Public expenditures for research and development accounted for only 5 percent of the total; education and training received about 8 percent. These expenditures were spread over several bureaus and institutions, failing to generate a sufficient amount of qualitative market-driven research outputs and to effectively link research with extension services that would provide farmers with profitable technologies.<sup>26</sup> Expenditures for market infrastructure, mainly farm-to-market roads and post-harvest equipment, constituted about 13 percent. Nonetheless, although these are critically important for economic development in general, roads and other market infrastructure are principally the responsibility of the Department of Public Works and Highways, the Local Government Units and the Department of Transportation and Communication. DA's expenditures on farm-to-market roads therefore should be closely coordinated with the LGUs and said departments to ensure synergies and sustainability. Finally, relatively small amounts were allocated to regulatory functions, information collection and dissemination, policy and planning, market development, and other operational support. This is in spite of the fact that these functions are extremely important for agricultural producers and often cannot be sufficiently provided by the private sector.

**Figure 4: Estimated functional structure of public expenditures by MFOs, (appropriations), 2001-2007 (million pesos and in percent to total)**



43. Although the expenditure allotments (and correspondingly, obligations) were consistently below appropriations, irrigation and commodity programs were nevertheless financed at the highest rates. On average, appropriations were fully allocated to irrigation programs, as well as for rice and corn GMA programs. In contrast, other programs/expenditures were financed at only about 60-70 percent of the appropriation, often being residuals in DA's spending priorities (Table 11).

<sup>26</sup> See below the detailed discussion on agricultural R&D and extension services in the Philippines.

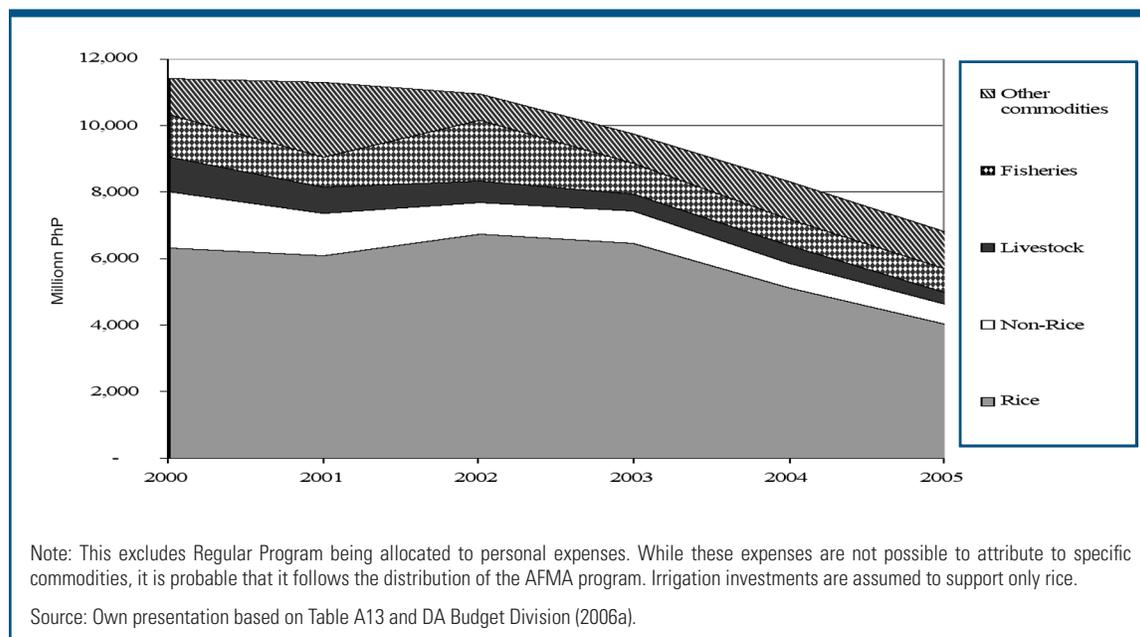
**Table 11: Share of allotments in total appropriations by programs, 2000-2005**

	2000	2001	2002	2003	2004	2005
Irrigation						
<i>Locally-Funded Projects</i>	99.0	104.5	98.1	104.2	100.0	100.0
<i>Foreign-Assisted Projects</i>	100.0	95.7	75.9	84.9	100.0	86.3
Programs:	93.2	88.0	79.7	122.0	87.6	96.3
<i>Rice</i>	93.2	88.0	79.7	122.0	87.6	96.3
<i>Corn</i>	93.2	88.0	79.7	122.0	87.6	96.3
<i>HVCC</i>	93.3	82.8	77.4	91.9	72.5	93.7
<i>Livestock</i>	98.0	79.3	70.3	101.4	101.2	110.8
<i>Fisheries</i>	92.8	87.2	89.9	87.8	87.1	93.8
Other expenditures	31.5	62.7	66.5	42.2	63.0	82.1
<b>Subtotal AFMA</b>	<b>70.4</b>	<b>99.5</b>	<b>76.7</b>	<b>80.1</b>	<b>89.7</b>	<b>90.3</b>

Note: This table excludes regular program spent on personal expenses.

Source: DA Budget Division (2006a).

44. The overriding historical concern for food self-sufficiency has led to a disproportionate share of public expenditures for rice. Aside from the budgetary allocations for irrigation and production support, rice dominates public expenditures for farm machinery, post-harvest equipment, research and development, and training programs (Figure 5).<sup>27</sup> During 2000-2005, about 60 percent of the AFMA budget was spent on rice programs even though rice accounts for only 16 percent of the total AgGVA (Table 4, Chapter 1).

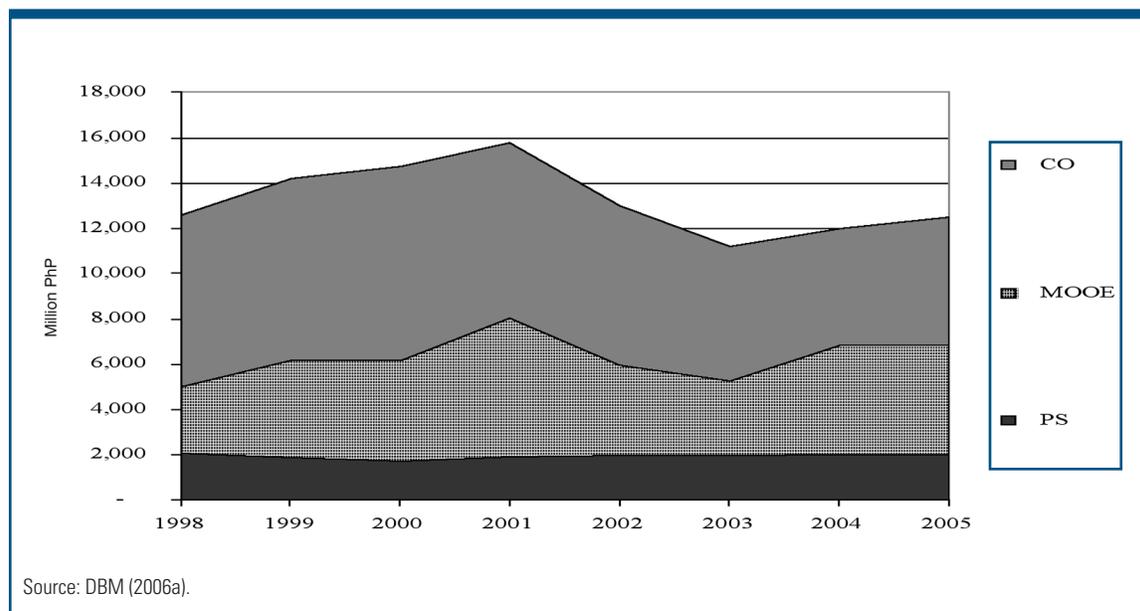
**Figure 5: Estimated distribution of obligations (AFMA) for DA by commodity, 2000-2005 (million pesos)**

<sup>27</sup> Refer to Table A7, Table A10, and Table A11.

45. In contrast, public expenditure for exportable agricultural products has been quite modest. There have been few resources provided to productivity-enhancing programs to address the problems of declining competitive advantage of major import-competing commodities, particularly corn and sugar. Technology generation, R&D and market infrastructure for sugar and corn have been clearly under-funded.

46. In terms of economic composition, the personnel spending has been under control, but spending on the operations and maintenance has grown at the expense of capital outlays. The wage bill remained under control, remaining at an average of 14.7 percent between 1998 and 2005 (Figure 6). In 2007, it is even expected to decline to 12.7 percent (Table 12).<sup>28</sup> However, the capital outlays were reduced from 60.5 percent in 1998 to 45.2 percent in 2005 due to the increased operations and maintenance expenses. There is no information available on developments in operations and maintenance and capital outlays across different major final outputs over time since DA only recently began to structure its budget across them (as in Table 12). If these larger operations and maintenance budgets were allocated to the rehabilitation of existing irrigation systems with the intention of its transfer for future operations and maintenance to irrigators associations, for example, this could be considered a positive development. If the increases in operations and maintenance were allocated to low value-creating activities (such as subsidies under the GMA programs) at the expense of capital outlays to roads and other market infrastructure, this could be considered a very undesirable shift.

**Figure 6: Economic composition of DA-OSEC expenditures, 1998-2005 (million pesos)**



<sup>28</sup> This applies only to DA-OSEC. The AgPER did not collect the data on economic composition of expenditures for each separate public agency and corporation. They are financed from different private and public funding sources beyond AFMA.

**Table 12: Economic and functional composition of DA-OSEC budget of 2007 ('000 pesos)**

	Personnel spending	Operations and maintenance	Capital outlays	Total	Share in total, %
Production Support Services	362,671	1,999,083	183,648	<b>2,545,402</b>	13.17
Market Development Services	105,996	1,230,941	6,715	<b>1,343,652</b>	6.95
Credit Facilitation Services	41,142	129,576	34,700	<b>205,418</b>	1.06
Irrigation Development Services	25,718	475,897	7,534,686	<b>8,036,301</b>	41.59
Post Harvest & Other					
Infrastructure Development					
Services	52,978	380,572	1,336,012	<b>1,769,562</b>	9.16
Extension Support, Education					
& Training Services	328,420	787,238	27,261	<b>1,142,919</b>	5.92
Research & Development					
Services	395,186	799,039	47,450	<b>1,241,675</b>	6.43
Regulatory Services	344,753	344,830	87,432	<b>777,015</b>	4.02
Information Support Services	280,423	207,829	126,718	<b>614,970</b>	3.18
Policy Formulation, Planning					
& Advocacy services	503,380	1,073,715	66,922	<b>1,644,017</b>	8.51
<b>Total</b>	<b>2,440,667</b>	<b>7,428,720</b>	<b>9,451,544</b>	<b>19,320,931</b>	
<b>Share in total, %</b>	<b>12.63</b>	<b>38.45</b>	<b>48.92</b>		

Source: 2007 Presidential Budget.

47. While core public expenditures were financed from the national budget, capital outlays were increasingly financed from Overseas Development Assistance. Its annual disbursements between 2000 and 2005 averaged P2 billion, peaking at P6 billion in 2002 (Table 13). The share of foreign assistance remained at stable 25 percent of DA's total budget, but it increasingly became the main source of project financing. In 2005, foreign-assisted projects accounted for 71 percent of DA's projects. Main foreign-assisted projects focused on irrigation implemented mainly with the assistance of the World Bank, Asian Development Bank, and Japan Bank for International Cooperation assistance. The government found it necessary to borrow from donors to finance vital projects since domestic resources were diverted for rice support programs.

**Table 13: Local and foreign finance in DA's budget (obligations), 2000-2005, (million pesos)**

	2000	2001	2002	2003	2004	2005
Total obligations						
(AFMA plus regular program)	15,260	14,877	16,319	14,156	12,547	11,005
Regular funds	9,411	9,491	8,878	8,767	7,267	7,088
Local-financed projects	2,961	1,871	1,468	2,055	1,715	1,121
Foreign-financed projects	2,888	3,515	5,973	3,333	2,565	2,796
Share of FAP in DA's budget, %	19	24	37	24	20	25
Share of FAP in DA's projects, %	49	65	80	62	60	71

Source: DA Budget Division (2006a).

## 5.1 Major Final Output 1: Production Support

48. Public expenditures in agriculture have been often directed to subsidies that turned out to be regressive, rather than on high-payoff investments in rural public goods and human

capital. There are no consistent records of the structure of MFO 1, partially because many such programs were dispersed among numerous bureaus and attached agencies of DA. However, the largest slice of MFO 1 (about 85 percent) was allocated to the GMA rice program, in particular for the Hybrid Seed Commercialization Program. In 2003-2005, the allocations for seed procurement and distribution as well as the distribution of other rice seeds and fertilizers/pesticides accounted for 54.2 percent of total MFO 1 and 70.3 percent of the GMA rice program (Table 14 and Table 15). Developed with new technology, hybrid rice promises better varieties and higher yields than traditional inbred seeds. Its subsidization has been a part of the strategy of increasing rice production to bring the country closer to self-sufficiency.

49. Despite the sizeable amount of money and public human resources spent, the Hybrid Seed Commercialization Program did not produce much net social benefit. The program was implemented by PhilRice, the state-owned agency tasked to monitor the performances of seed growers, distribute seeds and other inputs (Table 15), collect repayments for supplied seeds from farmers, and provide technical assistance to seed users.<sup>29</sup> The adoption of hybrid seeds by farmers has been slow, reaching peak coverage of 11 percent of total rice area in 2005 (Table 16). The size of the target area was bigger than the actual area planted with hybrids because of seed deterioration and geographic/time mismatch between demand and supply. While the rate of hybrid seed adoption increased from 5 percent in 2004 to 11 percent in 2005, the drop-out rate revealingly ranged from 50 to 99 percent (Table 17). Thus, in spite of the substantial support and incentives, the number of farmers planting hybrid seeds posted only a slight increase. There is little doubt that these seed-related subsidies have at least partially achieved their stated objective; hybrid seed use has been increased to some extent. However, the cost has been high in a number of respects as described below.

**Table 14: Estimated structure of MFO 1, 2001-2005 (million pesos)**

	2001	2002	2003	2004	2005
Hybrid rice seed program (HSCP)	322	424	289	551	785
Other rice (certified) seeds	190	168	211	114	118
Others, including fertilizers for HSCP <sup>a</sup>	14	118	442	355	210
<i>Subtotal HSCP</i>	<i>526</i>	<i>710</i>	<i>942</i>	<i>1,020</i>	<i>1,113</i>
GMA Rice	n/a	1,400	1,229	1,667	1,522
<b>Total MFO 1<sup>b</sup></b>	<b>1,333</b>	<b>1,415</b>	<b>1,948</b>	<b>1,928</b>	<b>1,811</b>

Note: <sup>a</sup> See Table 15 for detailed presentation of other incentives in the hybrid seed commercialization program. <sup>b</sup> Due to the lack of consistent records on actual obligations, the total MFO 1 budget is proxied by appropriations.

Source: Based on David (2006), DA (2006; 2007).

<sup>29</sup> The presentation of the hybrid seed program is based on David (2004; 2006) and Sebastian and others (2006).

**Table 15: Other incentives provided to farmers per bag of hybrid seeds, dry and wet season, 2004**

	Case 1 <sup>a</sup>	Case 2 <sup>c</sup>	Case 3	Case 4	Case 5	Case 6	Case 7
Inorganic fertilizers	P500 discount	P500 discount	1 bag (P700)	P500 discount	Buy1, take 2 (P700)	P500 discount	2 bags (P1400)
Organic fertilizers						2-4 bags (P600)	
Zinc sulphate	10-15 kg (P375)		3 kg (P125)	5 kg (P125)			
Soil conditioner			1-3 kg (P175)	1-3 kg (P175) <sup>c</sup>	1-3 kg (P175)	1-3 kg (P175) <sup>c</sup>	
Chemical BLB stopper		1 sachet (P80)	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)	1 sachet (P80)
Kocide	1 bottle (P300) <sup>b</sup>						

Note: <sup>a</sup> Applies to Region II for dry and wet seasons 2004. <sup>b</sup> Provided to those affected by bacterial leaf blight. Initial allocation to 20 percent of planted area to hybrid rice.

<sup>c</sup> Commonly found in Mindanao, Kalinga, etc.

Source: David (2006).

**Table 16: Area planted to hybrid rice as percentage of target area and total rice area, 2001-2005**

	Dry season	Wet season
	<b>Percentage of targeted area</b>	
2001	-	26
2002	54	67
2003	51	58
2004	84	72
2005	76	-
	<b>Percentage of targeted area</b>	
2001	-	0.2
2002	0.4	0.9
2003	1.6	2.3
2004	4.7	5.5
2005	10.9	-

Source: David (2006).

**Table 17: Distribution of sample municipalities by percent drop out rate (in percent)**

	Dry 2002	Wet 2002	Dry 2003	Wet 2003	Dry 2004
Number of municipalities	8	18	25	37	48
Drop out rate next season (%)					
91-100	13	33	40	8	10
81-90	-	22	16	14	19
71-80	38	22	24	24	19
61-70	12	6	8	24	21
51-60	12	11	8	11	17
50-below 25	6	4	19	14	
Average drop out rate (%)	68	80	80	67	69

Source: David (2006).

50. The hybrid rice seed commercialization program incurred substantial (sometimes unintended) costs. The following points discuss how significant scope remains for improving the efficient use of public resources by phasing out the production support and increasing expenditures for high priority public goods. Based on David (2004; 2006) and Sebastian and others (2006), the provision of subsidies for goods (which are essentially private in nature) has distorted technological choices, encouraged misallocation of resources, crowded out the private sector, and disproportionately benefited the already better-off farmers.

- a) **Distortion of technological choices.** The structure of incentives distorted the farmers' choice of hybrids and between hybrids and inbreds. The distortion led farmers to grow less socially profitable hybrids over the more socially profitable inbreds. Moreover, the hybrid seed subsidy hampered agricultural diversification by diverting some farmers from producing alternative agricultural products.
- b) **Resource misallocation.** The program resulted not only in the inefficient and over-use of under-priced seeds and other inputs but also in the misallocation of limited public resources, including the time of public servants. The program substantially diverted the time of DA staff managing the program at the national level; and LGU staff responsible for selling the seeds, providing training, monitoring the program progress and collecting debts from participating farmers.<sup>30</sup> LGU staff, for example, was given an additional PhP200 salary per month for selling hybrid seeds and distributing other inputs to farmers (as shown in Table 15). This incentive has diverted LGU staff away from more relevant local projects and the more pressing problems of agriculture and the rural areas.
- c) **Crowding out of the private sector.** The government's involvement in seed procurement, distribution and financing has created de facto monopolies by driving out the private sector, in spite of the latter's competitive advantage in serving farmers. Table 18 shows that the estimated cost of hybrid seed production and distribution was high for the government (PhP6,100 per 20 kilogram per bag), while the cost for the private sector was half as much. The cost of wastage alone (because of seed deterioration and mismatch between supply and demand at certain location and time) amounted to around PhP800 per bag for the public sector.
- d) **Increased inequity within the rice sector.** Since the program was designed to increase Philippine rice self-sufficiency, it naturally targeted farmers with the best knowledge, especially on certified seeds, and with the access to irrigation. Those farmers could quickly increase production and demonstrate the "success of the program". As a result, the program skewed the rural income distribution, making the already better-off rice farmers even wealthier compared to non-participating poorer rice farmers and farmers producing other crops.

---

<sup>30</sup> Participating farmers received seeds upfront, but the government typically subsidized 50 percent of the seed costs. The remaining 50 percent was to be paid by farmers and collected by LGU staff. David (2004) reports that the repayment rate during the dry season of 2003 was only 40-50 percent, which dropped to 5-8 percent during the wet season of 2004.

**Table 18: Estimated cost of hybrid seed production and distribution (PhP per 20 kg/bag)**

	Government	Private Sector
Procurement/field production cost	2,400	1,600 <sup>d</sup>
Direct distribution cost of PhilRice	300 <sup>a</sup>	
Distribution/promotion costs	1,500 <sup>b</sup>	1,800 <sup>e</sup>
Cost of inspection	100	
Costs of wages	800 <sup>c</sup>	
Subtotal	5,100	3,400
Other incentives (fertilizers/others)	1,000	
Total (exc. Research and development)	6,100	

Note: <sup>a</sup> Excludes salaries of personnel and other direct costs of PhilRice involvement. <sup>b</sup> Based on conservative assumption that 120 agricultural technicians are involved in hybrid seed distribution. <sup>c</sup> Assume 30 percent of hybrid seed procured end up not being planted because of germination and purity problems. <sup>d</sup> Based on estimates of cooperatives. <sup>e</sup> Based on estimates of Bayer Crop Science, which include cost of storage, freight, distribution, market development, and profits.

Source: David (2004).

51. The Hybrid Seed Commercialization Program could benefit from a redesign that focuses on research and development, technology promotion through effective devolved extension services and improvement of regulatory functions. Right now, the phasing out of subsidy may be opportune considering that the hybrid seed subsidy has been in place since 2001 and that the benefits of hybrid seeds have been introduced to farmers. At this stage, the program is likely to achieve better outcomes if support shifts from subsidies on seeds, fertilizers and agricultural chemicals to R&D and devolved extension services to improve crop and water management. A useful complement would be to concentrate on inbred seeds research since hybrids do not fit all production areas in the country. Location-specific research will bring scientists closer to clients and focus research on distinct problems and opportunities (Sebastian and others, 2006). Technology promotion through extension services would allow a higher rate of adoption for both hybrid and inbred seeds, because lack of knowledge is a major reason behind the farmers' failure to adopt recommended practices. Even though better-off farmers often achieve higher yields, additional production gains can still be derived from extending known technologies to the more marginal farmers. However, it should be taken into account that poor adoption rates also reflect farmers' tendency to avoid risks in many instances (natural disasters and poorly functioning irrigation systems), as well as lack of financing, unavailability of inputs, and increased labor requirements, particularly in more remote areas.

52. The private sector could play a larger role in producing and distributing high-quality seeds, both inbred and hybrid, at a low cost. But this would require improving government regulations, phasing out direct interventions in seeds distribution, ensuring a better bid for the property rights to private organizations, and increasing public investments in research and extension services.

53. The economic and social benefits would be greater if other production subsidies from MFO 1 are also phased out. The distribution of seedlings for high-value crops, for example, has similar drawbacks as the hybrid seed commercialization program. Its economic costs remain low only because of the small program budgets. A more effective way of promoting high-value crops would be through commodity-neutral policies, regulations and public investments in infrastructure as well as knowledge dissemination. Public expenditures for creation of wholesale markets, for example, could do much more to increase farm incomes than any production support, by encouraging market integration, reducing marketing costs between farmers and consumers and

disseminating information to small farmers. Small subsidies for farmers in remote areas can be justified, but they need to be time-bound and supported by a clear evidence of market failure.

54. The phasing out of subsidies is a politically difficult but necessary step and should be supported by improvements in the existing monitoring and evaluation (M&E) system. Currently, the MFO-wide performance indicators required in the context of the Organizational Performance Indicator Framework include mainly inputs and outputs (Annex D). However, there are no consistent impact assessments of public programs. It implies that the actual impact of subsidies (and other programs) on real income of beneficiaries, income disparity with non-beneficiaries and non-farmers or changes in farmers' behavior remain largely unknown. This information gap allows some interest groups to manipulate the public debates about public policy and expenditures. For example, some claim that production support encourages competitiveness, reduces the costs of wage goods, and provides the safety nets to poor farmers; and thus provides many benefits. None of these claims is supported by the facts. The lack of a formal system of expenditure evaluations, combined with a lack of access to public information on expenditures and their beneficiaries, dilutes the effectiveness of any formal accountability mechanisms. This might be improved in the context of Organizational Performance Indicator Framework and other initiatives.

## 5.2 Major Final Output 4: Irrigation Investments

55. Irrigation expenditures are substantial and biased toward rice. Irrigation investments alone accounted for 46 percent of DA-AFMA's total spending during the last decade (refer to Figure 4 in Chapter 3). There are about 30 on-going NIA projects financed from local and foreign funds for both rehabilitation and new irrigation systems (Table 19). The annual irrigation investment budget ranged from P3 billion to P4 billion between 2000 and 2005, with the aggregate value of NIA's recent projects amounting to P73.6 billion (Table 19).<sup>31</sup> Irrigation investments have concentrated largely in the main rice producing areas (i.e., Luzon and Soccsksargen in Mindanao), where the irrigable area accounts for 49 percent of total irrigable area in the country.<sup>32</sup>

**Table 19: Summary of the existing public irrigation investments as of December 2005**

Service area	New investments (ha)	Rehabilitation (ha)	Costs (million pesos)
Luzon	91,050	134,545	21,736
Visayas	13,054	13,202	8,046
Mindanao	34,647	4,536	7,928
Nationwide projects	258,430	841,415	35,897
<b>Total</b>			<b>73,606</b>

Source: National Irrigation Administration (2006).

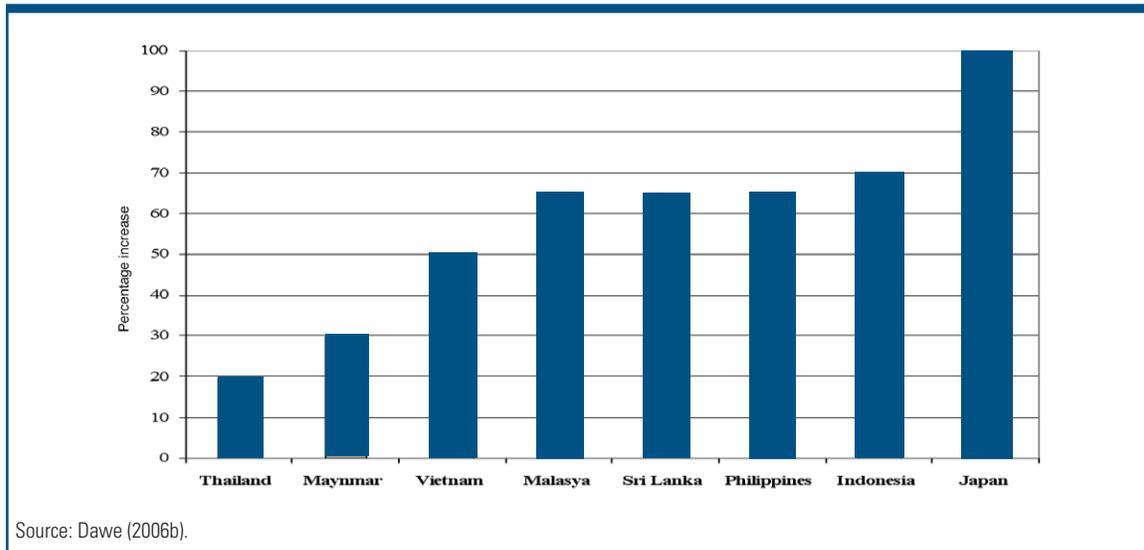
56. Irrigation investments are essential to agricultural production but not a panacea. Irrigated land has higher productivity and fewer risks of lower yields due to adverse weather conditions. In the Philippines, the average rice yield on irrigated land is 35 percent higher than on non-irrigated land (NBAS, 2006). Moreover, irrigation plays an enabling role in the adoption of improved seed varieties. For these reasons, all net rice importers have invested in irrigation systems so that they

<sup>31</sup> Refer also to Table A7.

<sup>32</sup> Refer to Table A26.

now irrigate a much higher percentage of their rice land than the net rice exporters (Figure 7). However, these increasingly costly efforts have failed to eliminate the need to import rice [not only in the Philippines], underscoring the difficulty in off-setting comparative disadvantages due to geography [of being island nations] and other natural endowments/conditions (Dawe, 2006b). Thus, the lack of irrigation investments per se is not the reason the Philippines imports rice. The country will likely continue importing rice, even with a substantial irrigation budget, especially given its quickly growing population and fixed productive and irrigable land areas. With better designed investments in irrigation, however, it will be possible to reduce the import bill and allow farmers to increase their productivity and incomes, as well as agricultural diversification.

**Figure 7: Percentage of rice area that is irrigated in the East and South Asia**



57. Despite its large share of public investments, the Philippines has inadequate and inefficient irrigation development. Of the estimated potentially irrigable areas of 4.7 million hectares, by 2003 only about 1.34 million hectares, or 29 percent, were actually irrigated (David, 2003). Most public investments went to the construction of gravity irrigation systems serving rice monocultures, with inadequate attention given to the sustainable use of water and cost recovery mechanisms. Most of the existing large gravity irrigation systems have historically and continuously been performing inefficiently and below expectations mainly because of (a) an inadequate database for planning; (b) inadequate institutional capacity and mechanisms for the development of large irrigation projects; (c) design mistakes; (d) poor quality of construction; and (e) the low cost-recovery of irrigation service fees (David, 2003).

58. Sustainability is the overriding issue in irrigation development in the Philippines. It is directly related to issues of cost-effectiveness, efficiency, and cost-recovery. The rehabilitation of irrigation systems needs to be accompanied with improvements in cost recovery because in recent years the collection of irrigation service fees has been reported at only 58 percent of total amount collectable (David, 2003). Small and farmer-controlled irrigation systems such as shallow-tube wells, small inundation schemes, farm reservoirs and low-lift pumps are likely to provide better alternatives to the currently common large-scale irrigation systems. These systems require much less investment costs, have very short gestation periods, yield higher

productivity, give farmers a greater degree of control over their irrigation water, and are more amenable to crop diversification (David, 2003; de los Reyes and Aquilar, 2006).

59. The development of farmer-controlled irrigation has been slow in spite of some support of NIA and other public agencies. This is due to the subsidies given in favor of national irrigation systems and the loose policy toward cost-recovery. Thus, private investments for small-scale irrigation systems have been crowded out. Currently, NIA fully subsidizes the construction of national irrigation systems and about half of their operations and maintenance costs. In the case of communal irrigation systems, farmers are required to finance the operations and maintenance as well as pay for 10 percent of the construction cost upfront and the balance, without interest, within 50 years (David, 2003). These subsidies increase the farmers' demands for national and communal irrigation systems relative to more cost-effective irrigation technologies and discourage private sector participation in irrigation development. Apparently, the existing policy framework does neither reward good water users nor penalize the bad ones.

60. Such an approach incurs high opportunity costs. Investments in gravity irrigation systems should range between PhP110 billion to PhP220 billion in the next five years (or almost twice as much as have been invested during the last decade) to reach full self-sufficiency in rice (NEDA, 2006). While there is no guarantee that these levels of investments would actually result in full rice self-sufficiency, it is estimated that the same amount would be sufficient to cover the costs of constructing up to 400,000 new classrooms, around 150,000 kilometers of all weather roads or 60,000 kilometers of paved rural roads; or alternatively the costs of rehabilitation of 200,000 kilometers of all weather and 75,000 kilometers of paved rural roads (Table 20).

**Table 20: Estimated opportunity costs to develop new irrigation systems**

Rate of rice self-sufficiency	Additional cost for irrigation development (billion pesos)	Equivalent of '000 km of new rural road		Equivalent of '000 km of rural rehabilitated road		Equivalent number of classrooms, '000	Equivalent number of teachers, '000
		All weather	Paved	All weather	Paved		
96%	95.9-191.8	96-192	33-80	120-240	48-96	192-384	758-1,515
146%	257.0-513.9	257-514	89-214	321-643	129-257	514-1,028	2,030-4,060
100%	110.2-220.5	110-221	38-92	138-277	55-111	221-441	871-1,742

Note: Additional costs are provided from minimum to maximum. Unit cost of classroom is assumed at P500,000. Annual salary requirement for teachers is P126,564. Unit cost of construction of 1 km of new rural road ranges from P1 million for all weather and P2.4 million for grave roads. Unit cost of 1 km of rural road's rehabilitation is P800,000 for all weather road and P2 million for grave road.

Source: NEDA (2006) and World Bank documentation.

61. It is recommended that public expenditures be focused on irrigation infrastructure such as (a) rehabilitation of existing gravity irrigation systems, (b) expansion of new irrigated areas by investments in small-scale irrigation systems and (c) accompanying institutional reforms. The strategic alternative to new irrigation investments (designed to *palay* production solely) is rehabilitation of the existing irrigation infrastructure along with its enhanced management for more efficient water use. This can potentially improve rice productivity in areas where there is a high comparative advantage for producing rice, encourage crop diversification to bolster and diversify farm incomes, and improve the sustainability of water use. Water scarcity and the degradation of water quality are already serious concerns in some parts of the country: if

unchecked, water supplies will be further reduced (Inocencio and Barker, 2006). The benefits would be larger if the expansion of irrigated areas is pursued through investments in farmer-controlled irrigation systems and complemented by reductions of subsidy that favor gravity irrigation systems. The rehabilitation of irrigation systems is a prerequisite for the transfer of national irrigation systems to irrigators' associations. These associations can operate and maintain the self-sustained system (i.e., after rehabilitation the system must be self-sustaining with full cost recovery from irrigation service fees). This would allow the National Irrigation Administration to reduce its operational expenses, downsize its staff, and focus its efforts on creating sustainable management mechanisms for national irrigation systems, as well as policies for irrigation development.<sup>33</sup> At the same time, improved irrigation system control would enable the proper management of the water regime required for crop diversification in the paddy fields. This would be a less costly and more sustainable strategy (World Bank, 2006b).

62. Serious attention should be also paid to the M&E system for irrigation as for any public program. Currently, the monitored indicators for irrigation development include only the number of households benefited and areas served by rehabilitation and expansion (Annex D). To strengthen the irrigation M&E system, these existing indicators could be complemented by others, including the areas transferred to water user associations, cost recovery, effects of rehabilitated irrigation on yields and crop diversification, etc. With such an indicator/outcome framework, an efficiency of public expenditures for irrigation development in the Philippines would be greatly increased.

### **5.3 Improved Allocative Efficiency of Public Expenditures: A Shift from Private Subsidies to Public Goods**

63. The strategy for sustainable investments in irrigation and the phasing out of most production support would free public resources for market-related MFOs. This would help create the enabling environment for agricultural growth and crop diversification. It would address the impediments in food supply chains, such as high logistic costs, poor market information dissemination, insufficient R&D, inadequate food safety and quality support.

64. While it is necessary to increase the financing of public goods, it is also important to continue improving the institutional procedures and governance of public expenditures. This is especially true for agricultural research and development, extension services, and the food safety and quality system. The 2006 World Bank economic and sector work, *Rural Growth and Development Revisited*, covers the wide range of rural development issues and together with the World Bank-assisted *Diversified Farm Income and Market Development Project* may serve as a valid source for detailed information and recommendations on how to improve market-related services (World Bank, 2006c). Following is a brief discussion of the key issues and recommendations derived from these World Bank and other reports.

---

<sup>33</sup> The details and rationale for NIA's rationalization is spelled out in the draft Project Appraisal Document of the World Bank's Participatory Irrigation Development Project (in preparation).

### 5.3.1 Agricultural research and development

65. The agricultural research and development budget should be increased since it has been severely under-funded with public expenditures for this purpose representing only 0.36 percent of the AgGVA and 5 percent of DA's total appropriations during 2000-2005 (Table 21 and Figure 4 from Chapter 5). For comparison, the average research intensity ratio for developing and developed countries was about 1 percent and 2.5 percent, respectively (David and Inocencio, 2000; Gapasin, 2006). The low funding in the Philippines is unfortunate since research needs long-term investments to ensure quality and credible outputs over many years. The opportunity cost of under-investing in public agricultural research and development is high as reviews of economic rate of return estimates worldwide report this to be in the order of 40-60 percent (David and Inocencio, 2000). It is therefore imperative to increase public resource allocation to agricultural R&D in the Philippines (refer to Table 7 in Chapter 3).

**Table 21: Public spending on agricultural R&D and research intensity ratio in the Philippines, 2000-2005 (million pesos, actual obligations)**

	2000	2001	2002	2003	2004	2005	Average
Department of Agriculture	945	563	412	509	532	543	582
Department of Science and Technology:							
Philippine Council for Aquatic and Marine Resources Research and Development (PCAMRD)	67	28	28	27	28	30	28
Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD)	169	132	136	115	133	130	128
Total	1,181	713	576	651	693	703	738
Research intensity ratio*	0.62	0.37	0.29	0.32	0.33	0.33	0.36

Note: \*Research intensity ratio is defined as spending on research and development divided by agricultural gross value-added.

Source: AFMA budget, DA budget division, and Department of Science and Technology.

66. However, it is equally important to address serious weaknesses in the institutional framework of the R&D system; otherwise, its increased financing will unlikely produce high rates of return. These weaknesses stem from the cumbersome organizational structure, fragmentation of research, limited capacity development, incentive problems, lack of accountability and weak extension linkage. The current highly complex and multi-level institutional structure consists of 161 public R&D institutions and 263 networks with duplicating functions and very limited operational budgets (Gapasin, 2006).<sup>34</sup> There are two key government departments that fund and implement agricultural R&D programs in the Philippines, namely the Department of Agriculture and the Department of Science and Technology.<sup>35</sup> Two other departments are

<sup>34</sup> Components of the research and development system are summarized in Table A14.

<sup>35</sup> The Department of Environment and Natural Resources and Commission on Higher Education are involved in agricultural and natural resource management, but they are excluded from the AgER due to their marginal role in agricultural research and development.

involved in agricultural extension: the Department of Interior and Local Government and the DAR. The Department of Science and Technology hosts two research councils that coordinate and manage agricultural R&D: the Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development (PCARRD) and Philippine Council for Aquatic and Marine Resources Research and Development (PCAMRD). An integration of these councils and related public institutions would streamline the R&D system, downsize the staff, and reduce operational costs. A strategy to unify PCARRD and PCAMRD is under discussion in the ongoing reorganization of the Department of Science and Technology (Gapasin, 2006). The proposed unification calls for integrating the councils, downsizing the staff, and maintaining only a small but highly qualified and skilled secretariat.

67. DA has the biggest and most complex system with 27 agencies at the national-level and 14 regional-level agencies. The Bureau of Agricultural Research coordinates and funds DA-R&D agencies consisting of 5 bureaus, 8 attached government corporations, 14 agricultural R&D centers under DA Regional Office, and 14 Regional Integrated Fisheries Centers under the Bureau of Fisheries and Aquatic Resources. It also provides funding, through a competitive grants program, to 30 national and 30 regional R&D networks. Since AFMA implementation, the Bureau of Agricultural Research has spent PhP170 million for networking and coordination, indicating its high transaction cost (Gapasin, 2006). This amount could have been used to defray the direct costs of research to benefit farmers, fishermen, and entrepreneurs.

68. The implementation of convergence initiatives for the eventual unification of the R&D system should be fast-tracked. As reported in Gapasin (2006), DA and the Department of Science and Technology have already agreed on six convergence areas: (a) unified R&D agenda; (b) unified R&D convergence networks at national and regional levels; (c) unified R&D project planning, monitoring and evaluation system; (d) unified technology delivery program; (e) unified institutional development for R&D; and (f) initiative on information and communication technologies.

69. In 2004, a memorandum of understanding was signed by the four key R&D agencies involved: Bureau of Agricultural Research, Agricultural Training Institute, PCARRD and PCAMRD. The memorandum of understanding should be amended to include other key players like the Department of Environment and Natural Resources for forestry and natural resources management and the Department of Interior and Local Governments and DAR for extension. This is a positive development and the implementation of convergence initiatives is expected to lead to an institutional integration of the various components of the R&D system thus achieving the unification target by 2010 set by the Medium-Term Philippine Development Plan. This is also expected to reduce the network coordination budgets. About 32 percent of the PCARRD and 28 percent of the PCAMRD budgets have been spent in recent years to coordinate their networks instead of being used for actual R&D (Gapasin, 2006).

### 5.3.2 Extension services

70. The link between the R&D system and extension services should be strengthened, and the extension service units themselves should be streamlined to transfer knowledge and

technologies to farmers in a timely and accurate manner. There are too many autonomous decentralized extension units in a highly dispersed and uncoordinated extension system without consistent DA support and without effective M&E (Sebastian and others, 2006). There are 1,891 publicly funded agencies and local government units that have recognized extension or advisory function and resources (Gapasin, 2006). The Philippine extension system is public. Some private agribusiness companies however provide more focused extension services in specific commodities and defined areas (e.g., hybrid seeds, fertilizers, chemicals, agricultural machinery).<sup>36</sup>

71. Two milestones have significant impact on agricultural extension in the Philippines. The first was the passage of the Local Government Code in 1991, which devolved the extension function of DA to provincial and municipal local government units. Up to now the devolution of extension is still incomplete since the various players still have different conceptual understanding of their functions in the overall development process. The second milestone was the passage of AFMA in 1997. The AFMA recognized the critical role of extension in agricultural development. AFMA provided for the establishment of a National Extension System for Agriculture and Fisheries with three sub-systems: the national government, the local government and the private sector. The system was meant to receive about 10 percent of the total AFMA budget for its programs and activities. The National Extension System for Agriculture and Fisheries was recognized as the apex extension and training agency within the DA. Unfortunately, the integration of extension through the National Extension System for Agriculture and Fisheries has not come about and the expected budget level has not materialized.

72. Unlike R&D activities that are coordinated at the national level, there is no formal structure for coordinating the disparate components of the agricultural and fishery extension system at all levels. The result is an imbalance, with an overly coordinated agricultural R&D system and an uncoordinated agricultural extension system. This imbalance may be one of the causes of the slow adoption of new technologies by farmers and fisherfolk, in spite of the reported large number of ‘mature’ technologies generated by the R&D system.

73. The DA is recommended to play a more strategic role in guiding and coordinating extension units and strengthening their links with R&D system. The Agricultural Training Institute’s overall training strategy and plan would need revision and require supplementary funding by the local government units (Gapasin, 2006). More importantly, the Agricultural Training Institute’s mandate could be reoriented from primarily training provision toward strategic planning, funding, and coordination of training, as well as dissemination of information. Linkages to R&D might be strengthened through the participation in the Convergence Initiatives by including the extension in the Unified Project Planning, Monitoring and Evaluation System and Unified Technology Delivery Program and Convergence Initiatives on Information Communication Technology. The World Bank-assisted Diversified Farm Income and Market Development Project began to work in this direction but more effort should be exerted by the DA to play a broader role in coordinating extension services.

---

<sup>36</sup>The institutions with extension functions that are located in six departments are presented in Table A15.

### 5.3.3 Food quality and safety

74. Resource allocation for improving food quality and safety regulations is insufficient to ensure their enforcement. Currently, DA's regulatory functions are implemented by 13 different agencies where implementation capacity and enforcement vary widely. Among the most important are the National Meat Inspection Commission, the Bureau of Plant Industry, the Bureau of Fisheries and Aquatic Resources, the Bureau of Animal Industry, and the Fertilizer and Pesticide Authority. The Agriculture and Fishery Modernization Act created the Bureau of Agriculture and Fisheries Product Standards to ensure better coordination and oversight of standard-related regulations.

75. While widely recognized as meeting a critical gap in the regulatory mechanism, the Bureau of Agriculture and Fisheries Product Standards has not been given sufficient funds to become operationally efficient. Other food safety and sanitary agencies have also remained largely underfinanced and sometimes punished by various regulations.<sup>37</sup> While the DA has been attempting to strengthen its food safety and quality functions, the implementation of the Diversified Farm Income and Market Development Project, supported by the World Bank, has shown key weaknesses (World Bank, 2004b). Food safety remains a low priority MFO, which is not consistent with the objective of supporting export promotion.

76. Improvements in market-related MFOs could therefore need to become DA's priority and the identified deficiencies would need to be effectively addressed. While increased financing would help improve the quality of these market-related public goods, serious improvements in their management would further increase its impact.

77. Reallocation of public expenditures from subsidies to provision of market-related services to all farmers, along with their better execution, is a necessary but not a sufficient condition to substantially spur pro-poor agricultural growth. Policy change is also necessary for three reasons. First, a dominant share of public resources in the Philippines has been subordinated to the policy of rice self-sufficiency; hence, any sizable gains from improved allocative efficiency can be expected mainly from phasing out and/or improving rice production-related expenditures for irrigation investments, production support and NFA's operations. Second, without abolishing the policy bias for rice significant strategic adjustments in public spending are unlikely. And third, an improved composition of public expenditures alone is unlikely to substantially foster diversified growth without reducing the economic distortions created by the rice self-sufficiency policy. This implies that agricultural policy is closely interlinked with public expenditures, and the success of any reform should take this interlinkage into account. The next chapter presents these interlinkages.

---

<sup>37</sup> A recent example is the issuance of Executive Order 554 suspending all fees on export commodities. It has negated efforts to have full-cost charge

## 6. RICE SELF-SUFFICIENCY IN THE PHILIPPINES: BENEFITS, COSTS, AND MOVING FORWARD

78. This chapter analyzes the overarching agricultural policy goal: achieving rice self-sufficiency in the Philippines. The chapter begins with a brief overview of the Philippine rice industry and then addresses four key questions:

- *How is the policy for rice self-sufficiency currently pursued?*
- *What are the welfare effects of rice self-sufficiency policy?*
- *Are there better policy instruments to increase net social welfare while supporting agricultural producers?*
- *What are the appropriate role of government and the associated policy and budget reforms to support the rice sector?*

### 6.1 Overview of the Philippine Rice Industry

79. Philippine rice farms account for 33 percent of all agricultural cropping land, of which close to 70 percent are irrigated. About 2 million rice farmers are divided between non-irrigated and irrigated lands, each producing small quantities of rice.<sup>38</sup> In 2005, the total production of *palay* was 14.6 million tons.<sup>39</sup> Collectively, rice farmers account for 34 percent of all agricultural households (Dawe, 2006c). Consequently, its contribution to AgGVA (17.1 percent) and to GDP (2.4 percent) is contrastingly low.

80. Philippine rice production is low in absolute and relative terms when compared internationally. In 2005, Philippines rice yields averaged 3.5 tons per hectare while Indonesia and Vietnam achieved higher yields of 4.5 tons per hectare and 4.8 tons per hectare, respectively. The Philippines also has the smallest area planted with rice compared to its rice producing neighbors (Table 22). The rice-producing area in Vietnam amounts to 62 percent of its agricultural land and 57 percent in Thailand. As a whole, land endowments per person in the Philippines are substantially lower than in those countries located in mainland Southeast Asia. In fact, Thailand has approximately four times the amount of arable land per person than the Philippines.

---

<sup>38</sup> According to NFA, this figure accounts for all rice farms, including those that grow corn; if farms only producing rice were counted the figure would be 1.3 million rice farms.

<sup>39</sup> Palay is the Filipino word for rice at harvest, before the husk is removed.

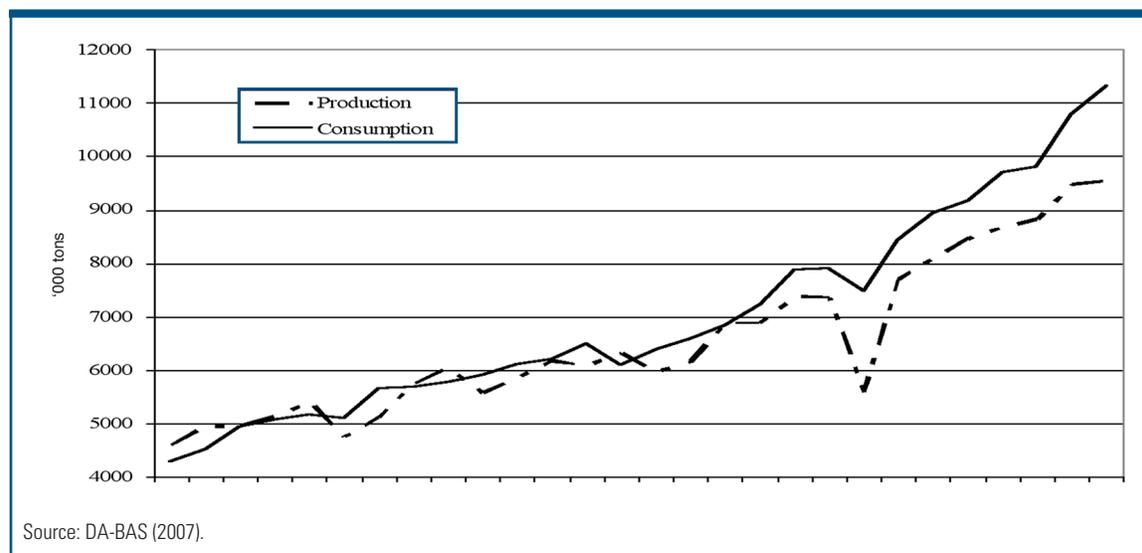
**Table 22: International comparison of rice production in 2005**

	Philippines	Indonesia	Thailand	Vietnam
Production (million tons)	14.6	54.1	23.9	35.9
Area (million hectares)	4.1	11.9	9.2	7.4
Yield (tons per hectare)	3.6	4.5	2.6	4.8

Source: FAOSTAT (2007).

81. Relatively low land endowments and scarce water resources give the Philippines a comparative disadvantage in rice production. Historical trade patterns show that this is true of most Asian island nations. Traditionally these countries (Indonesia, Japan, Malaysia and Sri Lanka) with less arable land per person and more varied landscapes that are better suited to corn, palm oil or coconuts have been net rice importers (Dawe, 2006b). Another disadvantage faced by the Philippines is its geographical location where numerous typhoons strike each year making rice production more difficult and risky. Countries located on mainland Southeast Asia (Thailand, Vietnam, Cambodia, and Myanmar) with relatively abundant land and water resources including river deltas and large land areas suited to rice growing have traditionally been net rice exporters (Dawe, 2004).

82. Rice consumption in the Philippines has been consistently greater than production. Rice self-sufficiency, where production at least equals consumption, is yet to be achieved for a sustained period of time in the country. Over the last five years, domestic production has met around 90 percent of the consumption requirement and the gap between consumption requirements and domestic production has been rising (Figure 8). Imports therefore increasingly make up the shortfall. The Philippines was the world's largest importer of rice in 2005 and 2006, and the number one customer of Vietnam's low quality rice exports. These imports greatly exceeded the minimum tariff-rate quota as an exemption in the World Trade Organization.<sup>40</sup>

**Figure 8: Rice production and consumption in the Philippines, 1978-2005**

Source: DA-BAS (2007).

<sup>40</sup>Tariff-rate quota is set at 280,000 tons or at about 3 percent of domestic consumption. This quota was to expire in 2004 but was eventually extended until 2012.

83. High rice consumption has been driven by the rapid population growth (averaging 2.3 percent per year since 1990) and the per capita consumption increase. Meanwhile, rice production grew at only 1.9 percent over this period. In contrast, rice production in Thailand has been growing at 3 percent per year with its annual population growth around 1.3 percent. Rice production in Vietnam has been growing annually at around 5.4 percent with a yearly population growth rate of 1.9 percent. The lower per capita rice consumption in the Philippines, compared to Indonesia and Vietnam, reflects its higher per capita income. However, unlike in other countries, the Philippine per capita rice consumption has been growing (Table 23).

**Table 23: Per capita rice consumption, 2000-2004 (grams per day)**

	2000	2001	2002	2003	2004
Indonesia	612	612	599	580	524
Thailand	467	450	431	438	323
Vietnam	704	697	691	702	665
Philippines	283	284	295	293	318

Source: UNDP (2005) for the Philippines and FAOSTAT (2007) for other countries.

84. The demand for rice in the Philippines has been driven by a large and probably growing share of the poor population relying on rice as a staple food. Rice is the staple food for 83 percent of the population, contributing as much as 65 percent of the calorie intake of the Filipinos (Intal and Garcia, 2005). Rice accounts for about 26 percent of food expenditures in poorest households and more than 16 percent of total household spending (NEDA, 2006). The importance of rice in household expenditures is also reflected in its contribution of nearly 10 percent of the Consumer Price Index (CPI) and more than 20 percent contribution to its food component.

85. The cultural significance has played a role, too. The cultural significance of rice is reflected in its heritage. Traditionally, a prestige food predominantly eaten by the elite, rice today forms the centerpiece of many festivals and as a main course of many meals. On a daily basis, the sacredness of rice is affirmed with children taught to eat every grain as a sign of respect to their religious beliefs. Others are told of hunger and famine that will arise from not finishing their food (Intal and Garcia, 2005). Many fast food chains tailor their menus around rice. McDonalds sells a McRice burger while other fast food outlets serve the more traditional rice-topping meals.

## 6.2 How is the Policy for Rice Self-Sufficiency Currently Pursued?

86. Historically, concerns over feeding a growing population have motivated policymakers to pursue food security (Timmer, 2004; David and others, 2007). The 2004-2010 Medium-Term Philippine Development Plan states that one of its priority goals is “to make food plentiful at affordable prices.” The Government of the Philippines has, however, equated food security with rice self-sufficiency. This has introduced conflicting policy goals involving increasing the incomes of rice farms while providing consumers access to affordable rice at the same time. Furthermore, there has been a desire to achieve a measure of stabilization in producer and consumer prices through government intervention in the trade and management of buffer stocks.

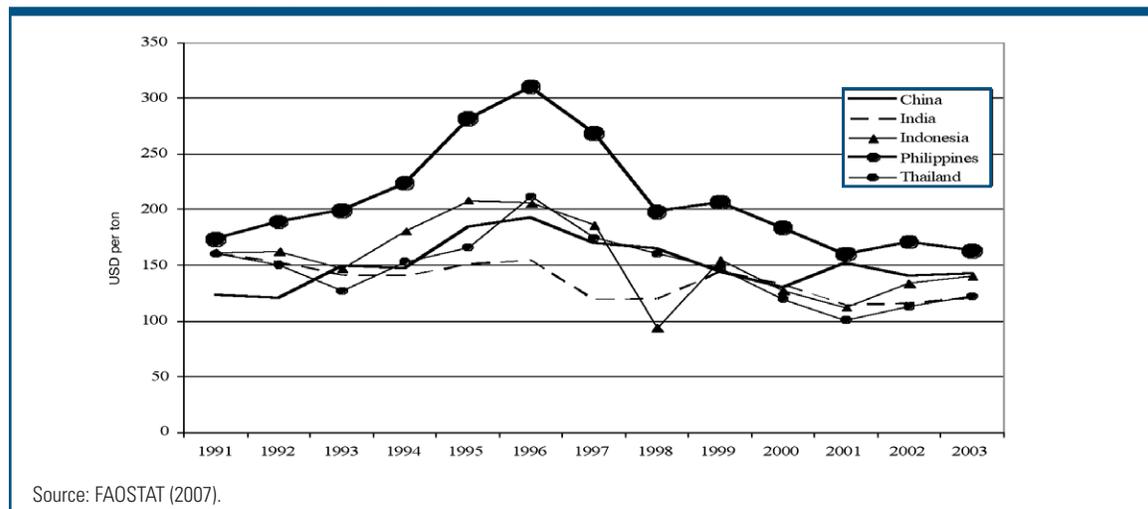
87. Varied policy instruments were used to achieve the intended policy outcomes. The policy instruments can be divided into those *encouraging production* and those *improving the accessibility of rice to the poor*. Production-side instruments include (a) market price support through import

protection; (b) public expenditures for production support, irrigation investments, R&D and other public services; and (c) rice procurement by NFA. Consumption-side instruments include imports of rice and rice distribution to the needy at below-market prices.

### 6.2.1 Policy instruments to increase rice production

88. Production has been supported by high farm-gate prices. Filipino farmers receive much higher prices for their *palay* than the farmers in neighboring countries (Figure 9). During 1998-2003, for example, the price of *palay* in the Philippines (US\$180 per ton) was about 45 percent higher than in India (US\$125 per ton), 42 percent higher than in Indonesia and Thailand (US\$127 per ton), and 24 percent higher than in China (US\$146 per ton). A joint study by the International Rice Research Institute and Philippine Rice, covering the period from 1994 to 1999, found that Filipino farmers were paid almost double what farmers in nearby countries received (Cabling and Dawe, 2006). Furthermore, Dawe and others (2006b) report that farm prices for rice increased during the past ten years much faster than for the competing corn crop.

**Figure 9: Trends in farm-gate prices of *palay*, 1991-2003 (US\$ per ton)**



89. Rice production has been stimulated by large injections of public expenditures as described in Chapter 5 and shown in Figure 5. During 2000-2005, the average public spending on various rice programs equaled P5.8 billion per year, or 59.5 percent of DA-AFMA's total budget. Recently, the bias toward rice has grown, and the share of AFMA budget spent on rice programs rose to 63.3 percent between 2003 and 2005.

90. In addition, NFA has procured *palay*. This *palay* procurement has been at prices equal to production costs plus a reasonable rate of return which is deemed to be at 30 percent.<sup>41</sup> In recent years, however, NFA's procurement did not exceed 1-2 percent of total *palay* production (dela Peña, 2006). As the only entity to arrange imports, NFA also regulates rice trading via the licensing of grains businesses and the setting of standards for grains milling, handling and packaging. NFA sometimes grants private traders the import licenses which they may exercise during the lean months of the year (June until the second week in September).

<sup>41</sup> In the past this NFA 'support' price was thought to be the trigger price used by private traders to set their own prices, however in recent times market prices paid by private traders have been above NFA prices.

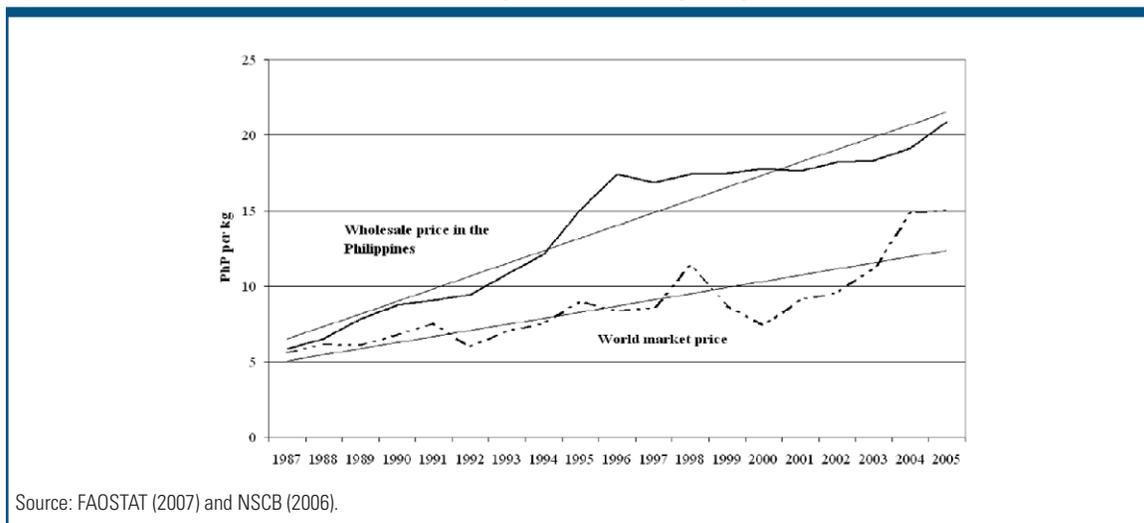
## 6.2.2 Policy instruments to improve access to rice

91. Consumption-side policy instruments include price stabilization through imports and stock releases, as well as rice releases to the poor and children at subsidized prices. NFA has stabilized prices through the stock control and release methods. It released rice onto the market through selected retail outlets at prices that are generally PhP1 per kilogram higher than NFA's release price but about PhP3-4 per kilogram lower than the prevailing market price. Given its low volumes of domestic procurement, NFA has used imports to expand its operations in the consumer market to about 12 percent. It has also maintained an export monopoly in order to be able to control stock levels in the domestic market.

92. While domestic rice prices were indeed more stable than world prices, they were established at high levels, neutralizing the positive effect of this stability. David and others (2007) report that during 1980-2004 the variation of domestic rice prices was 11 percent in contrast to 34 percent in the world market as seen in Figure 10. However, while stability is important, it should be used to contribute to development rather than stagnation. *In the Philippines, consumers have paid extremely high 'stable' prices, which nonetheless failed to help rice farmers to get development momentum* (refer also to Clarete, 2003). In addition, the Philippine economy has lost the 'foregone benefits from some price instability' as the people are prevented to "make adjustments, try new things, think seriously about the economic environment in which they live, invest in information and develop information provision services" (Gardner, 2005b).

93. In order to compensate for high rice prices, the government has implemented two major social welfare programs. These are the *Tindahan Natin* stores and the Food for School Program, both operated by NFA. *Tindahan Natin* stores are opened in areas with high concentrations of poor households. Families identified by the Department of Social Welfare and Development are able to purchase rice at subsidized prices. The Food for School program aims at mitigating the hunger of poor families and improving the attendance rate of poor children in schools, including rice provision and other foodstuff to poor families as incentive for their children attending school.

**Figure 10: Variations in domestic and world market prices, 1987-2005 (pesos per kilogram)**



94. These NFA-operated programs have had only little impact on the poor, however. NFA rice accounted for only 11.5 percent of the total rice spending of the poorest quintile of the population and only 9.8 percent for the second and the third quintiles as shown in Table 24. This coverage is patchy, and the beneficiaries are often not the intended recipients. While the share of NFA rice in food expenditures declines along with rising income, the non-poor have also consumed the subsidized rice. Moreover, there are reported leakages due to the re-sale of relabeled NFA rice, with traders substituting their own very low quality rice and selling it as NFA rice (Roumasset, 2000; Dawe, 2006c; dela Peña, 2006). This further reduced the effectiveness of NFA's programs to supply cheap rice to the needy.

**Table 24: Household expenditure on different types of rice, 2003**

	Rice in total expenditure	1st class rice	Ordinary rice	NFA rice	Other types of rice
I decile	16.4	0.9	13.6	1.9	0.06
II decile	17.3	1.1	14.3	1.8	0.06
III decile	16.3	1.2	13.6	1.5	0.07
IV decile	14.6	1.2	12.1	1.2	0.06
V decile	12.2	1.2	10.1	0.9	0.04
VI decile	10.3	1.1	8.5	0.6	0.04
VII decile	8.6	1.3	6.9	0.4	0.03
VIII decile	7.0	1.3	5.4	0.2	0.02
IX decile	5.4	1.5	3.8	0.1	0.02
X decile	3.1	1.4	1.7	0.03	0.01

Source: Family Income and Expenditure Survey (2003).

95. While the intention has been for the policy to improve both the welfare of rice producers and consumers - by maintaining stable prices and increasing farm incomes while making rice affordable to consumers - the policy instruments used did not have desired effect. The policy has led to substantial reduction in food security, especially for the poor. The policy of self-sufficiency assumes the stimulation of domestic production to satisfy domestic demand at any cost, both economic and budgetary. Because imports are limited and domestic production lags demand, rice prices have consistently increased and have been persistently higher in the Philippines than in nearby countries. As a result, high rice prices have reduced the household food security because it directly reduced the ability of households to buy food. Indirectly, household food security has been reduced because the chosen rice policy increased wage costs and, thus, reduced the Philippines' competitiveness, and hindered the creation of new jobs. Comparatively, the agriculture sector performed weakly in spite of the protectionist policies.

96. Although the serious drawbacks of the self-sufficiency policy in AFMA legislation are recognized, little progress has been made so far to shift to a policy of food security. AFMA emphasized the term 'food security' stating:

"Food security refers to the policy objective, plan and strategy of meeting the food requirements of the present and future generations of Filipinos in substantial quantity, ensuring availability and affordability of food to all, either through local production or importations, or both, based on the country's existing and potential resource endowment and related production advantages, and consistent with the overall national development objective, and policies".

Despite this, AFMA goes on to state: "However, sufficiency in rice and corn should be pursued". Thus, food security is interpreted as self-sufficiency in staple food production. Linking these two terms in the Act has resulted in them being used interchangeably by the government and the publicized pursuit of rice self-sufficiency.

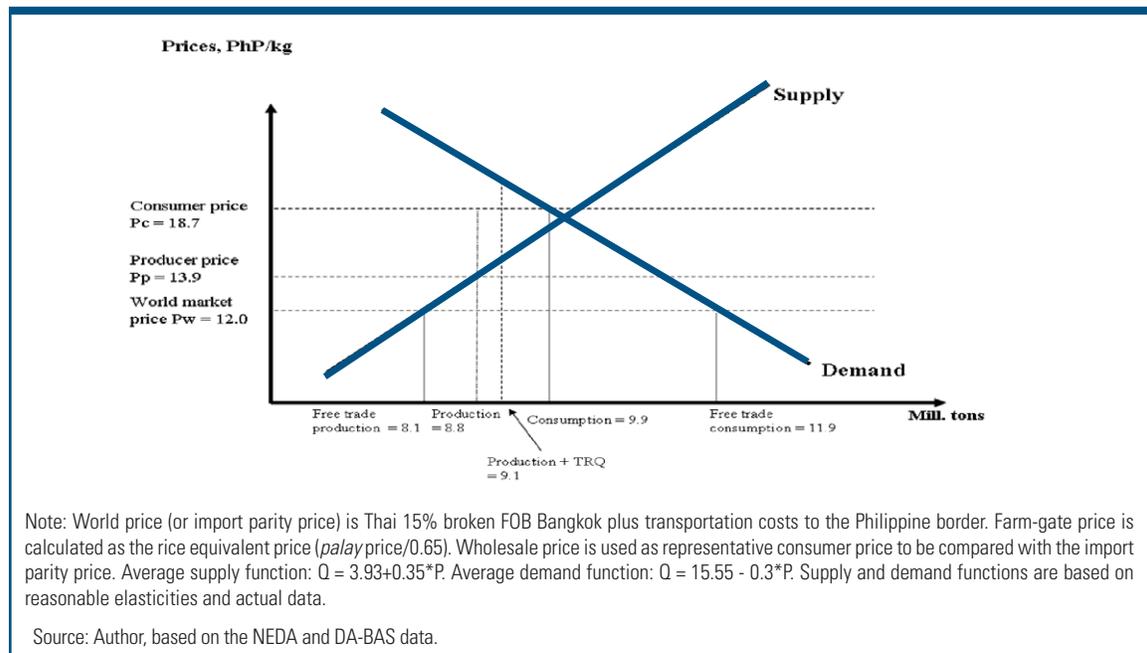
### 6.3 What are the Welfare Effects of the Rice Self-Sufficiency Policy?

97. To estimate the full costs of the self-sufficiency policy, a welfare analysis is undertaken for the period from 2000 to 2005. This analysis begins with estimating the welfare gains and losses to producers, consumers, and the national budget in a partial equilibrium framework. The economy-wide effects of the rice policy are discussed as well.

98. As a whole, higher than world market rice prices have induced higher production but lower rice consumption. Due to the import protection, the consumer price (18.7 pesos per kilogram) was 55.4 percent higher than the border market price.<sup>42</sup> The effective tariff rate varied from a low of 22 percent in 2004 and to a high of 78 percent in 2001. The farm-gate price exceeded the world market price, too. The average annual production equaled 8.8 million tons while annual consumption was about 9.9 million tons. Average annual importation therefore equaled 1.1 million tons, which is higher than the tariff-rate quota at 0.28 million tons. A snapshot of the situation on rice market during 2000-2005 is presented in Figure 11.

99. As a whole, the rice self-sufficiency policy has produced little benefit. As expected, **the producers, as a group, have gained from this policy.** This is because higher *palay* prices have provided a strong incentive to produce more than what would have been the case at the border parity price. The annual gain in welfare surplus was about PhP17.4 billion as proxied by the green-colored area PwABPp (Figure 12). In recent years, however, the price support to rice producers has significantly decreased as the growth in border prices has not resulted in the same growth in wholesale prices (refer to Figure 10). As a result, the benefits to farmers declined from PhP31.1 billion in 2000 to only PhP1.7 billion in 2005 (Table 25).

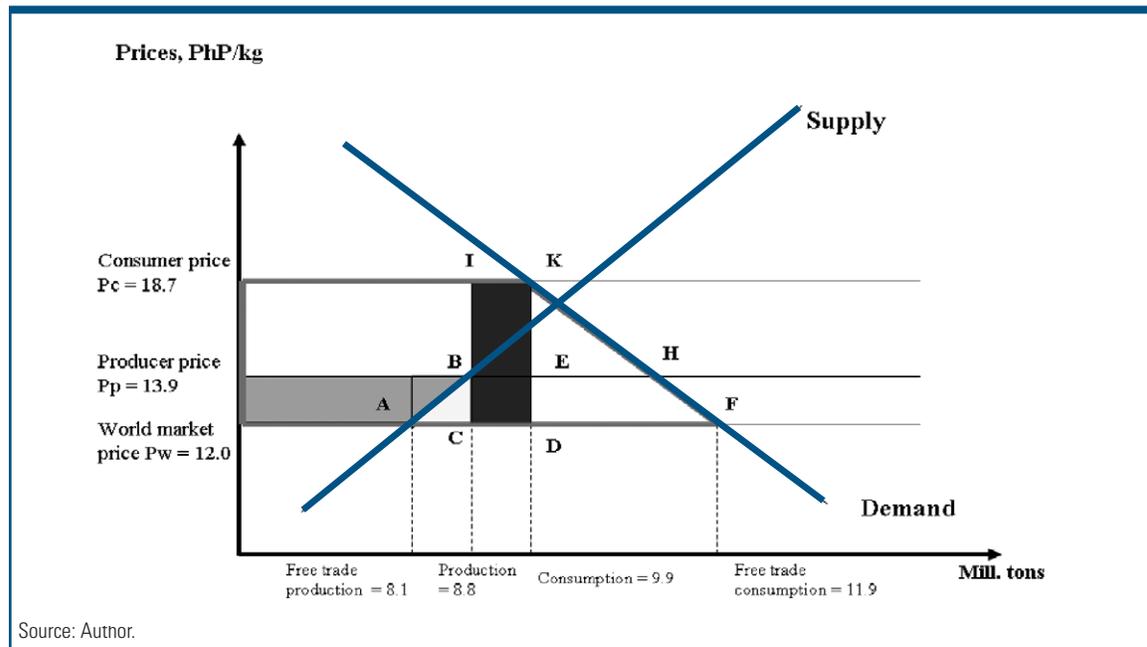
**Figure 11: The snapshot of the average situation in the rice market, 2000-2005**



<sup>42</sup> Border market price (CIF) is defined as the FOB Thai price (15 percent broken) plus transport costs from Bangkok to Manila.

100. **Another potential benefit could have been a taxpayer gain.** In principle, the budget obtains the additional income from NFA as it pays import duty. Rice import is subject to a 50 percent tariff rate, and actual imports were higher than the tariff-rate quota. The gross annual welfare gains for the budget would have equaled PhP6.4 billion as proxied by the blue-colored area CDIK (Figure 12).<sup>43</sup> However, NFA's payment of import duties was reimbursed by the tax subsidy. In other words, the increased budget revenue was negated by a roughly equal increase in expenditures, implying a zero balance. The current arrangement brings no benefit to the budget and also foregoes the duties that could have been collected potentially from the private sector, had they been allowed to freely import rice.

**Figure 12: Schematic presentation of welfare effects of rice import protection on consumer, producers, and budget in the Philippines, average 2000-2005**



101. Welfare losses have significantly outweighed the welfare gains. These losses can be grouped into three categories:

- **Loss due to decreased producer efficiency (deadweight loss due to artificial incentives of protection).** Loss in producer efficiency has been caused by the artificial attraction of production factors to the rice sector at the expense of other crops. More rice has been produced not due to improved productivity, but due to artificial incentives driving up the profitability of rice production. This loss in efficiency reduced the net producer gains derived from higher prices and expanded output. This annual efficiency loss is estimated to be PhP0.8 billion during 2000-2005 (yellow-colored triangle ABC in Figure 12).
- **Consumer loss due to excessive expenditures for rice.** Since the consumer rice price was 55 percent higher than the border parity price, Filipinos have spent an excessively

<sup>43</sup> Budget gain from import duty is estimated as a difference between consumption and production at world market prices multiplied by 50 percent of import tariff.

high percentage of their expenditures on rice.<sup>44</sup> This annual loss is estimated at PhP65.6 billion (area  $P_wDKP_c$  in Figure 12).

- **Consumer loss due to less consumption (deadweight loss due to foregone benefits of free trade).** Import protection and high prices have decreased the rice consumption levels of Filipinos compared to what would have been consumed at world market prices. This annual loss is estimated at PhP6.6 billion (area DFK in Figure 12).

102. The net welfare costs resulting from the rice self-sufficiency policy have been significant. Table 25 presents the changes in consumer, producer and budget surpluses on an annual average basis. **The average annual net welfare loss equaled PhP56 billion or 1.23 percent of total GDP.** The estimated net welfare loss reached a high total of P342 billion during the observed period.

**Table 25: Welfare effects of the rice policy in the Philippines, 2000-2005 (billion pesos)**

	2000	2001	2002	2003	2004	2005	Average 2000-2005
Changes in producer surplus	31.1	20.0	23.9	12.7	0.2	1.7	16.8
Changes in consumer surplus	-100.1	-79.7	-84.7	-66.9	-38.9	-61.1	-72.8
Changes in budget surplus:							
Collected and paid duties	0	0	0	0	3.9	12.0	2.7
Reimbursement via tax subsidy	0	0	0	0	3.9	12.0	2.7
Net changes	-69.0	-59.7	-60.8	-54.9	-38.7	-59.4	-56.0

Source: Author.

103. Although the structure of welfare effects varied substantially, the total net welfare loss consistently remained at a high level. During 2000-2003, the price band between domestic and border price was the highest in the observed 2000-2005 period. As a result, the cost of the rice policy was shouldered by consumers. As the price band narrowed in 2004-2005, the losses of consumers notably decreased compared to 2000-2003 while the support to farmers through import protection almost disappeared. At the same time, the budget revenues and the tax subsidy grew, keeping the average annual loss for society at high levels.

104. Looking to the future, if NFA continues preventing the wholesale price from following an increase in border prices, fiscal costs would grow and farmers would be taxed by lower farm-gate prices. If the government decides to reduce NFA's fiscal costs without lowering the import tariff, domestic price would increase (assuming a continuation of the increase in border prices): farmers would benefit but the burden of financing the rice self-sufficiency policy would shift to consumers again as was the case in 2000-2003.

### 6.3.1 Effects on consumers (net buyers)<sup>45</sup>

105. *What are the equity effects of the current rice policy?* Table 25 shows that collectively the

<sup>44</sup> See also David and others (2007) for discussion on the gap between domestic and world market rice prices during different time periods.

<sup>45</sup> The AgPER considers the *final demand effects*, i.e. responsiveness in real income to changes in rice prices, and *non-agricultural productivity effect* induced by changes in rice prices (lower food price implies higher non-agricultural productivity). Due to lack of information, the AgPER does not consider the *secondary effects* of reduction in rice prices on wages in rice and non-rice farming sectors.

producers gain and the consumers lose from the current policy. This outcome can be socially justified only if rural producers were poorer than consumers and if the poorest producers benefited more than better-off producers. Then there will be income redistribution from the richer consumers to the poorer farming households. The reality is however different. Rice is a very important commodity in the life of the poor consumers. For the poorest 30 percent of families, rice constitutes 17 percent of their total consumption and 27 percent of their total food expenditures (Table 26). Using this data, it could be assumed that if the rice price in the Philippines equaled world market price, consumers could have reduced their rice bills by about 55 percent (the average wedge between domestic and world prices). Furthermore, while the richest consumers could have saved about 5 percent of their total food expenditures, the poorest could have saved twice as much - about 10 percent. Each family (with five members) could have saved about PhP3,392 every year, and the poor consumers would have benefited the most (Table 27).

**Table 26: Household rice expenditures (as percentage of total expenditures)**

	Food in total HH expenditure	Rice in total HH expenditure	Rice in total food expenditure	NFA rice in total rice expenditure
I decile	62.4	16.4	26.3	11.7
II decile	60.8	17.3	28.4	10.8
III decile	58.7	16.3	27.8	9.2
IV decile	56.7	14.6	25.8	8.3
V decile	53.9	12.2	22.7	7.5
VI decile	51.5	10.3	20.0	6.1
VII decile	48.4	8.6	17.7	4.5
VIII decile	44.5	7.0	15.6	2.9
IX decile	40.0	5.4	13.6	2.1
X decile	30.0	3.1	10.3	0.9

Source: Family Income and Expenditure Survey (2003).

**Table 27: Income loss due to high rice prices across deciles, 2003**

	HH rice consumption, kg per year	HH income loss due to high rice prices, Pesos per year	Total spending on food, Pesos per year	Share of lost food expenditures due to high rice prices, %
I decile	259.2	1,737	18,020	9.6
II decile	414.1	2,775	26,700	10.4
III decile	492.7	3,301	32,575	10.1
IV decile	528.5	3,541	37,780	9.4
V decile	535.4	3,587	43,581	8.2
VI decile	549.7	3,683	50,948	7.2
VII decile	556.1	3,726	58,454	6.4
VIII decile	563.5	3,776	67,624	5.6
IX decile	582.1	3,900	81,643	4.8
X decile	611.9	4,100	115,564	3.5

Note: Household rice consumption includes ordinary, first class and NFA's rice. Share of the first class rice increases with increased income. For the first decile it equals 5 percent and for 10th decile it equals 44 percent of total rice consumption.

Source: Family Income and Expenditure Survey (2003).

106. *Who are the poor net buyers in the Philippines?* There are at least four major groups of net buyers. The first is the urban poor, who approximately make up 24 percent of the urban population in the Philippines and about 30 percent of the poor in the whole country (NSCB, 2002). The second is the *rural landless*, constituting around 13 percent of rural households. Dawe (2006c)

reports that the per capita income for landless laborer families is 30 percent below that of the rice farming families. The third is the *non-rice farmers*. Some of these farmers grow only a small amount of rice, but most do not grow rice at all. Collectively, they account for about 53 percent of all agricultural households, while rice farmers account for just 34 percent. The fourth group is the *small rice producers* who produce less rice than what their households consume. To feed the average household family of five in the Philippines, about one-sixth of a hectare of double-cropped land is needed (assuming national average yields of 3.3 tons per hectare). It is estimated that, in any given year, about 7 percent of Philippine rice farmers are net rice consumers (Dawe, 2006c, p. 45). As a result, 73 percent of rural and all urban households - many of whom are much poorer than many net rice producing households - have been hurt the most by high rice prices.

### 6.3.2 Effects on producers

107. *Who among the producers benefit from high rice prices?* The beneficiaries of high rice prices include landowners; tenants and leasehold rice farmers; and, to some extent, landless laborers who work on rice fields. Some of these farmers are indeed poor, but many rice farmers tend to be wealthier than most non-rice farmers (Casiwan and others, 2006). Rice farmers in the Philippines are not a homogenous group. The analysis in Table 28 compares two groups of rice farmers: the poorest 20 percent (the bottom quintile) and the wealthiest 20 percent (the top quintile).<sup>46</sup> The annual per capita income of the wealthiest rice farmers is much greater than that of the poorest, largely because the former households tend to have a larger landholding of higher quality (i.e., irrigated as opposed to rain fed). The cropping patterns on the richest rice farms are more specialized in rice than the cropping patterns of poor households. The richest farms obtain just 11 percent of their agricultural income from non-rice while the poorer households were forced to diversify their cropping patterns. Moreover, the richest rice farm households hire, on average, 90 percent of the labor used on their rice farms making their operation more business-like rather than family farms. Nearly half (44 percent) of the rice marketed in the Philippines comes from the top quintile of rice farm households. A further 23 percent comes from the second quintile. “Since high rice prices benefit rice farmers only when they have a surplus to sell, this means that the wealthiest 40 percent of rice farm households receive two-thirds of the benefits of this policy, with relatively little accruing to poor rice farm households” (Dawe, 2006c, p. 50). Since rice-producing households account for about 34 percent of all agricultural households in the Philippines, only 12 percent of all agricultural households reap the major benefits of high *palay* prices.

**Table 28: A comparison of different types of rice farmers in the Philippines, top and bottom quintile, 1996-1997**

	Top quintile	Bottom quintile
Monthly household income, family of six, pesos	31,719	2,078
Planted rice area per year, hectares	4.2, irrigated	1.3, rain fed
Monthly non-farm household income, family of six, pesos	9,991	307
Percent of agricultural income from non-rice	11	25
Percent of labor that is hired	90	51
Percent of national marketed surplus	44	6

Source: Dawe (2006c) using raw data from PhilRice survey of rice-based households. Data in income is adjusted for inflation to 2004 prices.

<sup>46</sup>This analysis is based on Dawe (2006c).

### 6.3.3 Effects on taxpayers

108. Among producers, the poorest farm households are not among the main beneficiaries of the rice self-sufficiency policy: but what about the taxpayers? The two types of costs for taxpayers are the financial costs of NFA's operations and DA's public expenditures for the rice sector:

- **NFA's fiscal costs.** NFA's costs to taxpayers include not only the budget subsidy for stabilization (which was small reflecting the low volumes of *palay* purchase from local farmers) but also the tax subsidy to reimburse the import duties paid by NFA and its contingent liabilities.<sup>47</sup> During 2000-2006, NFA's fiscal costs grew from PhP6 billion to PhP18.6 billion (Table 29). During 2005-2006, these costs accounted for about 0.4 percent of GDP. As expected, the tax subsidy and NFA's deficit were higher in the years of large imports (and high world market prices) as shown in Figure 13.

**Table 29: Fiscal costs of NFA's operations, 2000-2006 (million pesos)<sup>48</sup>**

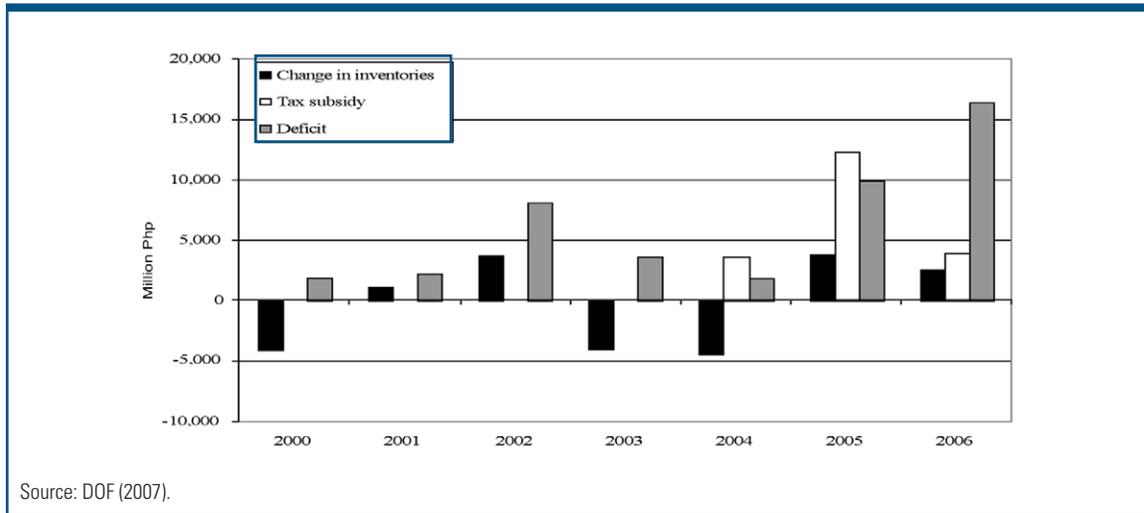
	2000	2001	2002	2003	2004	2005	2006
Subsidy for stabilization	0	1,051	920	922	650	1,150	900
Tax subsidy	0	0	0	0	3,931	12,021	3,911
NFA's deficit	1,897	2,274	8,086	3,689	1,836	9,978	16,430
<i>Change in inventories*</i>	<i>-4,068</i>	<i>1,118</i>	<i>3,739</i>	<i>-4,003</i>	<i>-4,500</i>	<i>3,847</i>	<i>2,632</i>
Total fiscal costs	5,965	2,206	5,267	8,614	10,917	19,302	18,609

Note: \* Total costs are adjusted for changes in inventory. Its increase implies lower costs as they are covered by assets (rice stocks). It does not account for increased storage costs, however, which imply higher costs in the future. Due to the lack of data, these costs are omitted. Note that total financial losses are likely to be even higher since those showed in the table exclude storage, deterioration and interest costs for keeping public stocks.

Source: NFA (2006), DBM (2006a) and DOF (2007).

- **Public expenditures (AFMA budget) on the rice sector.** Between 2000 and 2005, the average public spending on various rice programs equaled to PhP5.8 billion per year, or 60 percent of DA-AFMA's total budget (refer to Table A7 and Figure 5 in Chapter 5). This mainly included production subsidies and irrigation investments with only a marginal percentage spent on growth-enhancing expenditures. Together with NFA's costs, the average annual budget spending on rice policy equaled 0.22 percent of GDP between 2000 and 2005 while growing to 0.32 percent of GDP in 2005.

<sup>47</sup> In the past, the stabilization subsidy was much larger accounting for 11 percent of DA's total spending during 1989-1998 (David and Inocencio, 2000).

**Figure 13: Relationship between changes in inventories, tax subsidy and NFA's deficit, 2000-2006 (million pesos)**

109. When the costs of the policy are added up, the net *palay* contribution to GDP is reduced from 2.4 percent to only 0.8 percent. During 2000-2005, the total welfare costs of the rice self-sufficiency policy amounted to PhP68 billion and 1.6 percent of GDP per year (Table 30). As a result, the net social value of rice production has been very small in the recent years and *palay* production has been an extremely expensive activity for the Philippines. Highest costs were born by consumers, accounting for 85.6 percent of total welfare losses, but the share of taxpayers' loss in total welfare loss increased in recent years.

**Table 30: Total welfare costs of rice policy, 2000-2005 (billion pesos)**

	2000	2001	2002	2003	2004	2005	Average
Change in producer welfare	31.1	20.0	23.9	12.7	0.2	1.7	16.8
Change in consumer welfare	-100.1	-79.7	-84.7	-66.9	-38.9	-61.1	-72.8
Change in budget surplus:	-12.3	-7.4	-12.1	-15.1	-12.1	-11.38	-12.0
Revenue from import tariffs	0	0	0	0	3.9	12.0	2.7
NFA's stabilization subsidy	0	-1.1	-0.9	-0.9	-0.7	-1.2	-0.8
NFA's tax subsidy	0	0	0	0	-3.9	-12.0	-2.7
NFA's deficit	-1.9	-2.3	-8.1	-3.7	-1.8	-10.0	-5.3
NFA's total costs*	-6.0	-2.2	-5.3	-8.6	-10.9	-19.3	-8.7
Budget spending (AFMA)**	6.3	6.1	6.8	6.5	5.1	4.1	6.1
<b>Total net welfare change</b>	<b>-81.3</b>	<b>-68.0</b>	<b>-72.9</b>	<b>-69.3</b>	<b>-50.8</b>	<b>-70.7</b>	<b>-68.2</b>
<b>Total costs as % of GDP</b>	<b>2.42</b>	<b>1.87</b>	<b>1.84</b>	<b>1.61</b>	<b>1.05</b>	<b>1.31</b>	<b>1.60</b>
<b>Palay contribution as % of GDP</b>	<b>2.59</b>	<b>2.40</b>	<b>2.43</b>	<b>2.26</b>	<b>2.34</b>	<b>2.37</b>	<b>2.40</b>

Note: \* Total costs of NFA are adjusted for change in inventories. Refer to Table 29; \*\* From Figure 5 in Chapter 5.

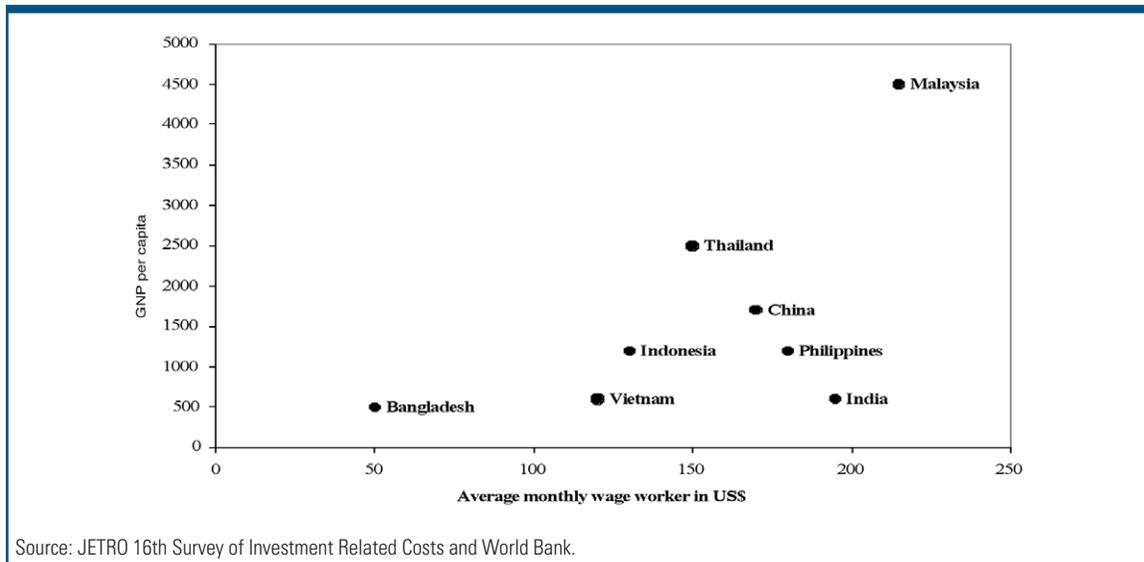
Source: Author, based on DOF (2007), DA (2006a) and NSCB (2006).

### 6.3.4 Economy-wide effects

110. The current high cost of the rice policy has produced negative economy-wide effects. The thrust for rice self-sufficiency has actually exacerbated the problems for the rest of the economy, and hampered crop diversification within agriculture. Since rice alone accounts for 20 percent of the CPI food component, high rice prices have raised the cost of living in the Philippines (Roumasset, 2000; NEDA, 2006). The effect is much larger if other highly-

protected products such as corn, poultry and sugar are considered. This is because the food expenditures still account for 60 percent of total household expenditures and the import protection of these wage goods remains very high (refer to Table 5 in Chapter 2). This exerted an upward pressure on wages (the so-called *wage-good effect*). A closer look at wages across low- and middle-income Asian countries suggests that the wage rates in the Philippines tend to be high in relation to per capita income, particularly for basic workers (Figure 14). These artificially high wages provide no real benefit to workers, however, because they serve only to compensate for high rice prices. At the same time, they discourage entrepreneurs, both domestic and foreign, from hiring more labor.

**Figure 14: Labor wages and gross national income per capita across Asia**



111. The Philippines has one of the highest unemployment rates in the region: lower prices could help alleviate this problem. Brooks (2002) found the minimum wage to be significantly and negatively correlated with employment in the Philippines, especially in the agriculture and service sectors. A 10 percent rise in real wage is correlated with a 4.3 decline in employment in agriculture and a 2.8 percent decline in employment in services. Minimum wage, in turn, is found to be significantly influenced by inflation when a 10 percent CPI increase is correlated with a 12 percent increase in the minimum wage. Thus, it is rather counterproductive to set policies that create high prices for the main commodity consumed by laborers in a world where growth in the non-farm economy holds the key to poverty alleviation and where the nearby countries enjoy the competitive advantage of lower rice prices translating in higher growth and lower poverty. Indeed, the pace at which the Philippines is able to bring down its food prices, and thereby enhancing labor competitiveness, will have a crucial bearing on its capacity to expand into any internationally competitive, labor-intensive activity in any sector and to seize the opportunities that world trade expansion offers beyond the confines of electronics (World Bank, 2000).

112. A slow, non-farm job creation, at least partially hampered by high rice prices, has disproportionately hurt the land-poor households. A household survey was conducted in 1985 and 2004 with data collected from 447 households, randomly selected from Central Luzon and Panay Island. The data reveals that the growth of income of land-poor households in

the Philippines has been determined by the development of non-farm sectors rather than the development of the rice sector (Estudillo and others, 2006b; Otsuka and Yamano, 2006). Jobs for hired labor in agriculture are typically low skilled and seasonal, and are increasingly substituted by machines. If the Philippine agriculture remains protected at such high levels as it is right now, land-poor households will remain income-poor households.

113. In the Philippines, there is a large non-tradable service sector that is demand-constrained. Production and job creation in this sector are not dependent on better access to capital or to management skills but on greater purchasing power among local consumers. Increasing the profitability of agriculture - through higher productivity, not artificially inducing higher prices - is the effective answer for gaining jobs. A rapidly growing rural non-tradable sector absorbs labor from agriculture and causes the wages of unskilled labor to rise.<sup>49</sup> This is the key to rapid reduction in poverty.

114. Rice policy also affects the progress of crop diversification in the country. High and stable rice prices provide incentives to continue growing rice and disincentives to growing high-value commodities that unfettered market prices would otherwise signal as more remunerative farming practices (refer to Chapter 2).

## 6.4 Are There Better Policy Instruments to Increase Net Social Welfare While Supporting Agricultural Producers?

115. The Medium-Term Philippine Development Plan's goal to "make food plentiful at affordable prices" is best served by increasing the stable supply of food, especially rice, in the domestic market so that prices are substantially lowered toward greater affordability to consumers. The Philippine rice farming sector, however, has proven to be unable to meet local demand, even at high rice prices. It should be noted that this unmet demand is even a suppressed effective demand for rice brought about by these high prices. Thus, the goal to lower rice prices and increase consumption, on the one hand, and the recognition of the fact that domestic producers are not expected to increase production sufficiently to fill this supply-demand gap, on the other, leads to the necessity of ensuring that rice imports fill the gap in a stable, timely and sufficient manner. This implies a shift from the policy supporting self-sufficiency to a policy supporting food security at the household level, which involves several trade reforms.

116. Without these trade reforms, economic costs would increase, possibly surpassing *palay's* contribution to the national economy. A growing population will continue to drive up the demand for rice. In addition, more public expenditures would be required to finance the NFA and to compensate for inefficiencies induced by this policy. Job creation would not accelerate and crop diversification would continue to be hampered by the bias for rice. Import quota tariffication could provide an opportunity for the government. Rice tariffication under the World Trade Organization is an inevitable requirement due by 2012. Developing a transition strategy will prepare the sector for

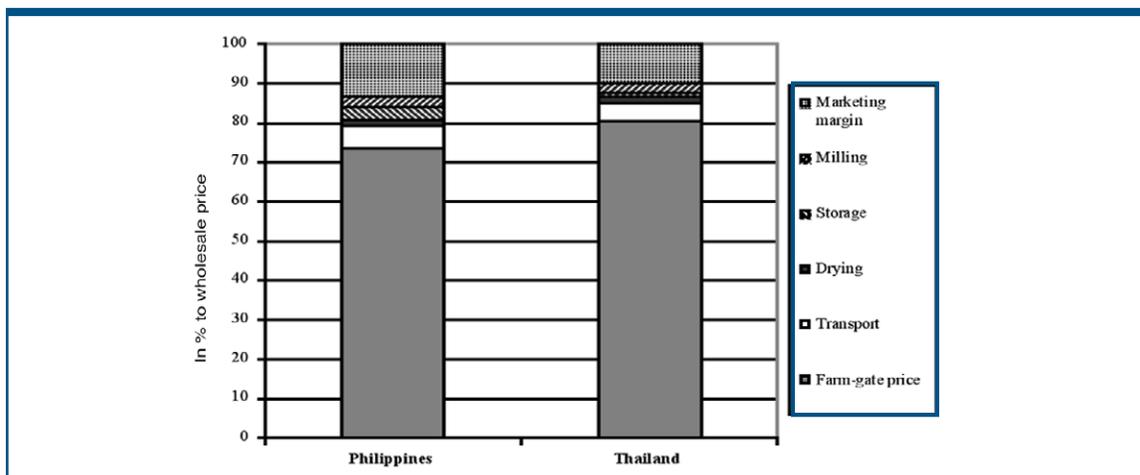
---

<sup>49</sup> Some low-skilled farmers might not be able to make a shift to urban service sector, however. At least in the short term they might find the agriculture sector more profitable given their skill mix and preferences. In the longer term, training and better education would provide new opportunities for rural workers.

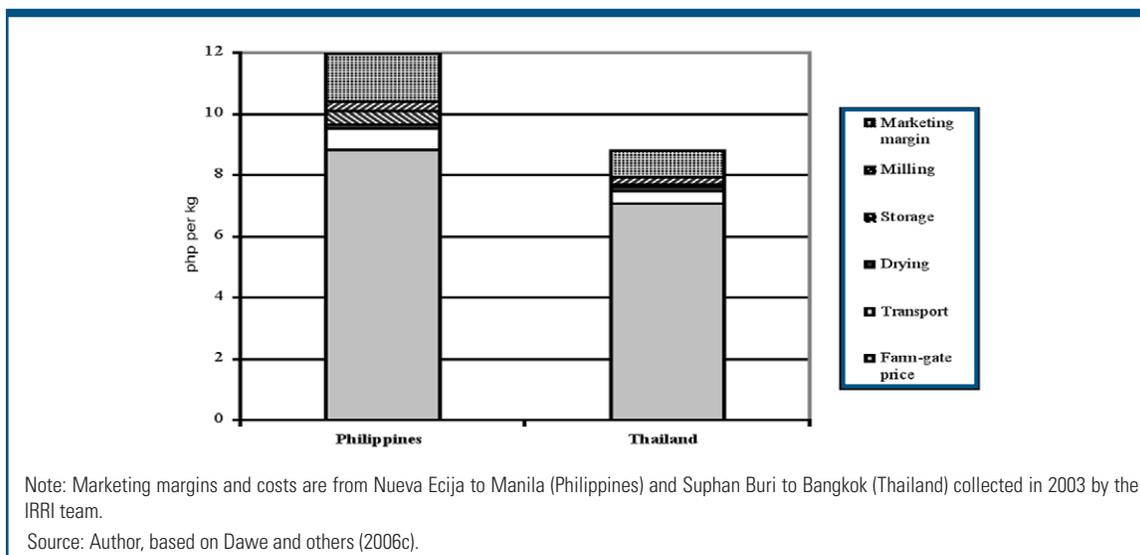
lower rice prices at lowest adjustment cost possible. Any delay in reforms and transition preparation concomitantly raises the cost of adjustment for those who would be adversely affected.

117. Lower rice prices would benefit many people. Lower consumer price does not necessarily mean lower farm-gate price. *Consumer price in the Philippines is high, but the share of farm-gate prices in consumer prices is one of the lowest in the region due to excessive marketing costs and margins.* Philippine rice farmers receive 74 percent of the wholesale prices while their Thai counterparts receive 81 percent (Figure 15). The larger share allows Thai farmers to generate higher incomes in spite of the lower consumer prices (Figure 16).<sup>50</sup> The key task for the government in the transition period would be to consistently tackle structural problems in the food supply chain to increase the share of the farm-gate in consumer prices. In this way, it is possible to increase farm incomes while reducing the prices paid by the Philippine consumers.

**Figure 15: Structure of marketing costs and margins in the Philippines and Thailand (as % of wholesale price)**



**Figure 16: Components of wholesale rice prices in the Philippines and Thailand (pesos per kg of dry palay)**



<sup>50</sup> Lower farm-gate price in Thailand does not mean lower farm incomes. In fact, farm incomes in Thailand are higher than in the Philippines due to the lower production costs. See the comparative production costs in Table 32.

118. There are four major reasons for high marketing costs in the Philippines. The reasons are derived from Dawe and others (2006c) and UNDP (2005), as well as from experts interviewed in Manila and Laguna in 2007:

- **Poor developed financial system.** The most important reason marketing costs are lower in Thailand is the lower cost of credit and services provided by the financial system. Higher interest rates in the Philippines make a difference in two main ways. First, higher interest rates lead to increased working capital requirements to purchase and store rice. Second, higher interest rates raise investment capital requirements by increasing the effective cost of trucks, buildings, sacks, and milling equipment, and thus increasing transport and milling costs. A simulation of counterfactual costs assuming that real interest rates in the Philippines were the same as those in Thailand explain 58 percent of the difference in marketing costs between these two countries (Dawe and others, 2006c, p. 15).
- **Low openness to trade.** The lack of openness in rice trade in the Philippines raises storage costs through several channels. First, the high seasonality in *palay* production and NFA's monopoly over rice imports lead to increased storage requirements (2 months from harvest to wholesale on average versus just 1 month in Thailand). Second, high *palay* prices imply that millers and traders have much larger borrowing requirements to finance the purchases of a more expensive crop, even apart from the high interest rates that prevail in the Philippines. A simulation estimates that the size of this effect amounts to PhP0.11 per kilogram in additional carrying costs (Dawe and others, 2006c, p. 16).
- **Infrastructure bottlenecks.** Poor road quality is a standalone reason for higher transport costs and thus a wider price gap between producers and consumers in the Philippines.
- **Too many traders and thus, high marketing margins.** The marketing sector in the Philippines is characterized by tremendous amount of competition among traders to buy *palay*. As estimated by Dawe and others (2006c), it takes about 18 marketing agents (assemblers, traders, and millers) in the Philippines to process 90,000 tons of dry *palay* per year, a job managed by just one Thai miller. Thus, the most likely reason behind high marketing margins is not collusion, as often perceived in the Philippines, but too many traders who face capital constraints and poor infrastructure. One way to encourage the consolidation of this segment would be to organize the wholesale markets for the purchase of *palay* as it is done in Thailand. This would help reduce the number of agents involved in the farm to wholesale marketing system, thus, lowering margins substantially.

119. A large percentage of marketing costs is endogenous to rice prices. If rice prices go down, some costs will automatically decline. These include storage costs, which will decline due to lower working capital requirements to purchase *palay* and lower storage length (rice can be stored more cheaply abroad and then imported when needed). Land costs will also decrease as a result of lower rice prices. Thus, lower import protection alone would reduce some marketing costs and thus, partially compensate for the loss of rice farm households due to lower prices. If the effective import protection is reduced from the current 55 percent to 30 percent (Scenario 1 in Table 31), for example, the total marketing margin is likely to decline

by about PhP1.2 per kilogram of rice.<sup>51</sup> As a result, the producer surplus would fall to PhP1.8 billion, but the total consumer loss would be reduced by PhP31 billion. In addition, the budget gains would reach PhP9.6 billion if rice is imported by the private sector and import duties are paid to the budget. Net welfare loss would decrease to PhP29.7 billion compared to PhP56 billion in the baseline scenario, or almost by half.

**Table 31: Simulation of reduction in import tariffs**

	Baseline scenario "Current policy"	Scenario 1: "Reduced import tariff (30%) & lower margin"
Domestic production (million tons)	8.9	8.2
Consumption (million tons)	9.9	10.9
World Market price (pesos per kg)	12.0	12.0
Farm-gate price (pesos per kg)	14.1	12.2
Consumer price (pesos per kg)	18.7	15.6
Margin between farm and consumer prices (pesos per kg)	4.6	3.4
Imports (million tons)	1.0	2.7
Consumer welfare loss (billion pesos)	-72.8	-41.1
Producer surplus (billion pesos)	16.8	1.8
Tariff revenue (billion pesos)	0.0	9.6
<b>Total welfare impact (billion pesos)</b>	<b>-56.0</b>	<b>-29.7</b>

Source: Author.

120. The government may consider reducing the marketing costs and margins further. The four main reasons for high marketing costs are endogenous to policy. In addition to the effects that would have been induced by lower rice prices and more openness to trade, a better developed capital market would provide lower interest rates and better services. While this is the main task of the macroeconomic team of the government, agricultural policy makers can (a) keep public spending aligned with aggregate fiscal discipline; (b) allocate expenditures to top priorities to promote pro-poor growth; (c) improve governance of this spending; and (d) bring agricultural lands back to the market as quickly as possible. Moreover, investments in roads, both national and farm-to-market, will help reduce marketing costs. The government can also reduce marketing margins if it takes the initiative to organize wholesale markets for *palay*. These markets would reduce search costs and improve the credibility of traders' weighing scales, assuming effective government regulation.

121. If the appropriate policy is pursued and the public expenditures are re-allocated correspondingly, producer losses from trade reform would be minimized. If the total margin between farm and wholesale prices is reduced to PhP2.6 per kilogram of rice in the medium term, the producer surplus would still be substantial at PhP8.1 billion, even as the social welfare loss is reduced by 60 percent compared to the baseline scenario (Table 32).<sup>52</sup> By increasing imports, the Philippines would be able to obtain those supplies reliably without endangering its food security (see Box 1).

<sup>52</sup>This figure is a realizable target since the experience of Thailand shows where the total margin is equal to PhP1.7 per kilogram of palay or PhP2.6 per kilogram of rice.

**Table 32: Simulation of reduction in import tariffs and reduced margins**

	Baseline scenario: Current policy	Scenario 1: Lower import tariff (30%) & lower margin	Scenario 2: Lower import tariff (30%) & reduced margin
Domestic production (million tons)	8.9	8.2	8.5
Consumption (million tons)	9.9	10.9	10.8
World Market price (pesos per kg)	12.0	12.0	12.0
Farm-gate price (pesos per kg)	14.1	12.2	13.0
Consumer price (pesos per kg)	18.7	15.6	15.6
Total margin (pesos per kg)	4.6	3.4	2.6
Imports (million tons)	1.0	2.7	2.4
Consumer welfare loss (billion pesos)	-72.8	-41.1	-41.1
Producer surplus (billion pesos)	16.8	1.8	8.1
Tariff revenue (billion pesos)	0.0	9.6	8.6
<b>Total welfare impact (billion pesos)</b>	<b>-56.0</b>	<b>-29.7</b>	<b>-24.3</b>

Source: Author.

122. In the longer term, import tariff could be further reduced because of the potential to reduce rice production costs in the Philippines. Rice production costs in the country are high. It costs US\$96 per ton to produce one tone of *palay* in the Philippines compared to US\$59 per ton in Thailand and US\$74 per ton in Vietnam (Table 33). High *palay* production costs are the result of continued dependence on high consumer prices, further exacerbated by high costs of labor and low rates of mechanization as well as high land rents and seed prices. However these costs (wages and land rents in particular) are largely caused by high *palay* prices themselves.

**Table 33: International comparison of production costs, 1999 (US\$ per hectare)**

	Philippines	Thailand	Vietnam	Indonesia
Labor:	501	207	435	472
Hired labor	415	95	60	328
Family (imputed)	86	112	375	144
Fertilizers	139	125	95	73
Machine rental and fuel costs	109	147	40	44
Pesticides	47	91	44	65
Seeds	63	61	56	9
Other costs	29	4	12	7
Total costs per ha	888	636	683	670
<b>Total costs per ton of paddy</b>	<b>96</b>	<b>59</b>	<b>74</b>	<b>69</b>

Source: Moya and others (2004).

123. Wages account for about 60 percent of total production costs in the Philippines. It is the high rate of manual labor, the low rate of mechanization and higher rice prices that make the wage component of Philippine rice production more expensive. When rice prices go down, the wage bill could also decrease without excessively hurting hired labor.<sup>53</sup> This is because most wages are paid in-kind and reducing the wage bill will not necessarily decrease the effective income of landless laborers (e.g., rice prices and wages are endogenously interlinked).

<sup>53</sup> Hired labor provides as much as 70 percent of the labor required on rice farms in the Philippines.

### **Box 1. Can the world market for rice be trusted?**

Believing that the world rice market is unreliable, many Filipinos sustain that food security should be achieved domestically because:

- The largely weather-dependent nature of agriculture leads to high production variability which makes the sector vulnerable to crop failures
- Poor integration of the domestic markets hampers supply to certain regions
- International markets are highly volatile
- There are liquidity constraints in international reserves
- International relationships are less than friendly due to sharp differences in political ideologies.

However, these concerns are no longer provide adequate justification not to rely on the world rice market because:

- Rice production is more stable today due to the resilience of modern varieties and the increased use of irrigation systems.
- Large gains have been made from greater investments in world transport infrastructure. It increased an ability to transport larger quantities over longer distances in shorter time periods.
- International rice prices are now more stable and are less distorted than in the past. Anderson and others (2006) report that global trade policies and subsidies have suppressed the real international price of rice by only 4.2 percent.
- If world rice prices should spike due to an extraordinary event, the government now has more foreign exchange reserves than it did some years ago. As such the government would be able to afford rice at the higher international prices if need be.
- Countries exporting rice are now more dependent on international markets for the health of their own economy. For example Thailand now exports 40 per cent of its production. If the Thai Government were to ban exports, it would be politically unpalatable given the importance of the sector to the economy in terms of employment, farm incomes, food production and exports.
- Genetically modified rice is yet to play a role in Asia as no Asian country has so far approved genetically modified rice for release. That rice is likely to yield benefits particularly in the area of insecticide and weed resistance which will improve the resilience and reliability of crops. There is also potential for higher yielding varieties through genetic modification.
- The largest rice consumers in the world are Asian countries, many of which have recently experienced high levels of economic growth. Accompanying these high levels of growth are increases in per capita income. Studies have shown that as incomes increase, per capita rice consumption falls.
- International relations amongst rice trading nations have improved.

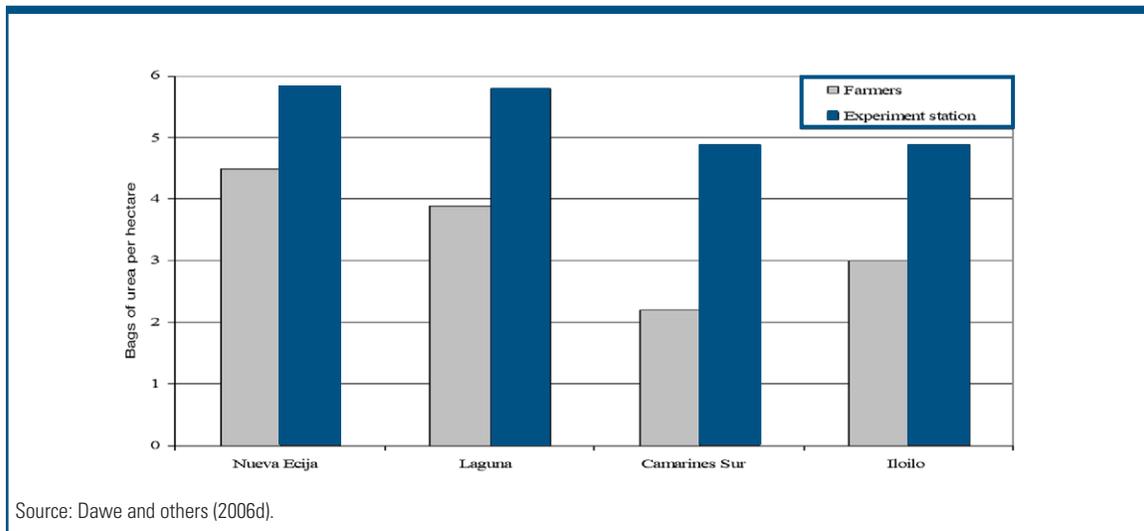
Source: Dawe (2006d).

124. Improved sustainability of irrigation investments might also significantly boost yields while reducing production costs per ton of output. As outlined in Section 5.2, public investments if focused on the rehabilitation and modernization of existing irrigation systems along with transfer of O&M responsibilities to irrigator associations and the promotion of small-scaled irrigation development, would bring about high payoffs. This would allow improving the allocative efficiency of scarce public funds, raising rice productivity in areas where there is high comparative advantage for producing rice and encouraging crop diversification to bolster and diversify farm incomes.

125. The rates of mechanization in the Philippines are still low by international standards. According to Moya and Dawe (2006), a typical combine can finish 1 hectare of *palay* in 2-4 hours with a rental fee amounting to about one-third of what a Filipino farmer spends on harvesting and threshing. Thus, the adoption of a combine harvester-thresher and direct seeding would lower production costs thereby making rice production in the Philippines more competitive with the other rice economies (Moya and Dawe, 2006). The disadvantage of adopting these technologies is that there will be less employment. With little alternative employment available in the non-agricultural sector, rice laborers have been known to sabotage combine harvesters in order to ensure their continued employment. Farmers are reportedly reluctant to purchase such equipment given the concerns of continued sabotage.

126. Another possibility to increase rice yields is the improved application of nitrogen fertilizers. Although nitrogen use has increased since the 1960s, data from hundreds of experiments conducted in four locations throughout the Philippines (Nueva Ecija, Laguna, Camarines Sur, and Iloilo) suggest that Philippine farmers may still be using insufficient amount, at least in the dry season (Figure 17). This does not necessarily imply that farmers face constraints that experiment stations don't but it does imply that substantial productivity improvements in the R&D system could be transferred to farmers through the extension service.

**Figure 17: Dry season nitrogen use by farmers compared with profit-maximizing use at the experiment station**



127. Redirection of public funds from seed subsidies to R&D, technology promotion, and improved regulatory functions could significantly help increase yields and production efficiency. Subsidies, as in the hybrid seed commercialization program, have failed and will continue to fail to increase the productivity of farmers. Instead, revitalizing R&D and extension services could prioritize methods for improving crop and water management for high-yielding varieties. A useful complement would be to concentrate on the R&D of inbred seeds since hybrids do not fit in most of the production areas in the country. Technology promotion through extension services would allow a higher rate of adoption for both hybrid and inbred seeds. Lack of knowledge is the usual cause of failure by farmers to adopt recommended practices. Nevertheless, while better-off farmers achieve higher yields, production gains can be had from extending known technologies to the marginalized farming community who are not producing at optimum levels.<sup>54</sup>

128. Other approaches to improving productivity are less likely to make a substantial impact. For example, many people think that credit is an important input for *palay* production. However, Mataia and Dawe (2006), by making a simple analysis of the costs and returns in rice farming (not necessarily in other types of farming), showed that borrowing costs are only a very small percentage of production costs. Thus, given that they are such a small percentage of costs, it is not possible to improve efficiency substantially with the use of credit subsidies.

## **6.5 What is the Appropriate Role of Government and Associated Policy and Budget Reforms to Support Rice Sector?**

129. The task at hand is to devise a transition from a self-sufficiency policy to a policy aiming to attain food security. Food security encompasses access to foods as well as the means to acquire food. It must be assessed at the household rather than the national level. The food security strategy would involve measures to reduce food prices by enhancing productivity and trade, increase allocative efficiency of public expenditures, improve food production in food-insecure farm households without ready access to markets, increase the income of the poor, and implement targeted measures to meet the immediate food and nutritional needs of the seriously undernourished (World Bank, 2006a).

130. The reform strategy requires a withdrawal of the most government intervention from the rice market. Once the definition of food security is accepted, the strategy for transition can be prepared in greater detail and implemented in a predictable manner. A gradual transition would prepare the farming and the private sectors for tariffication of rice import quota in 2012. The political opposition to the reform might be eased by compensations to potential losers. However, the design of a compensation package needs to ensure minimum distortions and irreversibility of the reform. It might be easier to begin the implementation of reforms with improvements in budget policy, followed by trade reform. This approach may include the following pillars:

---

<sup>54</sup>Refer to discussion of benefits and costs of the hybrid seed subsidy in section 5.1.

## Budget reform

- **Pursuing a commodity-neutral policy consistent with fiscal discipline.** This will keep prices close to opportunity costs. Prices, reflecting economic scarcity values, will guide toward effective resource allocation. Furthermore, consistency with fiscal consolidation will contribute to a favorable investment climate in the Philippines which is needed to enhance diversified growth in the agriculture and economy as a whole.
- **Phasing out production support.** Production support is economically distortionary and fiscally expensive. The hybrid rice seed commercialization program, for example, unintentionally supported the better-off farmers who had access to irrigation and modern farming techniques, thereby contributing to the increasing inequality within the sector and discouraging crop diversification. In the short term, some production subsidies to food-insecure farm households without ready access to markets can be provided, but even those should be time-bound, targeted and closely monitored and evaluated.
- **Increasing the sustainability of investments in irrigation.** The benefits would be larger when public expenditure is directed to rehabilitation of existing gravity irrigation systems while the expansion into new irrigated areas is done through the support of small-scale irrigation systems. Small-scale irrigation systems require less investment costs compared to the larger-scale irrigation systems, have shorter gestation periods, yield higher productivity, give farmers a greater degree of control over their irrigation water, and provide more options for crop diversification. To ensure that the existing large-scale irrigation systems are well-maintained and that the large-scale systems do not reduce the financial attractiveness of smaller-scale irrigation, institutional reforms to allow a full cost recovery and self management of national irrigation systems by irrigators associations would be desirable. The rationalization of the National Irrigation Administration to make it more lean and efficient would be an appropriate complement to these measures.
- **Shifting expenditures to market-related MFOs.** A critical role for the government is to invest in essential public goods, in particular infrastructure (rural roads and wholesale markets), market information, research and development, and food safety and quality. These investments would be beneficial as they would reduce marketing and *palay* production costs, allowing rice farmers to generate higher incomes even at lower consumer rice prices and allowing then non-rice farmers to benefit from public goods.
- **Designing and implementing appropriate monitoring and evaluation of public expenditures and programs.** MFOs are useful devices for measuring government agencies' performance in producing targeted policy outputs, but by design, these are not meant to provide information about real impact of publicly-funded programs. The absence of a regular and accessible system for outcome and impact evaluations makes it difficult to have objective public policy debates and to change the current approaches to public expenditure and agricultural policy in the Philippines.

## Trade reform

- **Replacing the quantitative restrictions for rice imports with import tariff.** The Philippines is due to lift its quantitative restrictions on rice imports by 2012 and this is an opportunity to reduce the effective import protection, simplify import procedures, allow the private sector to profitably import rice, and refocus NFA's mandates on regulation and emergency stock-keeping.
- **Successively reducing import tariff.** Lower rice prices in the Philippines will be effectively attained only by reducing the current prohibitive import tariff levels. The medium-term goal would be to reduce the rice tariff to a more moderate level. Otherwise, the economic benefits for consumers and producers (through lower marketing costs) from mere "tariffication" would likely be small.
- **Separating NFA's regulatory and trade functions.** NFA may continue its responsibility for keeping buffers for emergency and safety net reasons but not for market interventions. International experience shows that the purpose of stabilization is to insure against risks associated with international commodity price movements. However, within a fairly wide band, the system should allow domestic prices to move freely and buffer only very high or very low international prices. Stabilized prices should deviate around and not much above border prices. Border prices, adjusted regularly, are closer to scarcity values than can be achieved with estimated prices, given constantly changing price levels. (Cummings and others, 2006). Just as insurance is only taken out to guard against serious risks, the stabilization system should only be used to ameliorate largest price fluctuations. This would promote private agribusiness development and also free substantial public funds to be allocated to other priority public good investments.
- **Optimizing the volume of public stocks.** The role for public stocks can be re-defined to focus on disaster mitigation and safety net programs, and its volume could be reduced to minimize the fiscal losses from foregone interest and physical deterioration of stocks. The Philippines is prone to typhoons and other natural calamities that have severely damaged agricultural production and incomes of poor farmers. During 1991-2000, the natural disasters damaged about 3 percent of total rice production in the country (World Bank and NDCC, 2004). The shift in policy emphasis away from price stabilization would reduce fiscal costs and improve the impact on the poor.
- **Encouraging the private sector marketing system.** The private sector requires incentives to import rice. Private import is the long-term financial business which requires secure access to the right to import rice, not just in 2007, but over the longer term. The annual quotas for import are unlikely to encourage the private sector to invest in logistical infrastructure, contracts with exporting countries and knowledge in trading and marketing. A strong government commitment to fully withdraw from commercial import and lower import tariff might be needed to create proper incentives for the private traders to satisfy domestic demand in rice in a timely and cost-efficient manner. Box 2 describes the major reasons for the small amounts of official private imports.

### **Box 2. Why hasn't the private sector imported rice to the Philippines?**

Since 2002, the government has attempted to encourage private imports of rice to the country. First, NFA provided some import quota to farmer associations and recently the private traders have also received some quota allocations. This year (2007), the quota for private sector is reported to be 0.5 million tons (from a total import volume of 1.75 million tons). Despite these efforts, private sector import of rice has remained effectively nil. Why?

There are three main reasons:

1. The farmer associations are naturally equipped with neither working capital nor trading skills to import rice. Moreover, the farmer associations, representing rice producers, are interested in high rice prices, while the import reduces rice prices.
2. The tax subsidy offers a substantial 'competitive advantage' to NFA. It reduces NFA's costs to import by at least 50 percent compared to private traders which have to pay the import duty and then probably store imported rice at NFA's warehouses. As a result, smuggling has been a more attractive activity for some private traders than official imports. It should be noted that smuggling will continue, being more profitable for traders, until the costs of importing rice (i.e., tariff and non-tariff barriers) are decreased.
3. NFA's interventions through rice imports and stock management have reduced price incentives for the private sector to profitably import rice at the prevailing import tariff. Until 2005, the price band between wholesale and border prices was only slightly larger than the import tariff, while recently it has narrowed due to the rise in border prices and the political decision to keep domestic prices at stable level. The current price difference makes it unattractive for private rice imports, resulting in the surge of NFA's imports.

131. In the end, the desired outcomes of the reform would be greater impact of public expenditures, higher food availability and accessibility, reduced subsidy bills and improved targeting of public stocks. Halfway reforms are unlikely to produce desired results. International experience shows that a partial liberalization, with continuing government intervention in food markets, has often proved to undermine the transition from a publicly controlled marketing system to a market-oriented one. "Systems in which private trade coexists with continued direct government operations generally have not performed well when government operations are uncertain and discretionary" (World Bank, 2006a, p. 34). The reform of rice policy in Indonesia, including the restructuring of BULOG, was perceived as successful during the early years but since it was partial, the continued inward orientation turned counter-productive in recent years (Timmer, 2007). The results in Indonesia are continued high prices for consumers; hampered crop diversification with the largest burden on smaller farmers; high budgetary costs; and still little institutional understanding of economic interlinkages, costs, and benefits of the current approach. These are not the desired outcomes for the reforms in the Philippines.

132. The Philippines can learn from the Bangladesh experience in successfully reforming its public food distribution system (Annex E). The reform in the early 1990s resulted in a substantial reduction of subsidy bills, unprecedented growth in private sector trade, increased food availability and strengthened social safety net programs - all without jeopardizing food price stability (Dorosh

and Shahabuddin, 2002; Ali and others, 2006). Instead of using public distribution as an outlet for public procurement and price support, the emphasis has shifted toward social safety nets and disaster mitigation programs. The procurement and stocking activities are carried out only up to a level necessary to meet those programs' demand, and the targeted delivery of food aid has resulted in substantial savings for the government along with increased capacity to assist the poor and the vulnerable in terms of access to food and income.

133. Finally, as reforms are likely to be opposed by producers, a short- to medium- term compensation mechanism might be needed. Direct transfers to producers can be considered as a compensation mechanism that allows limiting the impact of trade reforms in the short to medium run, while favoring adjustment and diversification over the longer run. Decoupling production from price support has been the cornerstone of agricultural policy reform in: (a) Mexico, where the PROCAMPO scheme of direct payments based on historical acreage started in 1994 in order to remove tariffs on corn and thereby facilitate the transition of corn producers under the North America Free Trade Agreement; and (b) Turkey, where direct transfers started in 2001 to compensate farmers for the removal of input subsidies and administered output prices. Both programs were successful in easing transition towards a less distorted and efficient system of production incentives and direct transfers often allowed farmers to overcome financial constraints at planting time, improving therefore access to commercial inputs and production credit. A design of a similar compensation package in the Philippines, however, is not straightforward. It requires considering several important issues such as eligibility criteria (rice versus non-rice farmers, and poor rice farmers versus non-poor rice farmers), mode of payments, administration procedures and flows of transfers, validation of historical yields and land areas, price gap to be compensated, phasing out period, penalties for misreporting, etc. The success of such a compensation program would depend on how these issues are addressed and how a compensation package is designed if decided to be used.

## 7. DEPARTMENT OF AGRARIAN REFORM

### 7.1 DAR as the CARP Implementing Agency

134. DAR is the key implementing institution for Comprehensive Agrarian Reform Program. Its responsibility is to administer and facilitate land transfer to achieve a more equitable agricultural tenure. Its primary mandates are to (a) identify transferable land under private ownership and in the public domain; (b) undertake necessary surveys in preparation for land transfer; (c) facilitate the compensation of dispossessed private owners; (d) settle land-related disputes and provide legal advice; and (e) provide support services to beneficiaries to allow them to draw benefits from the Reform.

135. DAR shares responsibility for CARP with other government agencies. The Department is the lead agency for ensuring convergence of all CARP partners - the Land Bank of the Philippines; the Department of Environment and Natural Resources; and the national agencies for land registration, irrigation, public works, transport, industry, and labor - providing operational support to all, and administering two thirds of CARP funds under its authority. The Presidential Agrarian Reform Council is the formal CARP coordinating body whose secretariat is provided by the Department of Agrarian Reform. The President of the Philippines is officially the Council chairperson but the DAR Secretary, as vice chairperson, normally executes the most functions.

136. There are three sources of DAR's financing. DAR's principal funding source is the Agrarian Reform Fund, also known as Fund 158, which finances the bulk of locally-sourced CARP expenditures. Fund 158 is not part of DAR's budget. It exists as an independent item in the overall government budget, even though over 40 percent of the 15,000 permanent DAR staff is financed from it. The second source (Fund 101) is the budget of the DAR proper. At less than half of DAR's share of Fund 158, Fund 101 finances mainly the routine administration activities. The third source of funding (Fund 102) is provided by foreign-assisted projects. Since 1997 these have financed the majority of the support services provided to the agrarian reform beneficiaries. There are 14 foreign-assisted projects operating under CARP (Esguerra and Schurmann, 2006).

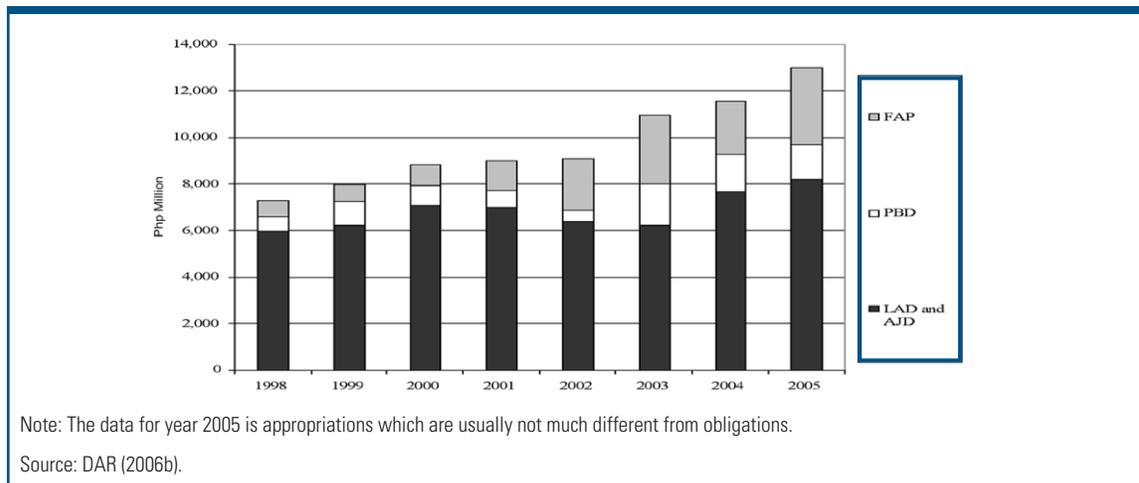
137. Since CARP inception in 1987, DAR's budget has continuously risen. The total program increased from PhP7 billion in 1998 to PhP13 billion in 2005 (refer to Table 8 in Chapter 4). During 1998-2006, the cumulative DAR's spending equaled PhP80 billion; spending would have reached PhP118 billion if the reckoning point was the CAPR launch in 1987 (Esguerra and Schurmann, 2006). The functional allocations are made along three MFOs: (a) Land Tenure and Security Services; (b) Agrarian Justice Delivery Services; and (c) Support Service Delivery.<sup>55</sup> Land Tenure and Security Services (DAR's core function) was the largest fund-absorbing subprogram, accounting for 71 percent of DAR's budget (Figure 18 and Table A18). The Support Service Delivery accounted for 18 percent of the DAR's budget. Local support for delivery of public services has gradually been taken over by foreign-assisted projects. During 1998-2005, the cumulative FAP budget reached PhP14.2 billion while the cumulative service-

---

<sup>55</sup> Annex F provides more details of the MFOs.

delivery projects from local sources equaled PhP8.7 billion. Finally, the agrarian justice services accounted for only a marginal fraction of DAR's budget (0.4 percent).

**Figure 18: DAR expenditures (actual obligations), 1998-2005 (million pesos)**



138. The economic composition of the DAR budget greatly depends on the nature of expenditures across the MFOs. During 1998-2005, the personnel spending accounted for 33 percent of DAR's budget, while operations and maintenance and capital outlays equaled to 19 percent and 47 percent, respectively (Table 34). As expected, the economic composition of expenditures varies across the MFOs. Personnel spending and operations and maintenance account for the largest shares in MFO 1 and MFO 2 (when landowner compensations are excluded), since the corresponding services such as land surveys, legal and technical assistance, documentation for compensation and titling require a large staff complement.<sup>56</sup> At the same time, the capital outlays for rural infrastructure accounts for 85 percent of the Program Beneficiary Development (MFO 3) support for agrarian reform beneficiaries.

**Table 34: Economic composition of DAR's expenditures, 1998-2005 (million pesos)**

	1998	2000	2002	2004	2005	Structure, in % (1998-2005)
Personnel spending	2,075	2,270	2,114	2,120	2,075	33.4
Operations and maintenance	1,049	1,366	828	1,740	1,910	19.4
Capital outlays	1,613	2,153	2,597	4,109	5,161	47.2
<b>Total</b>	<b>4,737</b>	<b>5,789</b>	<b>5,539</b>	<b>7,969</b>	<b>9,146</b>	<b>100.0</b>

Note: Economic composition of FAP expenditures is assumed to be similar with locally-financed projects.

Source: DAR (2006b).

139. Land acquisition and distribution (LAD) has been DAR's largest fund-absorbing function. The compensation payments to landowners disbursed by the Land Bank of the Philippines were PhP22.4 billion or about 48 percent of MFO 1.<sup>57</sup> Dispossessed owners have received 10 percent of the land valuation amount in cash and the remainder is paid in the form of bonds, 10 percent of which matures annually with an interest rate aligned with the 90-day treasury bills.<sup>58</sup> The total landowners' compensation package reached PhP41.4 billion from

<sup>56</sup> Refer to Table A17.

<sup>57</sup> Refer to Table A16.

<sup>58</sup> Current T-bill rate is about 10 percent, while loan amortizations are at 4-6 percent, depending if they are on schedule or not (Esguerra and Schurmann, 2006).

1987 to 2006. During 1987-2006, the cash component of the compensation package accounted for 38.6 percent, 34.3 percent for bond payments, and 27.1 percent for interest payments.<sup>59</sup>

140. As the agency tasked to handle landowners' compensation, the Land Bank has been burdened by the financial requirements of this particular undertaking. From a financing perspective, the LAD has not been a priority of all branches of government. Because of the limited budget allocated for landowners' compensation from the Agrarian Reform Fund, the Land Bank provided cash advances for CARP (Arlanza and others, 2006). By December 2006, the accounts receivable amounted to P2.9 billion though they are reported to have decreased in the recent years (Land Bank, 2007a).

141. The Land Bank has also been burdened by the failure to collect full amortizations. From 1987 to 2006, the estimated collectibles from expected land amortization payments by reform beneficiaries was PhP15.5 billion.<sup>60</sup> However, the actual amount collected was only PhP3 billion, or 18.5 percent collection rate. The main reasons for the low collection rate are an absence of the individualized land plots in many collectively managed land area<sup>61</sup> and the weak financial situation of the new landowners.

142. Land distribution progressed better with public lands, which were fully redistributed by the end of 2006. DAR reported that as of December 2006, it acquired and distributed a total of 1.73 million hectares. This was above the planned end-2006 target (Table 35).

143. LAD's progress for private lands has been much more modest, however. As of June 2005, DAR reported a balance of 0.61 million hectares of purely private agricultural lands to be acquired and distributed.<sup>62</sup> In December 2006, however, DAR announced an upward adjustment in the official coverage scope to 1.33 million hectare (DAR, 2006a, 2007). Table 35 shows the updated status of the land acquisition and distribution as of December 2006. According to this information, DAR still has a balance of 1.33 million hectare, 100 percent of which are private agricultural lands. Most of the lands that are to be acquired and distributed are planted in coconut (26 percent). Rice lands occupy 20 percent of the remaining areas for coverage. Other major crops are sugar and corn. These four crops cover 72 percent of the balance (DAR, 2006a). Total agricultural land distributed amounts to about 38 percent of total cultivated lands in the country (Ballesteros, 2007).

**Table 35: Land acquisition and distribution by the DAR, as of December 2006 (million hectares)**

Land type	Scope	Accomplishment	% Accomplishment	Balance
Private agricultural lands	3.28	1.95	60	1.33
Government-owned lands	1.33	1.73		-0.403
Total DAR	4.61	3.69	80	1.33

Source: DAR (2006a).

<sup>59</sup> Refer to Table A18.

<sup>60</sup> Refer to Table A19.

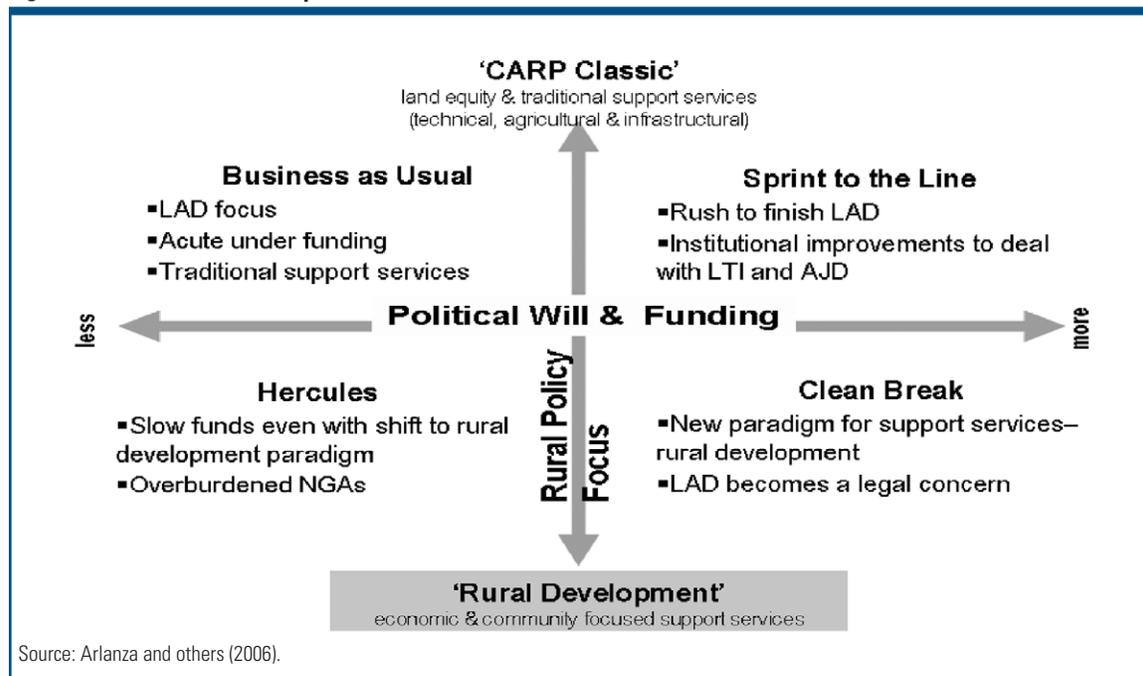
<sup>61</sup> This makes it difficult to estimate the debts of each individual who received the right for plot in such collectively-owned land areas.

<sup>62</sup> Draft DAR report "Comprehensive Agrarian Reform Program: Sustaining the Grains Beyond 2008".

144. This upward adjustment in coverage of land acquisition and distribution will significantly delay its completion and will require significant fiscal resources. Land acquisition and distribution was planned for completion by 2008. With the inclusion of additional land, however, it will take another 10-12 years to finish the revised program if the annual LAD target of 130,000 hectare remains unchanged. According to DAR (2007), for the period from 2009 to 2018, the fiscal costs are estimated at PhP326 billion, or PhP32.6 billion per year, which is twice as high as DAR's 2007 budget. According to the Land Bank (2007b), about PhP339 billion will be required for landowner compensations only under the revised CARP scenario. Whatever the exact actual fiscal costs are, they are unlikely to be less than PhP35 billion per year for a 10-year period, implying a diversion of huge fiscal resources from investments to spur a broadly-shared economic growth, which CARP has failed to promote so far. The revised land balance therefore has to be carefully validated before any final decision about CARP status is made. Similarly, the future role of DAR needs to be determined to effectively utilize the public funds, minimize distortions to land and credit markets and improve the delivery of public services.

145. The completion of land redistribution is the prerequisite for the creation of a functioning land market and thus should be a high priority for DAR in the coming years. In 2004, DAR commissioned GTZ to “provide strategic options that would address the issues and problems confronting LAD’s completion and recommend institutional and legislative measures required to prepare for the expected policy issues and concerns upon completion of land acquisition and distribution” (Arlanza and others, 2006: p. i). At the end of 2006, the joint DAR-GTZ study presented options (Figure 19). However, it is not clear which of these options will be selected and what are the sources of financing. An immediate priority is to make the strategic decision on the future of CARP and DAR’s role.

Figure 19: Post-LAD scenarios presented in 2006



## 7.2 Synthesis of Economic and Social Impact of CARP

146. The policy recommendations for future actions should take into account the lessons of CARP implementation and impact. Therefore, this section presents a synthesis of the existing impact assessments and studies along four major categories, i.e. investments; productivity; poverty; and institutional improvements. Investment impact includes the effects on resource and technology flows in the agriculture sector. Productivity impact considers the changes in yield, use of inputs, cropping patterns and intensity and labor productivity. Poverty impact includes effects on income and asset distribution; employment and studies on social exclusions. Institutional impact covers the analysis of developments in financial and land markets and changes in contractual arrangements and production relations.

### 7.2.1 Investment impact

147. Land reform involves a transfer of asset. There are principally two effects of this transfer. First, it could lower investments of landowners whose lands are potentially subject to the reform. Second, it could result in higher levels of investments by the beneficiary of the program. It is argued that the former effect is short term and the long-term benefits in the sense of a redistribution of land rights to the poor can accelerate growth and to some extent address inequalities in the agricultural factor and product markets, technologies, and power structures. On the other hand, landowners have strong sentiments against the program and disinvest in agriculture. A summary of studies addressing this issue is provided below (Table 36).

**Table 36: Studies on the investment impact of Agrarian Reform Program**

Studies	Crop	Change in investments Landowner	Beneficiary
Habito <i>et al.</i> (2003)	Cereal, fruit, traditional crop <sup>a</sup>	- US\$221.32 <sup>b</sup> - US\$1,089.50 <sup>c</sup>	+ US\$315 per ha
Deiningner <i>et al.</i> (1999)	Rice <sup>d</sup>	n/a	+ US\$ 860 to 1,486 per household
IARDS (2000)	Sugarcane and	-	n/a

Note: <sup>a</sup> Traditional Crop - sugar, coconut; <sup>b</sup> Average for single proprietorship per hectare basis; <sup>c</sup> Average for single+corporate farm proprietors per hectare basis; <sup>d</sup> Includes physical assets and human capital; <sup>e</sup> Converted from Phil peso to US dollar using P50:1US\$ exchange rate.

### *Investment behavior of landowners*

148. The uncertainties due to implementation of CARP have apparently led to disinvestments in the sector. In a recent study based on a rapid appraisal survey of landowners, Habito and others (2003) estimated the possible impact of land reform to landowners that have yet to comply with the land distribution (i.e. LAD-pending landowners).<sup>63</sup> A comparison of the accumulated value of assets of the LAD-pending landowners with that of LAD-compliant

<sup>63</sup> Pending land acquisition and distribution implies that land distribution in the farm is under any of these conditions: (a) negotiations with beneficiaries and DAR are in progress; (b) the landowner have not been approached by DAR yet; (c) landowners have not been paid; (d) case is pending in court.

landowners shows that the former invested less on their farms compared to the latter.<sup>64</sup>

149. The investments in fruits have not declined much. The experience of the banana industry provides insights. When CARP began to be implemented in 1988, the law allowed a 10-year deferment for corporate farms. In particular, this covered about 55 percent of the total area planted in bananas and 60 percent of the total area identified for CARP (Feranil, 1998). Between 1988 and 1998 the bulk of land planted to bananas can be considered LAD-pending yet, it was after CARP implementation when significant increases in banana investments were observed (Dy, 2000). In particular, the area planted in bananas rose from 25,000 hectares in 1990 to over 30,000 hectares in 1998.

150. A possible explanation for this is that in most fruit farms, land cultivated for production is not necessarily owned by the corporate farm (Feranil, 1998). Production via contract growing arrangements or leasehold has been in practice. In contract growing the farmer limits supply exclusively to one buyer who provides inputs in advance and technical assistance. Both contract growing and leasehold provide the corporate farm owners control over the management and outputs of production and minimize costs (that are associated with land ownership). With the implementation of CARP, these arrangements were expanded allowing corporate owners to preserve production efficiency and viability through contracts that give them control over production and markets. Contract growing and leaseback arrangements have minimized the uncertainties due to CARP. In the Mindanao region, in particular, development of agriculture has been accelerated by these arrangements (Digal, 2004).

151. Another reason why CARP may have minimal effects on investments is because access to formal credit by landowners has not been affected. Landowners seldom use farmland as collateral (Habito and others, 2003). Many of the traditional landowners do not borrow for production loans and capital investments. Instead farm activities are financed from savings and income from other business ventures. Comparatively, the share of farm assets to total real estate properties of landowners is less than 10 percent and income from farming is 40 percent of total income.<sup>65</sup>

152. Compared to fruits growers, disinvestments seem more evident among sugarcane and coconut landowners who voiced the strongest objection to CARP. The level of agricultural investments by coconut and sugarcane landowners has been much lower than would be expected (IARDS, 2000). Investment in land improvements by landowners owning more than 5-24 hectares averages only PhP6,000 and PhP4,000 per hectare for coconut and sugarcane, respectively.<sup>66</sup> The average investments vary by farm size and the deviations across the mean is wide with some landowners indicating no investments at all. However, since the study is based on single year information, direct attribution to CARP cannot be established.

---

<sup>64</sup> Accumulated assets refer to the value of farm assets acquired or undertaken by the current landowner. It includes farm equipment; direct land improvement (irrigation; canal works, leveling); value of trees, etc. The figures have been adjusted to take into account age of the farm in its build-up of capital stock.

<sup>65</sup> Refer to Table A21.

<sup>66</sup> Refer to Table A22. The analysis focused on this group of land owners due to the potential impact of CARP on the livelihood of these households. The table did not include results from the rice and corn landowners since the sample included already some ARBs. There were 30 landowners for each crop group interviewed.

153. A DAR (1998) study on coconut farms provided some qualitative results on the effect of CARP on the landowners.<sup>67</sup> The bulk of landowners (83 percent) whose land has yet to be covered by CARP has been opposed to CARP. To evade CARP coverage, some landowners cut down coconut trees in the guise of over-matured trees. However, studies have yet to establish the extent by which CARP has influenced this activity. The cutting of trees has also been attributed to the lucrative business of coco lumber. Earnings from coco lumber are reported to compensate for three years of coconut harvest in the Negros provinces (Geron, 1994). Insurgency problems and potential earnings from real estate ventures have also enticed landowners to cut down trees and convert lands to non-agriculture use.

### ***Investment Behavior of Agrarian Reform Beneficiaries***

154. Intuitively, the transfer of productive asset implies that beneficiaries are likely to have higher investment demands. Why? Beneficiaries can no longer depend on landowners for land improvement. Beneficiaries can have access to credit and thus expand their ability to make investments. Redistribution of factor income from landlord to beneficiary increases the payoff from investments.

155. The increase in investment due to CARP has been suggested in a recent study of cereal, fruit, sugarcane and coconut farmers (Habito and others, 2003). The results show that agrarian reform beneficiaries invested more in farm assets (i.e., measured as the change in value of farm assets from 1990 to 2000) compared to non- agrarian reform beneficiaries by about PhP15,752 per hectare (US\$315). The ARB households with high school education tend to invest more.

156. A study by Deininger and others (1999) in Philippine rice-growing villages also notes the increase in investments made by land reform beneficiaries not only on physical assets but on human capital as well.<sup>68</sup> The study's longitudinal data shows that land reform has induced a positive intergenerational transfer of human capital. The educational advance of children "affected by the reform" was between 0.60 and 0.83 years higher than that of non-beneficiaries. The study does recognize that other "cultural factors" can come into play. In summary, the study reports that land reform increased non-land investments by a magnitude of US\$860 to US\$1,486 between 1972 and 1985. Households with higher education and with higher initial endowments of non-land assets were able to invest at a higher rate.

## **7.2.2 Productivity impact**

157. One premise of promoting owner cultivation is that control over land will tend to increase the desired investments in the farm enterprise, therefore improving yields and land productivity. This suggests that agrarian reform beneficiaries are likely to exhibit higher

---

<sup>67</sup> The study was conducted among 7 landowners of coconut areas covered by CARP and 18 landowners yet to be covered by CARP.

<sup>68</sup> Investment in human capital has been observed to be an integral aspect of asset accumulation in rural areas. Human capital specifically education is often seen as "interchangeable to land". Revenues from pawning of rice farmlands have been the most important source of schooling fund that increased education levels among off-spring of beneficiaries and improved access to remittance income (Estudillo and others, 2006a).

productivity than those with less secure forms of land tenure (e.g., share tenants, landless). The evidence presented by studies on the productivity impact of agrarian reform has been generally positive (Table 37). Although Deininger and others (1999) did not find a significant relationship between tenure status and yield in the rice sector, they attributed the results mainly to methodological issues. The weak relationship has been noted in static analysis; but in the long term the increase in rice yields of agrarian reform beneficiaries has been significant. Rice yield of beneficiaries is about 580 kilogram higher than non-beneficiaries. The short-term effect is expected for the rice sector since technology adoption had been widespread even before the reform thus productivity gains can only be evident if viewed over a longer term (Hayami and others, 1990; Otsuka and Hayami, 1998).

**Table 37: Studies of the agrarian reform's impact on the land productivity of the agrarian reform beneficiaries**

Studies	Crop	Change in	
		Crop Yield (kg/ha) <sup>a</sup>	Crop Intensity
Habito <i>et al.</i> (2003)	Rice	n.s.	n/a
	Corn	n.s.	n/a
Deininger <i>et al.</i> (1999)	Rice		n/a
		Short-term	n.s.
Riedinger and Kang (2000)	Rice	Long-term	+ 580 <sup>b</sup>
		Amortizing ARBs	+ 28% <sup>b</sup>
		Leaseholders	+ 15% <sup>b</sup>
DAR (1998)	Coconut	+	++

Note: <sup>a</sup> Refers to difference in yield of ARBs (owners/landholder) per non-ARBs (share tenants); <sup>b</sup> Values are results of econometric analysis; n.s. - not significant. + means an increase in yields and crop intensity.

158. Among coconut farms, CARP-related improvement in productivity has also been observed. This assessment was made by comparing the production activity before and after CARP of agrarian reform beneficiaries who have been issued land titles (DAR, 1998).<sup>69</sup> The shift from share tenancy to amortizing agrarian reform beneficiaries resulted in a 47 percent increase in copra yield. An increase in cropping intensity among the beneficiaries has also been observed. As share tenants, the sample agrarian reform beneficiaries planted only rice and corn for intercrop with coconut. However, as reform beneficiaries they cultivated bananas, pineapple, root crops and vegetables in their farms in addition to rice and corn.

### 7.2.3 Poverty impact

159. The impact of land reform on poverty has been assessed in terms of the changes in beneficiaries' income, reduction in poverty incidence in the rural areas and improvements in land distribution. Table 38 summarizes the results of several studies.

<sup>69</sup> These are the beneficiaries who have been issued titles of land ownership or the certificate of land ownership. The survey was conducted in key coconut-growing provinces - Quezon, Northern Samar, and Zamboanga del Norte.

160. The positive effect of agrarian reform on income has been evident in several studies. Otsuka and others (1992) estimated this effect in terms of the transfer of factor income from land from landowners to agrarian reform beneficiaries. The redistribution of income is significant specifically in rice farms where the income share of land is about 30-50 percent of gross revenue.<sup>70</sup> Thus, land tenure would affect the appropriation of economic surpluses from rice production. Share tenants, for instance, tend to receive only half of the land income obtained by leaseholders. The estimated surplus is particularly large in areas where irrigation, technology and other productive resources have been provided (Hayami and others, 1990; Otsuka and others, 1992). An earlier study by Otsuka and Hayami (1998) report that the income of share tenants per hectare from rice production is lower than that of leasehold tenants by 20-30 percent on average.

**Table 38: Studies on poverty impact of agrarian reform**

Studies	Crop	Farm Income <sup>a</sup>	Change in Poverty Incidence in Rural Areas	Land Distribution <sup>b</sup>
Otsuka and Hayami (1998)	Rice	+20 - 30%	n/a	n/a
Otsuka and others (1992)	Rice	+15 - 25%	n/a	n/a
Hayami and others (1990)		+		
Deiningner and others (1999)	Rice			
	ST	+10 - 18%	n/a	n/a
	LT <sup>c</sup>	US\$ 74	n/a	n/a
Gordoncillo and others (2002)	All	n/a	n/a	Nil
Ballesteros and de la Cruz (2006)	Rice	n/a	n/a	Nil

Note: <sup>a</sup> Refers to the difference in farm income of agrarian reform beneficiaries (owner and landholders) from share tenants (non- agrarian reform beneficiaries); <sup>b</sup> Measured in terms of change in Gini coefficient or land concentration index; <sup>c</sup> Refers to long-run difference in income (farm and non-farm) growth between beneficiaries and non-beneficiaries.

161. While land reform appeared to have succeeded in transferring much of the economic return accruing to land to the beneficiaries, it has not improved the economic situation of many beneficiaries. The incidence of poverty among agrarian reform beneficiaries remained high at 45.2 percent in 2000 (Table 39). Moreover, between 1990 and 2000, the depth of poverty remained practically the same.<sup>71</sup> Agrarian reform beneficiaries also continued to be vulnerable to economic crises (Reyes, 2003). These findings are supported by an earlier study which cited poverty incidence among agrarian reform beneficiaries in 1999 was higher than the national rural poverty incidence (Bravo and others, 2000).

<sup>70</sup> The income share of land is measured as the residual amount after deducting the share of labor and capital from gross revenue. The residual also captures management skill of farmers and errors that may result from computation of factor shares of labor and capital.

<sup>71</sup> The dept of poverty is measured by the poverty gap index which is the ratio of the poverty gap to the poverty threshold. Poverty gap is the difference between the poverty threshold and the average income of the poor.

**Table 39: Poverty measures, agrarian reform beneficiaries**

	1990	2000
Poverty incidence <sup>a</sup>	47.6	45.2
Poverty gap index <sup>b</sup>	0.4922	0.4923

Note: <sup>a</sup>Poverty incidence = indicated by the number of poor households in the entire sample size. Poor households are defined to be households whose annual per capita income falls below the required annual per capita to meet the minimum basic food and non-food requirements; <sup>b</sup> Poverty gap index = the ratio of the poverty gap to the poverty threshold. It provides a measure of the depth of poverty.

Source: Reyes (2003).

162. Land reform has also had limited effect on the reduction of poverty incidence in the rural sector. The net social benefit of the land reform program has not been that large (Hayami and others, 1990; Balisacan, 1996). There are two main reasons cited by studies. First, the agrarian reform program has excluded landless agricultural workers who are among the poorest of the poor. In 1971 prior to the implementation of the land reform program, about 67 percent of agricultural landless workers are in rice and corn farming (Balisacan, 1996) but the program mainly benefited share tenants (50 percent) followed by leaseholders and existing owners (Deininger and others, 1999). Hayami and others (1990) estimated that only about 3 percent of the landless in rice and corn farms benefited from the reform.

163. A second reason for the possible low net social benefit is that land reform has reduced the poor's access to land markets because landowners' fear accepting tenants. Deininger and others (1999) showed that there has been a significant reduction in land access due to land reform in rice-growing areas between 1985 and 1998. Land access by the landless (measured by the amount of land cultivated) between 1985 and 1998 suggested that the landless person's probability of getting access to land decreased by 45 percent. The inability of the poor to access the land market reduced welfare (measured as household consumption) by 30 percent. The landless finds it even more difficult to rise above the agricultural ladder with increasing population pressure and slow growth of employment opportunities outside agriculture (Balisacan, 1996).

164. Although the earlier studies may have captured the effects mainly from land reform in rice and corn farms, the situation does not seem to have improved in later years with expansion of the agrarian reform program to other crops. In the commercial fruit farms, worker lay-offs have been used to reduce the number of beneficiaries of land reform (Feranil, 1998). Moreover, a key issue that surfaced on contract-growing and leaseback arrangements among commercial farms has been the inequitable terms of contract between the beneficiaries and corporate buyer/principal. The anecdotal field evidence cites the dependence of agrarian reform beneficiaries or their cooperatives on the principal because of the lack of direct access to the export markets, loss of fringe benefits (e.g. medical, paid vacation, etc) which they used to enjoy as employees of the corporation and weak bargaining position on the use of infrastructure since major investments within the plantation (e.g. roads, packing sheds, cables) as needed to support production were part of the retained holdings of landowners (Digal, 2004). The economic conditions of the beneficiaries have not improved at all and have even led to "social degradation" with no growing opportunity.

165. The low impact of agrarian reform on rural poverty has also been traced to the low percentage of affected farm households by the program. Although accomplishments in terms of total cultivated land is relatively high, real redistributive reform has not really taken place specifically under CARP (Borras, 2000). CARP allows a voluntary land transfer mode that has become a means of legitimate evasion by landowners.<sup>72</sup> Borras (2005) cited that based on DAR's field operations, "as much as 70 percent of reported voluntary land transfer accomplishments were transfers to relatives, friends, dummies who are not legitimate beneficiaries of land reform". A land sale deal may also be reported under accomplished voluntary land transfer. Based on DAR's accomplishment report, 435,019 hectares of land were distributed via voluntary land transfer. This represents about 13 percent of total land redistributed by DAR and 25 percent of total redistributed outputs on private lands.<sup>73</sup> It is possible that the proportion could be even higher since transaction processes are easy to conceal given the poor land information system in the country.

166. Land reform has barely affected land distribution. Land concentration has not improved significantly even in rice areas where CARP has been comprehensively implemented (Ballesteros and de la Cruz, 2006; Gordoncillo, 2002). Overall, Gini coefficient of population showed only a slight improvement from 0.4719 in 1990 to 0.4704 in 2000. While land reform has created a new class of landowners, the procedural deficiencies and unequal access by the poor to the land limits the impact of land reform on poverty reduction.

## **7.2.4 Institutional impact**

### ***Operation of financial markets***

167. The CARP has contributed to the risks of agricultural lending (Llanto and Estanislao, 1993; Ravalo, 1999). In agriculture, the only significant asset is the land itself, but agricultural land as collateral loses its exchange value under the Comprehensive Agrarian Reform Law (RA 6657). "If the lending institution forecloses agricultural land in the event of default, the lending institution in effect becomes the 'landowner' thus covered by the agrarian reform program" (Llanto and Estanislao, 1993). The lending institutions suffer considerable constraints to the recovery of the loan because the "foreclosed land can be disposed only to the government at a value determined solely by the government and acted only upon the disposition of the government" (RA 6657 Sec.71).

168. While agricultural land is a significant asset for production, it has become inadequate to support financing from banks. Loan value of agricultural land is at most only 50 percent compared to at most 80 percent for non-agricultural land. Several Philippine banks have also stopped accepting agricultural lands as collateral (Llanto and Estanislao, 1993). The loss in collateral value of agricultural lands is estimated to reduce loan demand in agriculture by 10 percent (Clarete, 1992). This will result in a 4 percent decline in productivity and an annual decline in real income of close to P2 billion (US\$40 million) for the economy.<sup>74</sup>

---

<sup>72</sup> Voluntary land transfer mode provides for the direct transfer of land to tenants under terms agreed upon by the tenant and landlords. Government through DAR mainly provides information and monitors enforcement of contract.

<sup>73</sup> Refer to Table A20.

<sup>74</sup> Based on a seven sector CGE model for the Philippine economy (refer to Llanto and Estanislao, 1993).

169. The effect, however, may be more significant in the case of agrarian reform beneficiaries whose sole asset is agricultural land. Even among rural banks and thrift banks, lands with agrarian reform titles are not accepted as collateral (Llanto and Dingcong, 1994).<sup>75</sup> On the other hand, small farmers have been primarily dependent on the non-formal sector for their credit needs. It is expected that with the absence of landlord-tenant relation, the dependence on informal rather than formal sources of credit increases. This has been evident in the prevalence of land pawning activities in the rural areas (Nagarajan and others, 1991; Nagarajan and others, 1993). The recent years have also seen the entry of microfinance institutions and occurring rise of micro lending in rural areas.

### *Operation of land markets*

170. There have been several disruptions in operations of rural land markets as a result of the agrarian reform program. One major social cost of the reform is the unintended effects of limiting the opportunities of landless workers to become tenants and eventual owners. The prohibition in share tenancy has basically altered the efficiency of tenancy in rural areas whereby access to land is dictated by labor and capital surpluses rather than initial land endowments. The common presumption in the past is that tenancy is highly correlated with poverty. Balisacan (1996) however reports that this has not been the case in the Philippines. Other studies also contend that share tenancy is an efficient arrangement because it allows risk-sharing and tenant-landlord credit relations (Balisacan, 1996; Otsuka and Hayami, 1998).

171. Land reform has also resulted in a dual land rent policy for lands within and outside the CARP framework. The implementation of CARP in commercial farms has stimulated an adoption of several agribusiness arrangements among which are the leaseback and contract growing arrangements. In the past, corporate farms have dealt mainly with landowners on the terms of lease or contract-growing arrangements which are generally market determined (Gordoncillo, 2002). This has not been the case for rents and contracts provided for agrarian reform beneficiaries. The nominal land rental rates based on some contracts varied widely from “rent-free” to about P15,000 per hectare per year. This is comparatively low compared to land rental rates of non-beneficiaries which is about P40,000 per hectare per year for banana production (Gordoncillo, 2006). There is also a different policy with regard to lease duration. For agrarian reform beneficiaries the lease contract is from 25 to 30 years. For non- agrarian reform beneficiaries, the duration is only from 3 to 5 years.

## **7.3 Improving the Allocative Efficiency of DAR’s Expenditures**

172. Weighting CARP’s low poverty reduction impact, its high economic costs but also high political costs of stopping the land redistribution halfway, the largest benefits would be from an intensification of LAD’s completion and a consequent revitalization of land market. In this regard, it is recommended that the additional land balance is validated before the final decision is made on the future of CARP and to improve the institutional procedures and practices. Additional gains can be achieved from developing and pursuing a sustainable strategy for delivery of public services in rural areas.

---

<sup>75</sup> Recent interviews with rural banks and thrift banks show that these banks have accepted such titles on the condition that titles are converted to ordinary transfer of titles. This conversion of titles even with no corresponding transfer of ownership has been allowed by the registry of deeds.

### **7.3.1 Intensification of land acquisition and distribution**

173. While intense fund generation is necessary to complete the land acquisition and distribution, overcoming institutional and legislative hurdles will significantly improve the allocative efficiency of public expenditures invested on CARP. These hurdles include cumbersome land valuation process, the tedious documentation process, ineffective coordination of land-reform related activities among CARP implementing agencies, counterclaims by landowners at the DAR Adjudication Board, opposition of some local governments to LAD, and their bias toward land conversion in view of higher tax revenues from non-agricultural lands (Llanto and Ballesteros, 2003).

174. Demonstrated political will could fast-track the distribution of large private agricultural land under compulsory acquisition. This action would send positive signals and generate a renewed vigor of support from advocates, implementers and the potential beneficiaries. Based on the GTZ-DAR and other reports, the following actions might accelerate LAD's compulsory process: (a) concentrate and increase human and other resources in the 15 provinces where LAD's balance is high; (b) reconsider the mix of compulsory acquisition and voluntary offer to sell that would steer CARP toward a market-assisted agrarian reform; (c) improve coordination among the CARP implementing agencies; (d) establish a list of priority land holdings to be covered by year and closely keep track of their performance; (e) establish an agency for land survey and registration; (f) set up a comprehensive data management system; and (g) hasten decision making on LAD-related cases so as not to stall the process.

175. More funds should be allocated to legal assistance. Agrarian justice delivery involves the resolution of agrarian cases arising from CARP implementation and the provision of legal assistance services to agrarian reform beneficiaries. It covers the adjudication of cases on land valuation and agrarian disputes filed before the DAR Adjudication Board. It also includes free legal assistance and counseling to reform beneficiaries. According to DAR (2006a), it has received 280,253 agrarian cases for adjudication since 1988 or an average of about 16,152 cases a year. A total of about 268,657 cases (or 96 percent) had been resolved as of June 2006. In terms of agrarian legal assistance, DAR has received 890,803 judicial, quasi-judicial and agrarian law implementation cases since 1988, or an average of 51,248 cases per year. A total of 875,974 cases have been handled or resolved, for an accomplishment rate of 98 percent. In the coming years, more funding will be required to support this important DAR function, especially if the recent upward adjustment in LAD's target is confirmed and results in more active and probably more contentious coverage of private agricultural lands.

### **7.3.2 Sustainable strategy for delivery of public services**

176. If there will be focusing of DAR's core mandate to LAD's swift completion, there will be a scope for reforming support service delivery. DAR has launched and organized 1,796 agrarian reform communities nationwide, with 1,054 agrarian reform communities (59 percent) supported by foreign-assisted projects with a comprehensive package of benefits and services. The support of PBD has, in fact, been nearly completely taken over by foreign-assisted projects (Table 40). The ARC support has spurred investments and productivity of the agrarian reform beneficiaries to some extent. However, the total number of agrarian reform beneficiaries in the FAP-supported agrarian reform communities is only about 0.63 million. This means that 69 percent of the agrarian reform beneficiaries are found outside the declared agrarian reform communities and, therefore, receive more limited assistance and services.

**Table 40: Local and foreign financing of DAR's budget, 2000-2005**

	2000	2001	2002	2003	2004	2005
Total (million pesos)	9,572	9,650	9,496	12,366	13,641	16,855
Regular funds (million pesos)	7,954	7,737	6,895	8,044	9,288	9,288
Local-financed projects (million pesos)	737	625	401	1,390	1,499	31
Foreign-financed projects (million pesos)	861	1,288	2,200	2,932	2,877	1,144
Share of FAPs in DAR budget (%)	9	13	23	24	21	7
Share of FAPs in DAR projects (%)	54	67	85	68	67	97

Source: DBM (2006a).

177. The benefits would be highest if the budget resources support a strategy geared toward non-institutionalizing support services of DAR's core mandate and gradually devolving them to other mandated public agencies, LGUs, and communities. This implies the following actions:

- Continuation of support services delivery in agrarian reform communities where there are prior commitments;
- Inclusion of non- agrarian reform beneficiaries in ARC support programs;
- Expansion of support services coverage to new agrarian reform beneficiaries in areas only if there are no other service providers;
- Strengthening of partnerships for implementation of program beneficiary development with other agencies;<sup>76</sup> and
- Preparation of a time-bound exit strategy focusing on areas with strong local government units and geographic overlaps with other departments and on LGU capacity building.

178. The convergence of the varying core mandates among CARP-implementing agencies would have to be worked out. It may be true that DAR's programs have targeted the beneficiaries outside DA's core mandate/interest and some LGUs, and that the "convergence" could reduce the quality of services to the agrarian reform communities. DA, for instance, might not consider the agrarian reform communities as priority for support services if they are not in major production areas, and the LGUs might not consider agriculture as a priority area as a whole. However, DAR's small-scale projects result in little appreciable impact on the whole agricultural sector and rural economy. Most community-driven development projects present short-term rather than medium- to longer-term solutions for improved rural livelihood. Thus, instead of keeping DAR's support services structures in parallel to services being offered by other government agencies, an integrated approach of infrastructure and community development should be undertaken. This also implies the need for serious discussion to shift DA's mandate from supporting a few agricultural commodities to a more holistic and catalytic rural development approach. As a whole, this would be the most effective and efficient way to improve the allocative efficiency of public resources and ensure their highest payoffs.

<sup>76</sup>These include the Department of Environment and Natural Resources, Department of Agriculture, Department of Public Works and Highways, the Land Bank of the Philippines, Department of Labor and Employment, Department of Trade and Industry, and Local Government Units.

## 8. POLICY RECOMMENDATIONS

179. The AgPER's policy recommendations are based on the premise that the impact of public expenditures on growth would be the highest when combined with adjustments in agricultural and trade policies. Just altering the mix of public expenditures without policy reforms might bring some short-term gains but without significant lasting impact.

180. **The best way of increasing the impact of public expenditure on pro-poor agricultural growth in the Philippines is to improve the composition of expenditure rather than increasing its level.** Improved allocative efficiency within its current level of spending should be given priority because a large percentage of agricultural public expenditures are allocated to subsidies that do not provide much benefit to most farmers and fisherfolk but detrimental to productivity growth and agricultural diversification. A focus on expenditure composition would also support the government's fiscal consolidation efforts, necessary to create an investment climate conducive for growth in both agriculture and non-agriculture sectors.

181. **The reallocation of agricultural budget expenditures would produce greater effects with a reform of the policy of rice self-sufficiency.** Actually, an effective reallocation of expenditures is possible only within strategic adjustments in rice self-sufficiency policy because this policy drives public expenditures. It is recommendable that the policy of rice self-sufficiency to be replaced with a policy to support food security at the household level. Such a change would entail adjustments in both budget and agricultural trade policies. The adjustments can be implemented gradually over several years, starting with a realignment of the agricultural budget composition, away from commodity-specific support, toward public goods provision and market development support. Specifically, **the gradual realignment of DA's budget composition** may contain the following elements:

- **Phasing out production support.** Production support is economically distortionary and fiscally expensive. The hybrid rice seed commercialization program, for example, unintentionally supported the better-off farmers who had access to irrigation and modern farming techniques, thereby contributing to the increasing inequality within the sector and discouraging crop diversification. In the short term, some production subsidies to food-insecure farm households without ready access to markets can be provided, but even those should be time-bound, targeted and closely monitored and evaluated.
- **Increasing the sustainability of investments in irrigation.** The benefits would be larger when public expenditure is directed to rehabilitation of existing gravity irrigation systems while the expansion into new irrigated areas is done through the support of small-scale irrigation systems. Small-scale irrigation systems require less investment costs compared to the larger-scale irrigation systems, have shorter gestation periods, yield higher productivity, give farmers a greater degree of control over their irrigation water, and provide more options for crop diversification. To ensure that the existing large-scale irrigation systems are well-maintained and that the large-scale systems do not reduce the financial attractiveness of smaller-scale irrigation, institutional reforms

to allow a full cost recovery and self management of national irrigation systems by irrigators associations would be desirable. The rationalization of NIA to make it more lean and efficient would be an appropriate complement to these measures.

- **Shifting expenditures to market-related MFO.** A critical role for the government is to invest in essential public goods, in particular infrastructure (rural roads and wholesale markets), market information, research and development, and food safety and quality. These investments would be beneficial as they would reduce marketing and *palay* production costs, allowing rice farmers to generate higher incomes even at lower consumer rice prices and allowing non-rice farmers to benefit from public goods.
- **Designing and implementing appropriate monitoring and evaluation of public expenditures and programs.** MFOs are useful devices for measuring government agencies' performance in producing targeted policy outputs, but by design, these are not meant to provide information about real impact of publicly-funded programs. The absence of a regular and accessible system for outcome and impact evaluations makes it difficult to have objective public policy debates and to change the current approaches to public expenditure and agricultural policy in the Philippines.

182. A more fundamental step to enhance the effectiveness of agricultural policy, both in strengthening the sector's international competitiveness and in contributing to hunger mitigation and poverty reduction, would require trade reform and revisiting NFA's policy mandate. These measures would have the additional benefit of eliminating the sources of NFA's current financial difficulties which are expected to worsen in the coming years. Improvements in NFA's operational efficiency could reduce some costs in the short term but are unlikely to produce significant cuts in the medium to longer term. The recommended trade reform may include the following strategic elements:

- **Replacing the quantitative restrictions for rice imports with import tariff.** The Philippines is due to lift its quantitative restrictions on rice imports by 2012 and this is an opportunity to reduce the effective import protection, simplify import procedures, allow the private sector to profitably import rice, and refocus NFA's mandates on regulation and emergency stock-keeping.
- **Successively reducing import tariff.** Lower rice prices in the Philippines will be effectively attained only by reducing the current prohibitive import tariff levels. The medium-term goal would be to reduce the rice tariff to a more moderate level. Otherwise, the economic benefits for consumers and producers (through lower marketing costs) from mere "tariffication" would likely be small.
- **Separating NFA's regulatory and trade functions.** NFA may continue its responsibility for keeping buffers for emergency and safety net reasons but not for market interventions. International experience shows that the purpose of stabilization is to insure against risks associated with international commodity price movements. However, within a fairly wide band, the system should allow domestic prices to move freely and buffer only very high or very low international prices. This would promote

private agribusiness development and also free substantial public funds to be allocated to other priority public good investments.

- **Optimizing the volume of public stocks.** The role of public stocks can be re-defined to focus on disaster mitigation and safety net programs, and its volume could be reduced to minimize the fiscal losses from foregone interest and physical deterioration of stocks. The Philippines is prone to typhoons and other natural calamities that severely damage agricultural production and incomes of poor farmers. The shift in policy emphasis from price stabilization to emergency assistance would reduce fiscal costs and improve the impact on the poor.
- **Encouraging private sector marketing system.** The private sector requires incentives to import rice. Private import is a long-term financial business which requires secure access to the right to import rice, not just in 2007, but over the longer term. The annual quotas for import are unlikely to encourage the private sector to invest in logistical infrastructure, contracts with exporting countries and knowledge in trading and marketing. A strong government commitment to fully withdraw from commercial import and lower import tariff might be needed to create proper incentives for the private traders to satisfy domestic demand in rice in a timely and cost-efficient manner.

183. Reforms may be opposed by those who benefit from the current policy, thus, short to medium term compensation mechanisms may be needed. As experience in other countries shows, direct transfers to agricultural producers may be considered as a compensation mechanism that softens the impact of trade reform in the short run, while favoring adjustment and diversification of the agriculture sector over the medium to longer run. Decoupling production from price support was the cornerstone of agricultural policy reform in Mexico and Turkey, for example. A design of a compensation package in the Philippines, however, is not straightforward. It requires a consideration of several issues, such as the eligibility criteria (rice versus non-rice farmers and poor rice farmers versus non-poor rice farmers), mode of payments, validation of historical data on yields and land areas, an identification of landowners and the exact location and size of their land plots, the price gap to be compensated, a cap on fiscal transfers, phase out period for subsidy, penalties for misreporting, etc. A compensation mechanism, therefore, needs to be thoroughly designed if this strategy would be used to ease the reluctance to trade and budget reforms.

184. Another key element for pro-poor growth in the rural areas is a well-functioning land market. The delays in completion of CARP divert large budget expenditure from other uses and are likely to hamper agricultural pro-poor growth. Evidence suggests that, so far, CARP has not contributed much to unlocking the poverty problem in the rural areas. Although the agrarian reform beneficiaries are reported to have increased investments and improved their welfare, these positive effects have been negated by (a) the reduced investment of land acquisition and distribution-pending landowners, (b) the lower access of the landless poor to tenured and other rental agreements, and (c) a rural finance market hampered by a distorted land market. In addition, the limited poverty impact of CARP is explained by several exogenous factors, i.e. increasing population, scarcity of cultivated land, and slow

growth of farm and non-farm employment opportunities in the countryside. The following actions are being recommended to improving the operational efficiency and effectiveness of CARP:

- **Completing land acquisition and distribution.** While the intensification of fund generation and a validation of the revised land balance are prerequisites to complete the land acquisition and distribution, serious efforts are also required to overcome institutional and legislative hurdles. These hurdles include cumbersome land valuation procedures, tedious documentation process, ineffective coordination of land reform-related activities among the CARP implementing agencies, counterclaims by landowners at DAR Adjudication Board, and bias of some local governments toward land conversion in view of higher tax revenues from lands devoted to non-agricultural uses. Addressing these hurdles would be essential for improving the effectiveness of CARP.
- **Developing a strategy for converged delivery of public services to rural areas.** This might include the following directions: (a) continued delivery of support services in ARCs where DAR has prior commitments; (b) inclusion of non-agrarian reform beneficiaries in ARC programs; (c) expansion of support service coverage to new reform beneficiaries in areas only if there are no other providers; (d) strengthening of partnerships for service delivery with other agencies; and (e) preparation of a time-bound exit strategy focusing on areas with strong LGUs and geographic overlaps with other departments, as well as on LGU capacity building, in order to carry out long-term provision of frontline support services.

## 9. ANNEXES

### **Annex A. Department of Agriculture, its Attached Agencies and Government-Owned and Controlled Corporations**

Department of Agriculture consists of Office of the Secretary, agencies and corporations. There are 12 agencies attached to the Department of Agriculture and 11 government-owned and controlled corporations with the budget independent from the Department of Agriculture.

#### **List of DA agencies**

1. Agricultural Credit Policy Council
2. Bureau of Fisheries and Aquatic Resources
3. Bureau of Post-Harvest Research and Extension
4. Cotton Development Administration
5. Fertilizer and Pesticide Authority
6. Fiber Industry Development Authority
7. Livestock Development Council
8. National Agricultural and Fishery Council
9. National Meat Inspection Commission
10. National Nutrition Council
11. National Stud Farm
12. Philippine Carabao Center

#### **List of GOCCs**

1. National Dairy Authority
2. National Food Authority
3. National Irrigation Administration
4. National Tobacco Administration
5. Philippine Coconut Authority
6. Philippine Coconut Corporation
7. Philippine Crop Insurance Corporation
8. Philippine Fisheries Development Authority
9. Philippine Rice Research Institute
10. Quedan and Rural Credit Guarantee Corporation
11. Sugar Regulatory Administration

## **Annex B. Important budget terminology in the Philippines**

### **What is the difference between appropriation and allotment?**

*Appropriation* refers to an authorization made by law or legislative enactment directing payment out of government funds under specified conditions or for specific purposes. On the other hand, allotment is an authorization issued by the Department of Budget and Management to an implementing agency to incur obligations for specified amounts contained in a legislative appropriation.

### **How do distinguish obligation from disbursements?**

*Obligations* are liabilities legally incurred and committed to be paid for by the government either immediately or in the future. Disbursements refer to the actual withdrawal of cash from the Bureau of the Treasury due to the encashment of checks issued by agencies and payment of budgetary obligations.

### **How do we distinguish the obligation budget from the cash budget?**

The *obligation budget* is the proposed amount of commitments that the government may incur or enter into for the delivery of goods and services in a fiscal year. On the other hand, *cash budget* is the aggregate of revenues, borrowings and disbursements of the National Government. It shows the actual deposits and withdrawals of cash of national government agencies from the BTR for payment of current and previous year's obligations.

### **What is the difference between expenditure authorized by the annual general appropriations and the obligation program?**

The *obligation program* refers to a portion of total appropriations programmed for the fiscal year, unutilized prior years accounts, payments for automatic and continuing accounts that can be supported by available resources in accordance with the fiscal program. The *annual general appropriations* refer to the appropriations authorized under the General Appropriations Act or the new legislative authorizations enacted and approved by Congress. This appropriation level includes Programmed and Unprogrammed Appropriations.

Source: DBM (2006), [www.dbm.gov.ph](http://www.dbm.gov.ph).

## Annex C. Department of Agriculture: Major Final Outputs

MFO No.	Nomenclature
<b>Category 1: Agriculture and fishery support services for increased productivity, income and competitiveness</b>	
<b>MFO1: Production Support Services</b>	Support services such as seeds, seedlings, fingerlings, laboratory services, equipment, etc. provided to farmers and fisherfolk.
<b>MFO2: Market Development Services</b>	Market promotion and other market-related activities such as market matching, trade fairs, market dialogues, etc. conducted to serve as venue for market negotiations/transactions between producers (farmers/ fisherfolk) and buyers.
<b>MFO3: Credit Facilitation Services</b>	Loan, insurance, and guarantee facilitated for farmers and fisherfolk through GFIs and other lending institutions.
<b>MFO4: Irrigation Development Services</b>	Construction, rehabilitation and management of irrigation systems.
<b>MFO5: Other Infrastructure and/or Post-harvest Development Services:</b>	Post-harvest facilities such as threshers, harvesters, dryers, shellers, cold storage facilities, cold chain projects, farm-to-market roads, and other infrastructure projects including fish ports, auction markets, etc. provided to farmers, fishermen and local government units.
<b>Category 2: Dynamic client responsive and rationalized applied and basic R&amp;D</b>	
<b>MFO6: Extension Support, Education and Training Services</b>	Extension support, education and training provided to local government units, farmers, fisherfolk, SUCs, AFCs, and rural-based organizations.
<b>MFO7: Research and Development</b>	New technologies and genetically improved varieties developed and disseminated to farmers, fishermen and local government units.
<b>Category 3: Comprehensive regulatory services</b>	
<b>MFO8: Regulatory Services</b>	Regulatory services such as the issuance of licenses, import/export permits, certificates of standards and quality control, etc. to clientele.
<b>Category 4: Plans, policy, programs and project formulation, coordination, advocacy, monitoring and evaluation</b>	
<b>MFO9: Information Support Services</b>	Installation of information/data base system on soil, land, and water resources, as well as maps, statistical reports, prices, knowledge products, and services to make them available to farmers, fisherfolk, and LGUs.
<b>MFO10: Policy Formulation, Planning and Advocacy Services</b>	Preparation of plans and profiles; programs and projects; conduct of policy agenda/studies and reviews as well as monitoring and other advocacy activities.

Source: World Bank (2004b).

## Annex D. Performance Measures and Targets of Department of Agriculture in 2007 (OPIF)

## Performance Measures and Targets

Particulars	2007 Targets
<b>MFO 1</b>	
Modernized and socially-equitable agriculture and fishery support services delivered	
1.1 Production support services	
No. of beneficiary-recipients provided with production support services	277,657
Quantity of agricultural inputs distributed	17,162,810 (kgs)
- seeds/planting materials	9,938 (in '000 pcs)
- fingerlings and broodstock	18,615 (no. in '000)
- animals	21,795 (heads)
- semen straws	209,787 (number)
- biologics/vaccines/drugs	12,291,280 (doses)
- bioagents	109,926 (in '000 pcs)
Quantity of fertilizers and other soil ameliorants distributed (kgs)	1,483,578 (kgs)
Soil testing kits distributed	
Farm & fishery production machinery and equipment distributed	18,909 (num)
No. of clients served for laboratory services (diagnostic tests, soil analyses, etc.)	34,502 (num)
% increase in the volume of production (program areas/commodity)	
% increase in productivity (metric tons/hectare)	
1.2 Market development services	
No. of beneficiaries/recipients assisted	9,785 (num)
No. of local and international marketing events (trade fairs, exhibits, missions, congress, etc.) conducted/assisted/participated in % share of agricultural products in int'l market	725 (num)
Volume & value of products traded (metric tons, in million pesos)	
1.3 Credit facilitation services	
No. of recipients assisted to access credit, loan insurance, and guarantee	18,415 (num)
No. of groups assisted to access credit	
Amount of loans facilitated/granted	527 (million pesos)
1.4 Irrigation development services	
No. of farm households benefited	68,324 (num)
Service area generated (national irrigation systems, communal irrigation systems, small-scale irrigation systems) in has.	14,254 (has.)
Service area rehabilitated (national irrigation systems, communal irrigation systems, small-scale irrigation systems, multi-crop irrigation systems) in has.	59,786 (has.)
1.5 Other infrastructure and/or post harvest development services	
No. of farm households benefited/total no. of beneficiaries	
No. of post-harvest equipment/machinery distributed/repared (harvesting machinery/equipment; threshers and shellers; drying machinery/equipment; storage equipment; milling machinery; etc.)	1,911 (num)
No. of post-harvest facilities constructed/rehabilitated (drying; storage; processing plants/centers; tramline; etc.)	253 (num)
Kilometers of farm-to-market roads (validated and endorsed for construction, that are actually constructed/rehabilitated)	1,352 (kms)
No. of fishery-related infrastructure established/maintained/operated (fishports, hatcheries, mariculture parks, sea cages, seaweed nurseries, etc.)	492 (num)
No. of marketing-related infrastructure established/maintained (auction market, bagsakan center)	95 (num)
1.6 Extension support, education and training Services	
No. of participants trained (extension personnel, farmers, others)	221,791 (num)
No. of training and seminars conducted	7,837 (num)
<b>MFO 2</b>	
Appropriate and comprehensive regulations and standards developed, implemented, monitored, and enforced	
No. of new regulation guidelines developed	
No. of regulations updated	
No. of regulatory documents issued (seed certification, weighing scale calibration, clearances, permits, licenses, registration)	
No. of product standards established, updated, implemented/enforced	2,233,362 (num)
% decrease in processing time for each of the major regulatory issued: export permit; import permit; renewal of import and export licenses; registration for fertilizers and pesticides, etc.	10%
<b>MFO 3</b>	
Plans and policies developed, implemented, monitored, and evaluated	
3.1 Policy, Planning and Advocacy	
No. of policy agenda developed	807 (num)
No. of policy studies or reviews completed	74 (num)
No. of policy advocacy materials distributed	8,735 (num)
No. of policy recommendations/resolutions formulated	89 (num)
No. of plans and profiles distributed	1,514 (num)
Executive and legislative policy agenda filed	10 (num)
No. of programs & projects endorsed	638 (num)
No. of consultations & workshops conducted	3,503 (num)
3.2 Information Support Services	

Source: DBM (2006b).

## Annex E. Reforms of Public Food Distribution System (PFDS) in Bangladesh

Bangladesh is now widely recognized for successfully transforming its grain market structures. This success is documented in detail in many studies and reports (Ahmed and others, 2000; Dorosh and Shahabuddin, 2002; Ali and others, 2006). Behind this success is a series of reforms, including dismantling the food rationing system and easing restrictions on both domestic and international trade of grains in the early 1990s. By the late 1980s, the evidence of the ineffectiveness, or even counter-productiveness, of the old set of policies was mounting and the government and its development partners were convinced that the country's food policies had to be changed. Both food rationing and public procurement were found ineffective; and none of the existing public distribution programs were reaching the poor. However, given the level of poverty and vulnerability of the country to national calamities, the government did not plan any complete withdrawal from the cereals market.

Thus, the government had to strike a balance between the two objectives and find policy actions that would complement each other. While interventions were significantly reduced, increasing emphasis was placed on strengthening the country's social safety net programs for the poor. *Underlying idea was that lifting restrictions on grain trade would change the incentive structure (would get the prices right) and help markets develop through greater private sector participation; and the government would then focus on playing its legitimate public roles-that is, reaching the poor who did not have the purchasing power to buy from the markets.*

This realization led to a shift in policy emphasis that brought about significant changes in the dual pricing policy paradigm. Instead of using the public distribution as an outlet for public procurement and price support, the emphasis now shifted toward social safety nets and disaster mitigation programs; and the procurement and stocking were carried out only up to a level necessary to meet those programs' demand. This shift in policy emphasis is unique in the region and the country has traveled a long way, with re-defined policy objectives, since it embarked on the market reforms in the early 1990s.

Source: Adopted from Ali and others (2006).

## Annex F. Department of Agrarian Reform: Major Final Outputs

Major Final Outputs	Description
<b>MFO1: Land Tenure and Security Services</b>	1.1. Land acquisition and distribution (LAD) 1.2. Leasehold agreements implementation 1.3. Other land tenure improvements: <ol style="list-style-type: none"> <li>a) Subdivision of collective CLOAs issued to individual titles</li> <li>b) Redocumentation of land distributed but not yet paid</li> <li>c) Installation of uninstalled ARBs previously awarded land titles</li> </ol>
<b>MFO2: Agrarian Justice Delivery Services</b>	2.1. Adjudication of agrarian cases 2.2. Agrarian legal assistance <ol style="list-style-type: none"> <li>a) Mediation and conciliation</li> <li>b) Agrarian law implementation cases</li> <li>c) ARB representation judicial courts and prosecutors office</li> </ol>
<b>MFO3: Support Service Delivery</b>	Support services implemented, facilitated and coordinated for delivery to ARBs <ol style="list-style-type: none"> <li>3.1. Social infrastructure and local capability building services</li> <li>3.2. Sustainable agribusiness and rural enterprises development services</li> <li>3.3. Access facilitation and access enhancement services</li> </ol>

Source: DBM (2006b).

## 10. Statistical Appendix

**Table A1: Banana production and export in the Philippines and in the world, 1992-2004**

	Production (million tons)			% change		Exports (mill. US\$)			% change	
	1992	1997	2004	1992-1997	1997-2004	1992	1997	2003	1990-1997	1997-2003
Total world	50.66	60.52	70.63	19.4	39.8	3,298	5,048	4,786	53.1	-5.2
Largest producer - India	8.53	13.34	16.82	56.5	97.4					
2nd largest producer - Brazil	5.85	5.41	6.59	-7.5	12.7					
Largest exporter - Ecuador						668	1,312	1,084	96.4	-17.3
2nd largest exporter - Costa Rica						485	588	554	21.2	-5.7
Philippines	3.01	3.77	5.50	25.6	83.0	158	217	333	37.3	53.7
Philippines as % of World	5.93	6.24	7.79		4.78	4.29	6.96			

Source: FAOSTAT (2007).

**Table A2: Pineapple production in the Philippines and in the world, 1992-2004**

	Production (million tons)			% change	
	1992	1997	2004	1992-1997	1997-2004
Total world	11.72	12.93	15.29	10.4	18.2
Largest producer - Thailand	2.18	2.08	1.70	-4.4	-18.4
3rd largest producer - India	0.86	1.25	1.30	45.5	4.0
Philippines (2nd largest producer)	1.14	1.64	1.65	44.3	0.73
Philippines as % of World	9.68	12.66	10.79		

Source: FAOSTAT (2007).

**Table A3: Mango production and export in the Philippines and in the world, 1992-2004**

	Production (million tons)			% change		Exports (mill. US\$)			% change	
	1992	1997	2004	1992-1997	1997-2004	1992	1997	2003	1990-1997	1997-2003
Total world	17.85	23.66	26.29	32.6	11.1	211	356	560	69.9	56.3
Largest producer - India	9.22	11.00	10.80	19.3	-1.8					
2nd largest producer - China	1.12	2.41	3.62	114.4	50.3					
Largest exporter - Mexico						85	128	117	50.3	-8.1
3rd largest exporter - Brazil						7	20	76	192.3	275.2
Philippines	0.33	1.01	0.89	204.3	-11.4	29	41	45	41.2	11.2
Philippines as % of World	1.85	4.25	3.39			13.59	11.29	8.03		

Source: FAOSTAT (2007).

**Table A4: Cross-country comparison of public spending on the agriculture (average for the period between 2000 and 2004)**

Countries	Agriculture as a share of GDP	Share of agricultural public spending in total GDP	Share of agricultural public spending in GDP adjusted to the size of agriculture
	A	C	C/A
<b>East Asian countries</b>			
Philippines	14.9%	0.69%	0.05
Lao	49.0%	2.20%	0.04
Vietnam	23.0%	1.30%	0.06
China	15.0%	1.20%	0.08
Thailand	10.0%	1.28%	0.13
<b>Other middle-income countries</b>			
Brazil	9.3%	0.70%	0.08
Venezuela	5.0%	0.50%	0.12
Turkey	13.0%	2.00%	0.15
Russia	6.0%	0.95%	0.16
Mexico	4.0%	0.70%	0.18
Ukraine	11.6%	2.10%	0.18
<b>High-income countries</b>			
Australia	3.0%	0.31%	0.10
Canada	2.3%	0.51%	0.22
EU-15 2.3%	0.65%	0.28	
USA	1.6%	0.73%	0.46

Source: Data on OECD countries is from OECD (2004); data on middle-income countries is from de Ferranti et al. (2005); data on Ukraine and Russia is from Zorya (2006); data on Brazil and China is from Tangermann (2006); data for Lao and Vietnam is from World Bank (2005a) and World Bank (2004a). Data for Thailand is for 2001.

**Table A5: Total agricultural public expenditures in nominal and real (adjusted for inflation) terms, 1998-2005 (million pesos)**

	1998	1999	2000	2001	2002	2003	2004	2005
Nominal spending (DA and DAR)	21,634	23,787	30,141	31,611	28,350	33,558	35,802	47,073
Real spending (DA and DAR)	23,774	24,778	30,141	29,543	25,773	29,437	29,558	36,210

Source: DBM (2006a) and DOF (2007).

**Table A6: Trend in appropriations, allotments and obligations in the Department of Agriculture, 1995-2007 (thousand pesos)**

Year	Appropriation	Allotment	Obligation	Unobligated	% Utilization of allotment	% Allotment to appropriations
1995	10,735,412	10,003,072	9,796,495	206,577	97.93	93.18
1996	15,769,274	13,223,380	12,615,653	607,727	95.40	83.86
1997	17,165,131	14,086,957	13,849,770	237,187	98.32	82.07
1998	15,730,932	11,337,988	10,746,982	591,006	94.79	72.07
1999	14,956,552	13,550,078	13,168,524	381,554	97.18	90.60
2000	20,800,251	15,556,220	15,260,779	295,441	98.10	74.79
2001	16,106,343	14,942,206	14,877,111	65,095	99.56	92.77
2002	20,039,071	16,429,010	16,318,880	110,130	99.33	81.98
2003	16,823,640	14,244,800	14,155,950	88,850	99.38	84.67
2004	13,725,298	12,717,050	12,545,715	171,335	98.86	92.65
2005	14,534,783	13,499,805	11,005,098	2,494,707	81.52	92.88
2006	15,819,633					
2007	19,320,931					

Source: DA Budget Division (2006).

**Table A7: Public expenditures of the Department of Agriculture (actual obligations), 2000-2005 (million pesos)**

	2000	2001	2002	2003	2004	2005
Irrigation						
Locally-Funded Projects	2,887	1,871	1,468	1,856	1,450	920
Foreign-Assisted Projects	1,880	2,851	4,270	2,386	1,947	2,025
Programs						
Rice and Corn	2,232	1,939	1,461	2,622	1,871	1,214
High Value Commercial Crops	819	527	444	350	277	209
Livestock	770	540	389	349	338	185
Fisheries	848	667	587	469	464	676
Technology generation and dissemination for the growth and development of the vegetable industry	19	13	14	13	15	15
Agricultural Intensification and diversification program	16	16	14	13	16	16
Bohol Agricultural Promotion Center	10	9	8	8	9	8
National Government subsidy or crop insurance premium of subsistence farmers under the PCIC	138	124		45	114	68
Breeder base expansion program	9	9	8	7	9	8
Agricultural research program (BAR)	400	340	285	139	119	136
Other Locally-Funded Projects	74	-	-	199	265	201
Other Foreign-Assisted Projects	577	411	481	521	315	771
Bureau of Fisheries and Aquatic Resources						
Foreign-Assisted Projects	431	253	1,222	426	303	-
Fertilizer and Pesticide Authority	5	4	-	-	-	-
National Meat Inspection Commission	114	102	94	89	93	93
Philippine Carabao Center	158	146	152	76	69	71
Philippine Rice Research Institute	21	17	-	133	150	140
Philippine Coconut Authority	-	-	41	35	36	41
Philippine Fisheries Development Authority	-	-	20	23	14	27
PL-480	-	1,498	-	-	-	-
El Niño Funds	-	-	-	-	453	-
Sub-Total AFMA*	11,408	11,337	10,958	9,759	8,327	6,824
Regular Programs**	3,852	3,540	5,361	4,396	4,220	4,181
<b>Grand Total</b>	<b>15,260</b>	<b>14,877</b>	<b>16,319</b>	<b>14,155</b>	<b>12,547</b>	<b>11,005</b>

Note: \* Structure of AFMA Budget (average 2002-2005): PS = 2%; MOOE = 35%; CO = 63%. \*\* Structure of Regular Programs (average 2002-2005): PS = 66%; MOOE = 34%.

**Table A8: Estimated distribution of appropriations for the DA by the MFOs, AFMA budget, 2001-2007 (million pesos)**

	2001	2002	2003	2004	2005	2006	2007
MFO 1-Production Support Services	1,333	1,415	1,948	1,928	1,811	1,508	2,545
MFO 2-Market Development Services	137	84	56	57	58	91	1,343
MFO 3-Credit Facilitation Services	167	119	123	117	140	124	206
MFO 4-Irrigation Development Services	4,957	7,276	4,761	3,576	4,434	5,267	8,036
MFO 5-Other Infra and/or Post harvest Dev't Services	1,296	1,420	1,340	964	1,786	2,381	1,770
MFO 6-Extension Support, Education and Training Services	1,404	1,367	1,157	927	638	549	1,143
MFO 7-Research and Development	741	820	546	509	532	543	1,242
MFO 8-Regulatory Services	284	1,133	1,643	923	270	274	777
MFO 9-Information Support Services	89	136	204	51	107	159	615
MFO10-Policy Formulation, Planning and Advocacy Services	1,042	669	511	420	484	570	1,644
ALL MFOs	11,450	14,439	12,289	9,472	10,260	11,466	19,320

Source: DA Budget Division (2007).

**Table A9: Estimated distribution of obligations for the DA by the MFOs, 2001-2003 (million pesos)**

	2001	2002	2003
MFO 1-Production Support Services	1,190	1,053	2,660
MFO 2-Market Development Services	130	59	59
MFO 3-Credit Facilitation Services	145	5	61
MFO 4-Irrigation Development Services	5,024	5,848	4,283
MFO 5-Other Infra and/or Post harvest Dev't Services	1,504	592	327
MFO 6-Extension Support, Education and Training Services	1,226	1,147	969
MFO 7-Research and Development	945	553	412
MFO 8-Regulatory Services	228	1,124	601
MFO 9-Information Support Services	57	47	62
MFO10-Policy Formulation, Planning and Advocacy Services	888	530	326
ALL MFOs	11,337	10,958	9,760

Source: DA Budget Division (2006).

**Table A10: Estimated distribution of appropriations for DA by commodity, 2000-2005 (million pesos)**

	2000	2001	2002	2003	2004	2005
Rice	6,503	6,322	8,520	6,542	5,359	5,952
Non-Rice	1,910	1,485	1,198	927	905	897
Livestock	1,084	965	826	546	506	429
Fisheries	1,528	1,142	2,020	2,040	1,296	868
Other commodities	5,610	1,536	1,875	2,234	1,407	2,116
<b>Total</b>	<b>16,635</b>	<b>11,450</b>	<b>14,439</b>	<b>12,289</b>	<b>9,473</b>	<b>10,261</b>

Source: DA Budget Division (2006).

**Table A11: Estimated distribution of obligations for DA by commodity, 2000-2005 (million pesos)**

	2000	2001	2002	2003	2004	2005
Rice	6,337	6,089	6,761	6,465	5,139	4,064
Non-Rice	1,680	1,273	951	988	737	585
Livestock	1,051	797	643	521	509	357
Fisheries	1,279	920	1,829	918	780	703
Other commodities	1,061	2,258	774	867	1,161	1,116
<b>Total</b>	<b>11,408</b>	<b>11,337</b>	<b>10,958</b>	<b>9,759</b>	<b>8,326</b>	<b>6,824</b>

Source: DA Budget Division (2006).

**Table A12: Estimated distribution of appropriations for DA's commodity programs, by economic functions, 2000-2005 (million pesos)**

	2000	2001	2002	2003	2004	2005
<b>Total DA Appropriation*</b>	<b>4,456</b>	<b>25,377</b>	<b>23,681</b>	<b>19,189</b>	<b>16,619</b>	<b>13,177</b>
Personnel spending	2,185	2,594	2,658	2,626	2,583	2,358
Operation and maintenance costs	1,978	7,848	7,301	7,127	7,780	5,134
Capital outlays	293	14,936	13,722	9,436	6,256	5,685
<b>Total O&amp;M for Commodity Programs</b>			<b>2,737</b>	<b>3,167</b>	<b>2,974</b>	
Rice and Corn			1,371	2,067		1,878
HVCC		410	314		247	
Livestock			443	328		221
Fisheries			513	458		628
<b>Total capital outlays for Commodity Programs</b>			<b>882</b>	<b>247</b>		<b>452</b>
Rice and Corn			465	83		152
HVCC		165	69		70	
Livestock			112	19		29
Fisheries			140	76		201
<b>Total capital outlays for NIA Projects</b>			<b>7,102</b>	<b>4,591</b>		<b>4,165</b>
Locally Funded			1,476	1,779		1,245
Foreign-Assisted			5,626	2,812		2,920

Note: \*Regular Program and AFMA.  
Source: DA Budget Division (2006).

**Table A13: Economic composition of DA's public expenditures, 1998-2005 (million pesos)**

	1998	1999	2000	2001	2002	2003	2004	2005
<b>DA, consolidated*</b>								
Personnel spending	2,430	2,552	2,471	2,690	2,753	2,739	2,797	2,832
Operation and maintenance costs	6,013	5,866	6,942	11,027	6,174	15,970	11,631	19,667
Capital outlays	8,306	8,628	10,418	8,186	9,751	6,078	5,328	7,720
<b>Total</b>	<b>16,749</b>	<b>17,046</b>	<b>19,831</b>	<b>21,903</b>	<b>18,678</b>	<b>24,787</b>	<b>19,756</b>	<b>30,219</b>
<b>DA- OSEC**</b>								
Personnel spending	2,067	1,896	1,718	1,941	1,991	1,967	2,037	2,037
Operation and maintenance costs	2,924	4,325	4,502	6,122	3,977	3,297	4,822	4,813
Capital outlays	7,637	8,003	8,562	7,732	7,026	5,963	5,177	5,648
<b>Total</b>	<b>12,628</b>	<b>14,224</b>	<b>14,782</b>	<b>15,795</b>	<b>12,994</b>	<b>11,227</b>	<b>12,036</b>	<b>12,498</b>
<b>DA- Attached Agencies***</b>								
Personnel spending	364	655	748	750	762	772	761	794
Operation and maintenance costs	438	855	1,329	1,521	1,393	1,319	1,290	1,265
Capital outlays	441	568	339	439	1,233	115	120	1,070
<b>Total</b>	<b>1,243</b>	<b>2,078</b>	<b>2,416</b>	<b>2,710</b>	<b>3,388</b>	<b>2,206</b>	<b>2,171</b>	<b>3,129</b>
<b>DA- Attached Corporations****</b>								
Personnel spending	0	0	0	0	0	0	0	0
Operation and maintenance costs	2,651	686	991	3,384	734	11,352	5,519	13,589
Capital outlays	227	58	80	15	45	-	31	31
<b>Total</b>	<b>2,878</b>	<b>744</b>	<b>1,071</b>	<b>3,399</b>	<b>779</b>	<b>11,352</b>	<b>5,550</b>	<b>13,620</b>
<b>Other Agencies*****</b>								
Personnel spending	-	-	4	-	-	-	-	-
Operation and maintenance costs	-	-	121	-	70	-	-	-
Capital outlays	-	-	1,436	-	1,447	-	-	971
<b>Total</b>	<b>-</b>	<b>-</b>	<b>1,561</b>	<b>-</b>	<b>1,517</b>	<b>-</b>	<b>-</b>	<b>971</b>

Note: \* DA consolidated includes DA OSEC, Bureaus, Regions, Attached Agencies and Attached Corporations. \*\* DA OSEC includes OSEC Proper, Bureaus and Regional Field Units. \*\*\*DA Attached Agencies include ACPC, BFAR, BPHRE, CDA, FPA, FIDA, LDC, NAFC, NMIC, NNC, NSF and PCC. \*\*\*\* DA Attached Corporations include NDA, NFA, NIA, NTA, PCA, PCC, PCIC, PFDA, PhilRice, Quedancor and SRA. \*\*\*\*\* Budget to other agencies from AFMA appropriations. Other agencies include SUCs, LGUs and PCARRD-DOST.

Source: DBM (2006a).

**Table A14: Summary of government departments involved in agricultural R&D and their functions, 2004**

Department	P&D Units	Number	Functions
DA	BAR/Networks	1/30	National R&D coordination
	ATI, RTC/PTC	1/16	Extension implementation
	Bureaus/Attached Agencies	5/8	R&D implementation
	RIARCs/Networks	14/30	Regional R&D implementation
DOST	PCARRD/Networks	1/132	National R&D coordination
	PCAMRD/Networks	1/101	National R&D coordination
	PCAMRD/Zonal Centers	5	Regional R&D implementation
	FPRDI, FNRI, ITDI	3	National R&D coordination
	DOST-Ros	14	Regional R&D implementation
	PSTC	74	Provincial extension coordination
DILG	PLGUs, MLGUs/GLGUs	79, 1,495/115	Prov./Mun./City extension implementation
DAR	ARCs	14	Municipal extension implementation

Note: BAR - Bureau of Agricultural Research; ATI - Agricultural Training Institute; RTC - Regional Training Center; PTC - Provincial Training Center; RIRC - Regional Integrated Agricultural Research Center; FPRDI - Forest Product Research and Development Institute; FNRI - Food and Nutrition Research Institute; ITDI - Industrial Technology Development Institute; PSTC - Provincial Science and Technology Center; PLGU - Provincial LGU; MLGU - Municipal LGU; ARC - Agrarian Reform Community.

Source: Gapasin (2006).

**Table A15: Agencies with extension functions and their responsibilities in the Philippines**

Department	Agency	Number	Extension responsibility
DILG	Provincial LGUs	79	- Prevention and control of plant and animal pests and diseases; - Establishment and maintenance of dairy farms, livestock markets, animal breeding stations and artificial insemination centers; - Assistance in the organization of farmers' fishermen's cooperatives and other collective organizations; and - Transfer of appropriate technologies
	Municipal/City LGUs	1,495/115	- Dispersal of livelihood and poultry, fingerlings and other seeding materials for agriculture; - Establishment and maintenance of seed farms for palay, corn and vegetables, medicinal plant gardens; seedling nurseries for fruit trees, coconuts and other trees or crops; and demonstration farms; - Maintenance and operation of interbarangay irrigation system;
DA	ATI	1	Training and communication support to LGUs and DA units
	Bureaus	5	Technology transfer, technical advise to farmers, fishers, processors and traders
	Attached agencies	8	Training and technical advise to farmers on specific commodities
DOST	Science and technology centers	74	
DAR	Office of support services	1	Training and technical advise to CARP beneficiaries
DENR	FMB	1	Technical advise on forestry and NRM
CHED	SCUs	112	Information and training of LGU extension workers

Source: Local Government Code and Gapasin (2006).

**Table A16: Composition of DAR's expenditures by MFOs, 1998-2004 (million pesos)**

	1998	1999	2000	2001	2002	2003	2004
<b>MFO 1: Land Acquisition and Distribution (LAD)</b>	3,094	3,530	3,734	3,884	3,989	4,074	4,393
Surveys and registration	511	602	634	550	405	515	746
Landowners compensation	2,567	2,883	3,045	3,294	3,556	3,520	3,595
other LAD activities	1	3	6	0	0	8	0
<b>MFO 2: Agrarian Justice (AJD)</b>	15	2	49	40	28	31	52
<b>MFO 3: Delivery of Public Services</b>							
<b>PBD local</b>	553	925	737	625	401	1,390	1,449
extension	98	96	237	204	58	63	70
credit	0	0	0	0	0	0	0
farm inputs	0	0	0	0	0	0	0
infrastructure	453	828	498	419	342	800	942
special projects	1	2	1	2	2	526	436
<b>PBD by FAPs</b>	664	704	881	1,288	2,200	2,932	2,877
<b>Operational support</b>	2,993	2,832	3,483	3,227	2,503	2,580	3,417
<b>TOTAL</b>	<b>7,304</b>	<b>7,991</b>	<b>8,835</b>	<b>9,024</b>	<b>9,093</b>	<b>10,976</b>	<b>12,136</b>

Source: DAR (2006b).

**Table A17: Economic and functional structure of DAR's expenditures, 1998-2005 (million pesos)**

	1998	1999	2000	2001	2002	2003	2004	2005
<b>LAD and AJD</b>								
PS	1,974	2,034	2,161	2,205	2,023	1,721	2,023	1,977
MOOE	914	668	1,166	904	379	456	1,273	1,230
CO	528	649	710	591	435	562	809	1,151
landowners compensation	2,567	2,883	3,046	3,295	3,556	3,520	3,595	3,874
<i>Sub-total</i>	<i>5,983</i>	<i>6,234</i>	<i>7,083</i>	<i>6,995</i>	<i>6,393</i>	<i>6,259</i>	<i>7,700</i>	<i>8,232</i>
<b>PBD</b>								
PS	101	106	109	105	91	365	97	98
MOOE	2	23	24	11	9	28	12	21
CO	554	926	738	626	402	1,392	1,479	1,374
<i>Sub-total</i>	<i>657</i>	<i>1,055</i>	<i>871</i>	<i>742</i>	<i>502</i>	<i>1,785</i>	<i>1,588</i>	<i>1,493</i>
<b>FAPs</b>								
PS	90	95	119	174	298	397	308	446
MOOE	10	11	13	19	33	44	34	50
CO	564	599	748	1,093	1,869	2,491	1,934	2,799
<i>Sub-total</i>	<i>664</i>	<i>705</i>	<i>881</i>	<i>1,287</i>	<i>2,200</i>	<i>2,932</i>	<i>2,276</i>	<i>3,295</i>
<b>Total</b>	<b>7,304</b>	<b>7,994</b>	<b>8,835</b>	<b>9,024</b>	<b>9,095</b>	<b>10,976</b>	<b>11,564</b>	<b>13,020</b>

Note: Actual obligations for the years 1998-2004 and appropriations for the year 2005.  
Source: DAR (2006b).

**Table A18: Disbursements of landowners' compensation, 1987-2006 (million pesos)**

	Cash portion	Bond maturities	Bond interest	Total
1987	0.55	39.13	43.48	83.16
1988	33.63	59.30	160.84	253.77
1989	34.29	108.88	159.93	303.10
1990	8.83	61.56	201.49	271.88
1991	258.67	59.86	199.85	518.38
1992	404.38	307.93	311.93	1,024.24
1993	543.26	573.18	291.23	1,407.67
1994	483.40	351.25	733.24	1,567.92
1995	869.02	453.61	544.01	1,866.63
1996	1,105.18	520.00	557.94	2,183.12
1997	1,037.45	508.03	489.54	2,035.02
1998	1,216.10	603.31	747.91	2,567.32
1999	1,288.47	778.85	815.36	2,882.68
2000	1,134.53	1,088.37	823.04	3,045.94
2001	1,067.67	1,284.38	942.54	3,294.59
2002	1,238.36	1,493.91	824.50	3,556.77
2003	1,288.94	1,617.31	614.26	3,520.51
2004	1,105.59	1,761.24	728.68	3,595.50
2005	1,171.4	1,811.2	750.5	3,733.10
2006	1,235.1	1,890.4	603.9	3,729.40
<b>Grand total</b>	<b>15,524.82</b>	<b>15,371.70</b>	<b>10,544.14</b>	<b>41,440.70</b>

Source: Arlanza *et al.* (2006) and Land Bank (2007a).

**Table A19: Schedule of land amortization collection and actual collection by Land Bank of the Philippines, 1987-2006**

	Actual (Pesos million)	Amortization due (Pesos million)	Collection rate (%)
1987	19	1,286	1.5
1988	56	1,428	3.9
1989	95	375	25.3
1990	105	626	16.8
1991	132	723	18.3
1992	121	887	13.6
1993	144	1,026	14.00
1994	171	443	38.6
1995	188	494	38.1
1996	169	552	30.6
1997	190	610	31.1
1998	187	669	28.0
1999	156	732	21.3
2000	148	794	18.6
2001	139	789	17.6
2002	172	883	19.5
2003	158	1,012	15.7
2004	209	1,012	20.6
2006	393	1,180	25.0
<b>Grand total</b>	<b>2,952</b>	<b>15,521</b>	<b>18.5</b>

Source: Arlanza *et al.* (2006) and Land Bank (2007a).

**Table A20: DAR land distribution accomplishment via Voluntary Land Transfer (VLT), by region, 1972-2001**

	Land redistribution output by DAR (private+public) (ha)	Accomplishment of DAR total land redistribution in the DAR redistribution target	DAR's total private land		Voluntary land transfer, VLT		
			Qty (ha) of land redistribution	% share in the total total redistribution output on private and public lands	Qty (ha)	% share total redistribution output of DAR	% share total redistribution output on private land by DAR
(Philippines)		81.15	1,737,951	54.07	435,019	13.54	25.03
CAR	65,911	77.75	19,115	29.00	15,163	23.00	79.32
Region 1	126,720	98.71	102,272	80.70	62	48.82	60.49
Region 2	288,820	87.68	159,595	55.25	30,076	10.41	18.84
Region 3	367,890	94.85	279,393	75.94	25,708	6.98	9.20
Region 4	264,123	81.74	166,194	62.92	44,969	17.02	27.05
Region 5	203,337	57.83	159,886	78.63	27,285	13.41	17.06
Region 6	287,445	63.45	167,190	58.18	21,219	7.38	12.69
Region 7	103,615	74.75	68,488	66.09	2,544	2.45	3.71
Region 8	286,802	77.12	65,817	22.94	11,129	3.88	16.90
Region 9	200,993	98.28	112,056	55.75	46,952	23.36	41.90
Region 10	160,979	92.90	91,310	56.72	46,039	28.59	50.42
Region 11	268,757	91.13	184,569	68.67	37,671	14.01	20.41
Region 12	412,849	77.77	103,636	25.10	42,674	10.33	41.17
Region 13	175,825	93.02	58,513	33.27	21,746	12.36	37.16

Source: Borras (2005).

**Table A21: Non-farm real properties and incomes of sample proprietors, by LAD Status**

	All Proprietors	LAD-compliant	LAD-pending
<b>Farm assets as a percentage of real property values:</b>			
Cereal	4.0	3.6	0.9
Traditional	9.9	0.3	7.0
Fruit	8.0	11.3	6.8
All categories	7.4	5.8	5.1
<b>Non-farm income as a percentage of total income:</b>			
Cereal	63.5	65.8	53.7
Traditional	51.0	64.6	51.8
Fruit	27.0	33.9	72.5
All categories	61.0	52.0	52.0

Note: a/ based on a sample of 100 traditional landowners across different crops: cereal, fruit, coconut, sugarcane; b/ LAD compliant = landowners that complied with CARP; c/ LAD pending = landowners that have yet to comply with land distribution

Source: Habito and others (2003).

**Table A22: Agricultural land improvements in farms greater than 5 to 24 hectares by land size, tenure and crop, 1998**

		Orchard <sup>a/</sup>		Coconut <sup>b/</sup>		Sugarcane <sup>c/</sup>	
		Ave. total value of land improvement (Pesos)	Ave. per hectare* (Pesos/ha)	Ave. total value of land improvement (Pesos)	Ave. per hectare (Pesos/ha)	Ave. total value of land improvement (Pesos)	Ave. per hectare (Pesos/ha)
Land size							
	< 10	98,391		45,690	6,068	51,471	7,209
	10 < 15	12,778		23,333	1,964	41,000	3,704
	15 < 20	190,000		45,500	2,816	4,500	283
	20 & above	296,843		12,975	395	75,565	2,689
	Total	160,750		27,408	1,478	49,882	4,755
Tenure							
	Owner-operated		17,000		6,577		-
	Tenanted		7,000		1,496		-
	Total		-		2,022		6,250

Note: \*Average per hectare by land size is imputed using average total value of land improvements relative to average land size. Data on average land size for Orchard not available but average per hectare by tenure has been provided. a/ Deviation about the mean is quite wide. Land investments range from P0 to as high as P460,000; b/ A relatively large proportion of landowners (40% of the respondents) did not invest on land improvements. Highest investment on average is P100,000 by two landowners with < 10 ha; c/ Only 63% of respondents invested on land improvements. Two landowners with < 10 ha have the highest value of land improvements (P115,000 average); Data used - survey of landowners in selected provinces identified for the specific crops. Sample size of 30 landowners per crop.

Source: Institute of Agrarian and Urban Development Studies (2000).

**Table A23: Fund sources and uses of the National Food Authority, 2000-2005 (million pesos)**

	2000	2001	2002	2003	2004	2005
<b>USES</b>						
Procurement Cost						
Local	6,998	4,684	2,987	2,799	2,030	868
Importation	5,661	5,958	12,161	6,638	11,636	27,870
Sugar	2,620	729	170	0	769	174
Loan Amortization	16,529	14,711	4,283	5,451	4,736	12,605
Payment to BOC	-	-	-	-	3,349	-
MOOE	4,763	2,888	3,738	3,025	2,932	3,348
Customs, Duties and Fees	-	-	3,752	2,104	5,829	13,557
Interest Expenses	1,467	1,730	1,443	1,692	3,209	3,358
Personal Services	1,337	1,328	1,371	1,401	1,400	1,434
Capital Outlay	180	223	141	64	115	138
ROP Bonds	-	-	-	1,903	2,722	4,378
<b>TOTAL</b>	<b>39,555</b>	<b>32,250</b>	<b>30,047</b>	<b>25,077</b>	<b>38,729</b>	<b>67,731</b>
<b>SOURCES</b>						
Corporate Resources	23,787	13,675	18,070	15,896	21,188	28,071
Government Support	-	-	-	-	-	-
Equity	-	1,051	920	922	4,692	9,153
Subsidy for Stabilization	-	90	902	922	650	1,150
CY 2000 Subsidy*	-	961	18	-	-	-
Advances - CDF	-	-	-	-	110	-
Tax Subsidy	-	-	-	-	3,931	8,003
Advances - CDF	-	-	-	-	-	123
Subsidy Receivable**	-	-	-	-	3,581	-
Borrowings:						
Bank Borrowings	15,768	17,524	9,506	8,258	9,269	30,383
PL - 480 Loan	-	-	405	-	-	-
Due to BOC	-	-	1,147	-	-	-
<b>TOTAL</b>	<b>39,555</b>	<b>32,250</b>	<b>30,047</b>	<b>25,077</b>	<b>38,729</b>	<b>67,731</b>

Note: \* CY 2000 subsidy released in 2001 and 2002. \*\* Subsidy receivable is balance of previous year/s subsidy. The balance sheet is from the NFA.

**Table A24: DBM fiscal transfers to the DA-OSEC, attached bureaus and corporations, 1998-2005 ('000 pesos)**

	1998	1999	2000	2001	2002	2003	2004	2005
<b>Office of the Secretary (OSEC, Bureaus, Regions)</b>	<b>12,627,844</b>	<b>14,224,468</b>	<b>2,230,859</b>	<b>2,447,108</b>	<b>3,564,893</b>	<b>2,817,941</b>	<b>3,182,601</b>	<b>2,329,140</b>
<b>Attached bureaus</b>								
Agricultural Credit Policy Council	16,875	17,104	24,161	17,527	17,961	17,855	17,846	18,395
Bureau of Fisheries and Aquatic Resources	-	1,098,607	626,679	478,608	443,243	470,413	593,222	450,986
Bureau of Post-Harvest Research and Extension	50,083	65,948	79,186	78,271	53,950	51,962	51,354	55,388
Cotton Development Administration	-	46,194	57,575	42,524	45,080	36,618	36,136	44,592
Fertilizer and Pesticide Authority	35,179	44,117	36,349	39,004	99,415	41,156	37,416	37,618
Fiber Industry Development Authority	151,907	162,679	167,831	164,951	169,751	170,931	168,771	169,873
Livestock Development Council	10,125	13,867	12,441	11,184	10,140	9,889	9,487	9,990
National Agricultural and Fishery Council	617,186	313,821	52,994	422,213	469,732	52,810	53,874	54,257
National Meat Inspection Service	113,418	114,631	21,334	22,595	18,330	16,454	16,164	19,302
National Nutrition Council	46,144	47,892	49,286	45,318	45,287	42,455	41,813	46,756
National Stud Farm	11,949	12,151	10,530	-	-	-	-	-
Philippine Carabao Center	190,506	140,700	37,684	26,939	25,556	24,865	24,730	27,233
<b>GOCC</b>								
National Dairy Authority	40,296	48,842	60,596	20,724	58,000	53,200	52,500	91,726
National Food Authority	1,504,038	-	-	2,628,404	-	10,742,088	4,936,883	12,941,244
National Irrigation Administration	296,824	28,772	55,325	133,547	-	51,375	675	-
National Tobacco Administration	244,044	139,145	238,278	208,374	82,802	100,018	104,682	113,692
Philippine Coconut Authority	265,710	199,024	266,613	164,042	-	177,654	180,000	177,111
Philippine Cotton Corporation	9,175	-	-	-	-	-	-	-
Philippine Crop Insurance Corporation	-	75,499	14,732	45,000	-	30,500	30,500	-
Philippine Fisheries Development Authority	-	205,328	15,480	16,500	-	-	-	-
Philippine Rice Research Institute	144,882	144,882	129,382	126,965	100,000	-	-	-
Quedan and Rural Credit Guarantee Corporation	57,739	57,739	80,000	-	-	-	-	-
Sugar Regulatory Administration	109,986	109,986	126,824	102,491	50,000	45,000	40,000	35,000

Source: DBM (2006a).

**Table A25: Actual budget of the National Food Authority, 2000-2005 (million pesos)**

	2000	2001	2002	2003	2004	2005	2006
<b>I. TOTAL RECEIPTS</b>	22,688	14,409	19,472	17,137	25,239	40,591	30,369
1. Operating receipts	21,523	12,480	19,176	16,886	24,387	40,375	30,101
a. Sales of goods/services	21,523	12,390	18,256	15,964	19,806	27,204	25,290
b. Current subsidies	0	90	920	922	4,581	13,171	4,811
2. Other receipts	1,165	1,928	296	250	852	216	268
<b>II. CURRENT EXPENDITURES</b>	28,474	15,341	23,742	24,765	31,493	46,664	44,041
1. Operating Expenditures	22,768	11,138	19,596	18,810	26,339	40,846	37,625
a. Personnel Cost	1,113	1,117	1,191	1,264	1,183	1,191	1,251
b. Others	21,655	10,021	18,405	17,547	25,156	39,655	36,374
2. Other current expenditures	5,706	4,204	4,146	5,955	5,154	5,818	6,416
a. Interest payments	1,430	1,718	1,471	1,964	2,748	3,186	3,927
b. Tax payments to NG	655	58	74	83	148	219	0
c. Interest on NG advances	0	0	0	0	0	0	0
d. Dividend payments	0	0	0	0	0	0	0
e. Other expenditures	3,621	2,428	2,601	3,907	2,259	2,412	2,489
<b>III. CAPITAL EXPENDITURES</b>	-3,888	1,341	3,815	-3,939	-4,418	3,905	2,758
1. Acquisition of fixed assets	39	59	22	28	43	31	46
2. Change in inventories	-4,068	1,118	3,739	-4,003	4,500	3,847	2,632
3. Other capital expenditures	142	164	55	36	40	27	80
<b>IV. INTERNAL CASH GENERATION</b>	-5,785	-933	-4,270	-7,628	-6,254	-6,073	-13,672
<b>V. FINANCING DEFICIT(-)/SURPLUS(+)</b>	-1,897	-2,274	-8,086	-3,689	-1,836	-9,978	-16,430
<b>VI. NET EXTERNAL FINANCING</b>	0	-303	0	-150	-17	-18	-67
1. Gross External Financing	0	0	0	0	0	0	0
2. Repayments & Amortization	0	303	0	150	17	18	67
<b>VII. NET DOMESTIC FINANCING</b>	1,897	2,577	8,086	3,839	1,853	9,996	16,497
1. Natl. Govt. Equity	-1	0	0	0	0	0	0
2. Natl. Govt. Net Lending	0	0	0	0	0	0	0
3. Net Domestic Bank Credits	-89	3,244	8,109	(311)	107	5,732	17,328
4. Other Net Domestic Financing	1,987	-667	-24	4,150	1,746	4,264	-831

Source: DOF (2006).

**Table A26: Status of irrigation development in the Philippines, as of December 31, 2004 (hectares)**

	Total irrigable areas	% of irrigable area	Rank of region by % total irrigable area	Service Area				Ranks of Regions % Service Area	
				National Irrigation System	Communal Irrigation Systems	Total Service Area	Private Irrigation Systems		% of Total Service Area
<i>Luzon</i>		58.7%						69%	
Cordillera Autonomous Region (CAR)	99,650	3%	8	18,058	33,559	22,912	74,529	5%	7
Region 1 - Ilocos Region	277,180	9%	3	55,872	94,955	27,329	178,156	13%	3
Region 2 - Cagayan Valley	472,640	15%	2	136,792	40,811	23,095	200,698	14%	2
Region 3 - Central Luzon	498,860	16%	1	169,820	77,503	20,555	267,878	19%	1
Region 4 - MIMAROPA	246,960	8%	4	52,410	51,767	17,962	122,139	9%	4
Region 5 - Bicol Region	239,660	8%	4	20,496	68,773	29,484	118,753	8%	5
<i>Visayas</i>		10.6%						11%	
Region 6 - Western Visayas	197,250	6%	5	52,216	19,166	5,499	76,881	5%	7
Region 7 - Central Visayas	50,740	2%	9	5,512	20,151	2,539	28,202	2%	10
Region 8 - Eastern Visayas	84,380	3%	8	16,436	29,160	4,466	50,062	4%	8
<i>Mindanao</i>		30.7%						20%	
Region 9 - Zamboanga	76,080	2%	9	15,162	18,759	1,972	35,893	3%	9
Region 10 - Northern Mindanao	120,700	4%	7	25,623	22,240	3,982	51,845	4%	8
Region 11 - davao Region	149,610	5%	6	32,391	14,104	7,943	54,438	4%	8
Region 12 - Soccsksargen	293,610	9%	3	54,974	21,003	2,921	78,898	6%	6
Region 13 - Caraga	162,300	5%	6	18,412	18,384	3,316	40,112	3%	9
Autonomous Region of Muslim Mindanao	156,720	5%	6	16,065	6,970	225	23,260	2%	10
<b>TOTAL</b>	<b>3,126,340</b>	<b>100%</b>		<b>690,239</b>	<b>537,305</b>	<b>174,200</b>	<b>1,401,744</b>	<b>100%</b>	

Source: National Irrigation Authority (2005).

## 11. REFERENCES

Ahmed, R., S. Haggblade and T. Chowdhury (eds). (2000): *Out of the Shadow of Famine: Evolving Food Markets and Food Policy in Bangladesh*. Baltimore and London: The Johns Hopkins University Press. Published for the International Food Policy Research Institute.

Ali, S., I. Jahan, A. Ahmed and S. Rashid (2006): *Public Food Distribution System (PFDS) in Bangladesh: Successful Reforms and Remaining Challenges*. Draft Version on December 28, 2006.

Anderson, K., W. Martin and van der Mensbrugge (2006): Distortions to World Trade: Impacts on Agricultural Markets and Farm Incomes. *Review of Agricultural Economics* 28(2): 168-194.

Arlanza, R., P. Gordoncillo, H. Meliczek, J. A. Falafox and L. Penalba (2006): *The Comprehensive Agrarian Reform Program: Scenarios and Options for Future Development*. Manila: Joint DAR and GTZ study.

Balisacan, A. (1996): Philippines. *Rural Poverty in Developing Asia: Indonesia, Republic of Korea, Philippines and Thailand*. Asian Development Bank Volume 2. pp. 407-585.

Ballesteros, M. (2007): *A Review of Agrarian Reform Impact in the Philippines*. Report prepared for the World Bank, Manila office.

Ballesteros, M. and A. de la Cruz (2006): *Land Reform and Changes in Landownership Concentration: Evidence from Philippine Rice-Growing Villages*. PIDS Discussion Paper 2006-21.

BAR (2006): *Profit to Cost Ratios in the Philippine Agriculture*. Bureau of Agricultural Research, Department of Agriculture, Philippines.

Borras, S. J. (2000): *CARP in its 12th year: A Closer Examination of the Agrarian Reform Performance*. Unpublished paper.

Borras, S. J. (2005): *Can Redistributive Reform be Achieved via Market-based Voluntary Land Transfer Schemes? Evidence and Lessons from the Philippines*. *The Journal of Development Studies* 41(1): 90-134.

Bravo, M., A. Pacificador, B. Pantoja and R. Bello (2000): *Current State of Agrarian Reform Beneficiaries (ARBs): Its Implications to the Comprehensive Agrarian Reform Program (CARP)*. Los Baños, Philippines: University of the Philippines.

Brooks, R. (2002): Why Is Unemployment High in the Philippines? IMF Working Paper No. 02/23.

Butzer, R., Y. Mundlak and D. Larson (2003): Intersectoral Migration in Southeast Asia: Evidence from Indonesia, Thailand and the Philippines. Washington, D.C.: Policy Research Working Paper 2949, World Bank.

Cabling, J. and D. Dawe (2006). Filipino Farmers Receive High Palay Prices. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 9-12.

Casiwan, C., J. Cabling, J. Nievera, A. Mataia and D. Dawe (2006). Rice Farmers Are Better Off Than Many Other Farmers. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 29-41.

Clarete, R. (1992): An Economic Analysis of Selected Policy Reforms in the Agribusiness Sector: The Agribusiness Sector Assistance Program (ASAP). Unpublished Paper.

Clarete, R. (2003): "Options for NFA Reforms in the Philippines." Agribusiness: From Parastatals to Private Trade - Why, How and When?

Cummings, R., S. Rashid and G. Ashok (2006): "Grain price stabilization experience in Asia: What Have We Learned?" *Food Policy* 31: 302-312.

DA (2006a): DA Public Expenditures for the Agriculture Sector 1998-2006. Department of Agriculture, Budget Division, the Philippines.

DA (2006b): State of Agriculture in the Philippines. Department of Agriculture, the Philippines.

DA-BAS (2007): Rice Supply Utilization: 1978-2005. Bureau of Agricultural Statistics, Department of Agriculture, the Philippines.

DAR (1998): The Agrarian Situation in Coconut Lands. Quezon City, Philippines: Department of Agrarian Reform.

DAR (2006a): Agrarian Reform for Broad-Based Rural Growth: Sustaining and Enhancing CARP Gains Beyond 2008. Department of Agrarian Reform, Manila.

DAR (2006b): Report on Public Expenditures During 1998-2005. Manila: Department of Agrarian Reform, the Philippines.

DAR (2007): Comprehensive Agrarian Reform Program: Status of Implementation (as of December 2006). Department of Agrarian Reform, the Philippines.

David, C. (2004): Revisiting RP's Hybrid Rice Program. Manila: PIDS Development Research News, Vol. XXII, No. 5, September-October 2004.

David, C. (2006): Philippine Hybrid Rice Program: A Case for Redesign and Scaling Down. Manila: Philippine Institute for Development Studies (PIDS).

David, C. and A. Inocencio (2000): Key Indicators for Public Expenditure in Agriculture, Natural Resources and the Environment. Manila: Philippine Institute for Development Studies (PIDS), Discussion Paper Series No. 2000-26.

David, C., P. Intal and A. Balisacan (2007): Distortions to Agricultural Incentives in the Philippines. Washington, D.C: World Bank Agricultural Distortions Research Project Working Paper, draft.

David, W. (2003): Averting the Water Crisis in Agriculture: Policy and Program Framework for Irrigation Development in the Philippines. The University of the Philippines Press and Asia Pacific Center.

Dawe, D. (2004): Rice Imports Come with the Territory. Manila: International Rice Research Institute (IRRI), Rice Facts, April 2004.

Dawe, D. (2006a). Farm Laborers, Not Palay Farmers, Do the Bulk of the Work Producing the Nation's Rice. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 23-27.

Dawe, D. (2006b). The Philippines Import Rice Because It an Island Nation. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 3-8.

Dawe, D. (2006c). Rice Trade Liberalization Will Benefit Poor. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice.

Dawe, D. (2006d). World Rice Market Can Be Trusted. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 53-61.

Dawe, D., P. Moya and C. Casiwan (2006a). The Potential for Crop Diversification Among Rice Farm Households: An Overview. In: D. Dawe, P. Moya and C. Casiwan (eds.). *Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization*. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 91-98.

Dawe, D., P. Moya and C. Casiwan (eds.) (2006b). *Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization*. Manila: IRRI and PhilRice.

Dawe, D., P. Moya, C. Casiwan and J. Cabling (2006c). Better Banks and Paddy Wholesale Markets are the Key Reducing Rice Marketing Margins. In: D. Dawe, P. Moya and C. Casiwan (eds.). *Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization*. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 13-22.

Dawe, D., P. Moya, F. Gascon, M. ShielaValencia and N. Jamora (2006d). Can Nitrogen Management in Philippine Rice Production Be Improved? In: D. Dawe, P. Moya and C. Casiwan (eds.). *Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization*. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 73-75.

DBM (2006a): *Different Reports on Public Expenditures for Department of Agriculture and Department of Agrarian Reform*. Manila: Department of Budget and Management, the Philippines.

DBM (2006b): *FY 2007 Performance Budget of 20 Departments: Reforming Philippine Expenditure Management*. Manila: Department of Budget and Management, Malacanan, August 2006.

de Ferranti, D., G. Perry, W. Foster, D. Lederman and A. Valdés (2005): *Beyond the City: Rural Contribution to Development*. Washington, D.C.: World Bank.

de los Reyes, M. L. and J. Aquilar (2006): *Collation, Generation, and Validation of Benchmark Information for the Preparation of a Feasibility Level Proposal for an Action Program for Accelerated Shallow Tubewell Irrigation Development*. U.N. FAO office in the Philippines, GCP/PHI/047/AUL.

Deininger, K., P. Olinto and M. Maertens (1999): *Redistribution, Investigation and Human Capital Accumulation: The Case of Agrarian Reform in the Philippines*. Washington, D.C.: The World Bank.

dela Pena, C. (2006): *Policy Issues*. Paper prepared for the World Bank Study "Rural Growth and Development Revisited in the Philippines", Rural Development and Natural Resources Sector Unit (EASRD) of East Asia and the Pacific Region, Working Paper 36693.

Digal, L. (2004): *Agricultural Contracts in Mindanao: The Case of Banana, Pineapple and*

Poultry. Draft Report submitted to the Philippine Institute for Development Studies. PIDS-BAR Project.

Digal, L. (2005): Benefit Diffusion and Linkage Development in the Philippine Tropical Fruit Sector. Paper presented at the conference “Closing the Productivity Gap” sponsored by the World Bank and the National Economic and Development Authority, held on June 27, 2005.

DOF (2007): Financial Situation of the Monitored Government Owned and Controlled Corporations in the Philippines, 2000-2006. Department of Finance, the Philippines.

Dorosh, P. and Q. Shahabuddin (2002): Rice Price Stabilization in Bangladesh: An Analysis of Policy Options. IFPRI MSSD Discussion Paper No. 46, Washington, D.C.

Dy, R. (2000): Private Investments in Agriculture: Trends, Constraints and Key Indicators. In Government of the Philippines and the World Bank, Rural Development and Natural Resource Management: Trends, Strategy Implementation, and Framework Performance Indicator System (Volume II: Annexes).

Encarnacion, T. (2007): Science and Technology as an Emerging Priority in the Medium Term. Presentation at DBCC Workshop for Preparation of Budget Strategy Paper in Manila, February 15, 2007.

Esguerra, J. and R. Schurmann (2006): Philippines: National Program Support for Agrarian Reform: Draft Budget Analysis. World Bank Project Preparation Report.

Estudillo, J., Y. Sawada and K. Otsuka (2006a): Changing Determinants of Schooling Investments and Overseas Emigration: Evidence from Rural Villages in the Philippines in 1985-89 and 2000-04. Unpublished paper.

Estudillo, J., Y. Sawada and K. Otsuka (2006b): The Green Revolution, Development of Labor Markets, and Poverty Reduction in the Rural Philippines, 1985-2004. *Agricultural Economics*, forthcoming.

Fan, S., P. Hazell and S. Thorat (1999): Linkages between Government Spending, Growth, and Poverty in Rural India. Washington, D.C.: IFPRI Research Report 110.

Fan, S. and N. Rao (2003): Public Spending in Developing Countries: Trends, Determination, and Impact. Environment, Production and Technology Division Washington, D.C.: IFPRI Discussion Paper 99.

Fan, S., L. Zhang and X. Zhang (2001): Growth, Inequality and Poverty in Rural China: The Role of Public Investments. Washington, D.C.: IFPRI Research Report 125.

FAOSTAT (2007): International Agricultural Statistics. Rome: U.N. Food and Agriculture Organization.

Feranil, S. J. (1998): The Philippine Banana Industry: Confronting the Challenge of Agrarian Reform. Quezon City, Philippines: PhilNet-RDI.

Gapasin, P. D. (2006): Agricultural Research, Development and Extension. Paper prepared for the World Bank Study "Rural Growth and Development Revisited in the Philippines", Rural Development and Natural Resources Sector Unit (EASRD) of East Asia and the Pacific Region, Working Paper 36684.

Gardner, B. (2005a): Causes of Rural Economic Development. College of Agriculture and Natural Resources, University of Maryland, College Park, MD, USA.

Gardner, B. (2005b): What We Have Learned? Presentation at the Workshop "Managing Food Price Instability in Low-Income Countries", February 28 to March 1, 2005, Washington, D.C.

Geron, M. (1994): The Impact of Comprehensive Agrarian Reform Program on the Crop Sector. Makati: Philippine Institute for Development Studies Discussion Paper Series No. 94-15.

Gordoncillo, P. (2002): An Assessment of the Comprehensive Agrarian Reform Program and Its Impact on Rural Communities: Household (Micro) Perspective. CARP Impact Assessment Studies Volume 2. Quezon City, Philippines: Department of Agrarian Reform.

Gordoncillo, P. (2006): Land Reform and Property Rights. In *Securing Rice, Reducing Poverty: Challenges and Policy Direction*, ed. Balisacan A.M, Sebastian L. and Associates. Philippines: SEARCA, PhilRice, and DAR.

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

Hayami, Y., M. Quisumbing and L. Adriano (1990): *Toward an Alternative Land Reform Paradigm: A Philippine Perspective*. Quezon City, Philippines: Ateneo de Manila University Press.

IARDS (2000): Analysis of the Agrarian Situation and Implications of Covering Greater than 5 to 24-hectare Lands under the Comprehensive Agrarian Reform Program. Quezon City, Philippines: DAR-UNDP SARDIC Program. Institute of Agrarian and Rurban Development Studies.

Inocencio, A. and R. Barker (2006). Water Resources and Irrigation Development. A. Balisacan and L. Sebastian. Securing Rice, Reducing Poverty: Challenges and Policy Directions. SEARCA, PhilRice and DA-BAR: 71-106.

Intal, P. and M. Garcia (2005): Rice and Philippine Politics. Philippine Institute for Development Studies Discussion Paper Series No 2005-13.

LandBank (2007a): President's Report to the Board of Directors: Performance Highlights 2006. Mr. Gilda E. Pico, President & CEO, Land Bank of the Philippines, January 29, 2007.

LandBank (2007b): Projected Funding Requirements for CARP Landowners Compensation Beyond 2008. The Land Bank of the Philippines, January 25, 2007.

Llanto, G. and M. Ballesteros (2003): Land Issues in Poverty Reduction Strategies and Development Agenda: Philippines. Philippine Institute for Development Studies Discussion Paper Series No. 2003-03.

Llanto, G. and C. Dingcong (1994): Bank Behavior in an Agrarian Reform Regime. In: Financial Intermediation in an Agrarian Reform Regime. Quezon City, Philippines: Department of Agriculture.

Llanto, G. and B. Estanislao (1993): The Comprehensive Agrarian Reform Program and the Collateral Value of Agricultural Lands. Agribusiness System Assistance Program (ASAP) Publication No. 1.09.

Lopez, R. (2005): Why Governments Should Stop Non-Social Subsidies: Measuring the Consequences for Rural Latin America. University of Maryland at College Park, Revised version: February 4, 2005.

Mataia, A. and D. Dawe (2006). Lack of Credit Is Not a Major Constraint to Improving the Productivity of Rice Farmers. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 81-83.

Moya, P. and D. Dawe (2006). Mechanization and Saving Labor Are the Keys to Making Rice More Competitive. In: D. Dawe, P. Moya and C. Casiwan (eds.). Why Does the Philippines Import Rice? Meeting the Challenge of Trade Liberalization. Joint Publication of International Rice Research Institute (IRRI) and PhilRice: 69-72.

Moya, P., D. Dawe, D. Pabale, M. Tiongco, N. Chien, S. Devarajan, D. A., N. Lai, L. Niyomvit, X. Ping, G. Redondo and P. Wardana (2004): The Economics of Intensively Irrigated Rice in Asia. International Rice Research Institute (IRRI), Los Banos, Philippines.

Mundlak, Y., B. Larson and R. Butzer (2002): Determinants of Agricultural Growth in

Indonesia, the Philippines and Thailand. Policy Research Working Paper 2803, Washington DC: World Bank.

Nagarajan, G., C. David and R. Meyer (1993): Informal Finance through Land Pawning Contracts: Evidence From the Philippines. *Journal of Development Studies* 29: 93-107.

Nagarajan, G., M. Quisumbing and K. Otsuka (1991): Land Pawning in the Philippines: An Exploration into the Consequences of Land Reform Regulations. *The Developing Economics* 39(2): 125-144.

NBAS (2006): Statistics on Agriculture, Fishery and Forestry. Manila: National Bureau of Agricultural Statistics.

NEDA (2006): Rice Self-Sufficiency: Trade-Offs and Opportunity Costs. Manila: National Economic and Development Agency.

NFA (2006): Report on Use and Source of Financial Resources during 1998-2005. Manila: National Food Authority, the Philippines.

NSCB (2002): 33.7% of Filipino Families Are Poor. National Statistical Coordination Board, Makati City (Philippines): p. 20.

NSCB (2006): National Statistics. Manila: National Statistics Coordination Board.

NSO (2002): 2002 Scenario of the Agriculture Sector in the Philippines. National Statistical Office of the Philippines, [www.census.gov.ph](http://www.census.gov.ph).

OECD (2004): Agricultural Policies in OECD Countries: At a Glance. Paris: Organization for Economic Cooperation and Development.

Otsuka, K., V. Cordova and C. David (1992): Green Revolution, Land Reform, and Household Income Distribution in the Philippines. *The Economic Development and Cultural Change* 40(4): 719-742.

Otsuka, K. and Y. Hayami (1998): Theories of Share Tenancy: A Critical Survey. *Economic Development and Cultural Change* 37(1): 31-68.

Otsuka, K. and T. Yamano (2006): The Role of Rural Labor Markets in Poverty Reduction: Evidence from Asia and East Africa. Foundation of Advanced Studies on International Development (FASID) Discussion Paper Series on International Development Strategies No. 2006-12-007, Japan.

Ravalo, J. (1999): The Value and Role of Agriculture Credit in the Design of a Sustainable Rural Development Program. Paper Presented at the Symposium on "Rural Finance After

Policy Reforms”, October 18, 1999. Pasig City, Philippines.

Reyes, C. (2003): Impact of Agrarian Reform on Poverty. CARP Impact Assessment Studies Volume 7. Quezon City: DAR and FAO.

Riedinger, J. and S. Kang (2000): Back to the Land: Revisiting the Rationale for Agrarian Reform. In Impact of Agrarian Reform and Changing Market on Rural Households. MODE Research Papers Vol. 1. No. 4. Quezon City, Philippines: Management Organization for Development and Empowerment (MODE), Inc.

Roumasset, J. (2000): Black-Hole Security. Paper prepared for the PRAEO meetings of the International Western Economic Association, Sydney, January 2000.

Sebastian, L., F. Bordey and V. Alpuerto (2006). Research and Development. A. Balisacan and L. Sebastian. Securing Rice, Reducing Poverty: Challenges and Policy Directions. SEARCA, PhilRice and DA-BAR: 39-70.

Tangermann, S. (2006): OECD Work on Agricultural Policies in Brazil, China, India and South Africa. Presentation at the Rural Week of the World Bank, Washington, D.C. on February 27, 2006.

Timmer, P. (2004): Food Security and Economic Growth: An Asian Perspective. Heinz W. Arndt Memorial Lecture, Canberra, November 22, 2004.

Timmer, P. (2007): The Debate over Food Security in 2006: An Update on the Role of BULOG. Draft.

UNDP (2005): Enhancing the Capacity for the Effective Management of ODA (00032905): From Seed to Shelf: A Logistical Evaluation of Philippine Agriculture. United Nations Development Program.

WDI (2006): World Development Indicators. Washington, D.C.: World Bank.

World Bank (2000): Philippines: Growth with Equity: Remaining Agenda. Report 20066-PH, May 3.

World Bank (2004a): Aligning Public Expenditure and Sector Institutions to Agriculture and Rural Challenges in Vietnam. Volume 3. Washington, D.C.: Rural Development and Natural Resources, East Asia and Pacific (EASRD).

World Bank (2004b): PAD for Diversified Farm Income and Market Development Project. Project Appraisal Document, EASRD, Report No. 27662-PH.

World Bank (2005a): Lao PDR: Public Expenditure Review Background Report - Agriculture. Washington, D.C.: EASRD, April 2005.

World Bank (2005b): Meeting Challenges in Philippines Agribusiness: Overview Note. Paper presented at the conference “Closing the Productivity Gap” sponsored by the World Bank and the National Economic and Development Authority, held on June 27, 2005.

World Bank (2006a): Managing Food Price Risks and Instability in an Environment of Market Liberalization. Washington, D.C.: Agriculture and Rural Development Department.

World Bank (2006b): Philippines - Rural Development Sector Strategic Priorities. Washington, D.C.: EASRD Working Paper 36681.

World Bank (2006c): Rural Growth and Development Revisited: Summary Report. Rural Development and Natural Resources Sector Unit of East Asia and the Pacific Region, Working Paper 36682, World Bank.

World Bank (2007): Philippines: Invigorating Growth, Enhancing Its Impact. Poverty Reduction and Economic Management Unit, East Asia and Pacific Region, Report No. 39226, Washington, D.C.

World Bank and NDCC (2004): Natural Disaster Risk Management in the Philippines: Enhancing Poverty Alleviation through Disaster Reduction. World Bank and National Disaster Coordination Council, Manila, the Philippines.

Zorya, S. (2006): Improving Agricultural Fiscal Policy in Ukraine. Washington, D.C.: ECSSD Working Paper 44, the World Bank.



**THE WORLD BANK GROUP**

World Bank - Headquarters  
1818 H Street N.W.  
Washington, D.C. 20433 USA  
Internet: [www.worldbank.org](http://www.worldbank.org)

World Bank Office Manila  
23rd Floor, The Taipan Place  
F. Ortigas Jr. Road, Ortigas Center,  
Pasig City, Philippines  
Telephone: (632) 637-5855  
Internet: [www.worldbank.org.ph](http://www.worldbank.org.ph)