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Profitable Use of SCF in a Policy Context: the Case of Rice Stockholding in the Philippines

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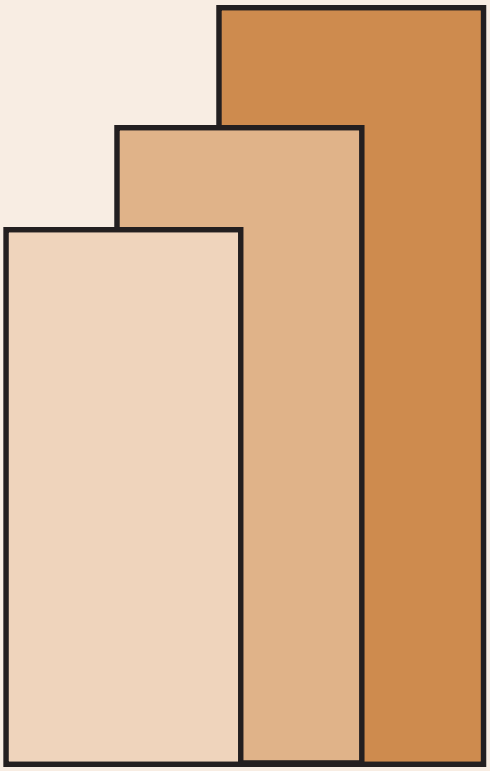

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Profitable Use of SCF in a Policy Context: The Case of Rice Stockholding in the Philippines*

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Abstract

This paper documents the activities of the National Food Authority (NFA), particularly on rice marketing, in realizing its mandates of buying high and selling low. Because the Philippine agriculture is greatly affected by extreme climate events such as El Niño and La Niña, this paper highlights the importance of seasonal climate forecast (SCF) information as input to the formulation of various policy decisions of the NFA. Among these important policy decisions are: how much volume of paddy rice to procure from farmers to be able to defend its support price; how much volume of rice to maintain in order to achieve stability in the supply and consumer price, and; how much volume of rice, as well as when is the best time, to import to be able to position the optimal level of stocks in time for the lean season. It is also argued in the paper that importation has been playing a significant role in the rice supply-demand situation of the country since 1990, making it one of the most significant government interventions in the rice sector. Based on historical data assessment, some of the worst events in the past such as the 1995 rice crisis and over-importation during the 1997-1998 El Niño could have been avoided if policy decisions, particularly on the volume and timing of rice importation, were linked to SCF. Indeed, linking crop production and import decisions more systematically with SCF would enhance the usefulness of these forecasts at a more practical level.

Keywords: National Food Authority (NFA), Seasonal Climate Forecast (SCF), rice, importation, storage, distribution

* This paper is part of the outputs of the ACIAR-sponsored project on "Bridging the gap between seasonal climate forecasts (SCFs) and decisionmakers in agriculture."

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1 Introduction

Rice is the most important agricultural commodity in the Philippines. In 2006, it accounted for about 35% of the total value of crop production. Also in the same year, about 34% of the total agricultural crop area in the country was devoted to palay[§], resulting in a total production of about 15.3 million metric tons. Through the years, rice has remained the main source of livelihood and staple food of many Filipinos. In 2001, it was reported that around 2.4 million[**] Filipino farmers from all over the regions source most of their income from growing rice. Also, rice has remained the staple food of about 80% of Filipinos, particularly those belonging to low-income households. In 2003, the average household expenditure on rice amounts to around 9,509 pesos, which is approximately 17.8% of the average household expenditure on total food items.

Because rice has long been playing a very significant role in the lives of the Filipinos, government intervention in the rice sector is crucial. The involvement of the government in rice marketing can be traced in as early as 1936 when the National Rice and Corn Corporation (NARIC) was created to ensure price stability through procurement of palay from the farmers and importation during cases of emergency (Ponce, 2004). After more than four decades, with many successor agencies in between, the National Food Authority (NFA) under the name National Grains Authority (NGA) was created in 1972 to serve as the government buffer stock agency that would help in the management of food supply crises in the country. The NGA later became the NFA in 1981 upon expansion of the NGA's scope to grains and non-food items as well as other operations such as production, manufacturing, processing and packaging of food products. The NGA/NFA has the combined functions of a trading agency of the defunct Rice and Corn Administration (RCA) and regulatory agency of the Rice and Corn Board (RICOB). (Tolentino et al, 2002) The mandates of the NFA are to ensure food security of the country and stability of supply and prices of grains. At present,

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[§] Palay and paddy rice will be used interchangeably in this paper
[**] The actual figure is 2,439,759 and apparently the estimated number of palay farms in the Philippines. The Bureau of Agricultural Statistics (BAS) assumes that the number of palay farms is equivalent to the number of rice farmers.

the NFA sells rice at 18.25 pesos per kilogram, which is usually lower than the prevailing market price, to consumers across seasons and geographic regions. The support price for rice farmers, meanwhile, is set at a uniform price of 11 pesos per kilogram of palay, plus a P0.50 incentive, if some conditions are satisfied.

In order to realize the food security and stabilization objectives of the NFA, formulation of related policy decisions should be done with care. Currently, the policy decisions of the NFA are based on total production from BAS, which is projected using statistical forecast based on expected harvested areas and potential yield per hectare. These, however, are not linked to scientific seasonal climate forecast (SCF). Because the Philippine agriculture is greatly affected by extreme climate events like El Niño or La Niña, accurate SCF information will be a valuable input to policy decisions in the rice sector. Thus, this paper would like to examine the value of SCF in policy decisions of the NFA with regard to rice such as the storage and pricing decisions. This paper will form part of the rice policy study under the ACIAR-funded project titled "Bridging the gap between seasonal climate forecast (SCF) and decision makers in agriculture".

The following section discusses the importance of rice and its production patterns from 1970 to 2004. The third section presents background information on the country's grain marketing arm – the NFA, and is divided into three parts. The first part gives a brief discussion on the evolution of the NFA as well as its mandates. The second part provides details on marketing activities of the NFA that are related to rice, which include procurement, distribution, storage, and dispersal. The third part gives information on how the NFA sets targets for its regular operations and evaluates such targets vis-à-vis their accomplishments for the year. The fourth and last section presents a brief assessment of the rice policy decisions of the NFA and highlights the value of SCF on such decisions.

2 Importance of Rice and its Production Patterns

2.1 Importance of Rice

Rice is the most important agricultural commodity in the Philippines. In 2006, it accounted for about 35% of the total value of crop production. Also in the same year, about 34% of the total agricultural crop area in the country was devoted to palay, resulting in a total production of about 15.3 million metric tons. Of the total paddy rice production, 56.78% comes from Luzon. This can be supported by Table 1 where most of the major rice-producing provinces are located in Luzon. About 23.22% of total paddy rice production comes from Mindanao, while only 20% comes from Visayas. In 2001, it was reported that around 2.4 million Filipino farmers from all over the regions source most of their income from growing rice.

Table 1. Volume of paddy rice production ('000 MT) and % share of top 10 rice-producing provinces in the Philippines, 2006

Rank	Province	Production ('000 MT)	% Share
1	Nueva Ecija	1,231	8.03
2	Isabela	988	6.44
3	Pangasinan	976	6.37
4	Iloilo	855	5.58
5	Cagayan	689	4.49
6	Leyte	479	3.13
7	Tarlac	479	3.12
8	Camarines Sur	464	3.03
9	North Cotabato	434	2.83
10	Negros Occidental	414	2.70

Source: BAS

Rice is also considered as the major food item in the Philippines. About 80% of Filipinos consider it as a staple food, where it comprises approximately 35% of their total calorie intake on average. Filipinos who belong to low-income households, however, depend on rice for around 60%-65% of their calorie intake on average. (David & Balisacan, 1995) The remaining 20% of Filipinos are perhaps those who are white corn-eating people, particularly those who are in the southern part of Visayas. In 2003, the average household expenditure on rice amounts to around

9,509 pesos, which is approximately 17.8% of the average household expenditure on total food items.

2.2 Rice Production Patterns

In the Philippines, rice is grown twice a year. The main crop is harvested from October to December, which accounts for about 70% of the total rice production for the year. The harvesting period for the second or the so-called “summer” crop, which is about 30%, comes in March, April and May, respectively. Also, rice is grown both in irrigated and rainfed areas. In 2006, the total area harvested to paddy rice reached around 4.2 million hectares; 68% of which is irrigated and only 32% is rainfed. From 1970 to 2006, the trend in area harvested (Figure 1) is generally increasing, with a prominent drop in 1998. After 1981, it can be observed that irrigated areas started to outfar rainfed areas. On the other hand, total paddy rice production is fastly growing at an average rate of 3.38% over the 37-year period. Even before the 1980s, irrigated areas were already greater than rainfed areas, which seems to be constant over the period (Refer to Figure 2).

However, the trend in yield per area harvested for the period 1970-2006 (Figure 3) takes an upward pattern, primarily due to adoption of improved rice varieties (Intal & Garcia, 2005). (See Figure 4) Starting early 1980’s, the trend in production of modern rice varieties has become parallel to that of the total paddy rice production, while trend in production of traditional varieties has continued to go down. This observation somehow gives justification to continued increase in harvest from irrigated areas as compared to that of the rainfed ones, since irrigated conditions are favorable to modern rice varieties (Intal & Garcia, 2005).

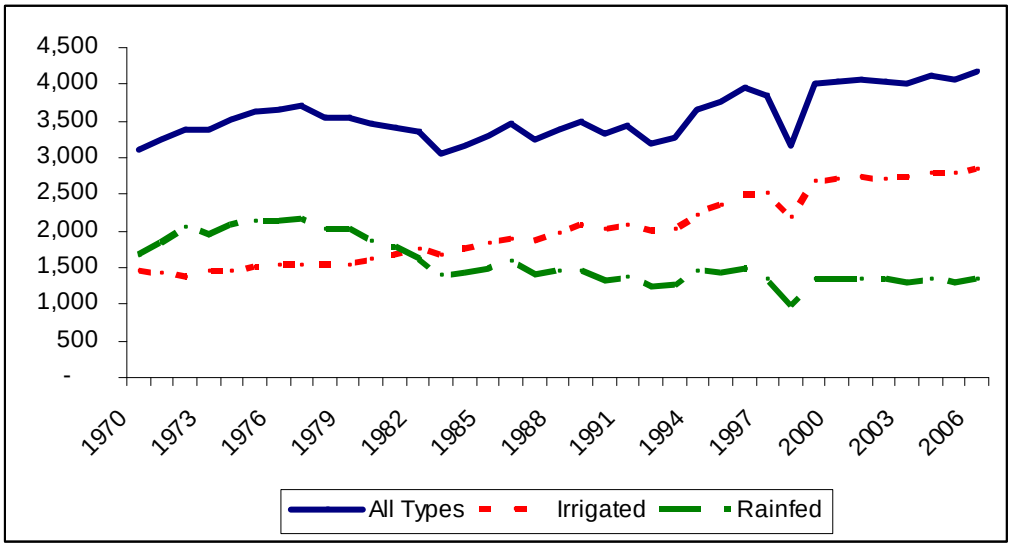

Figure 1. Estimated area harvested to paddy rice, by crop type, Philippines, 1970-2006

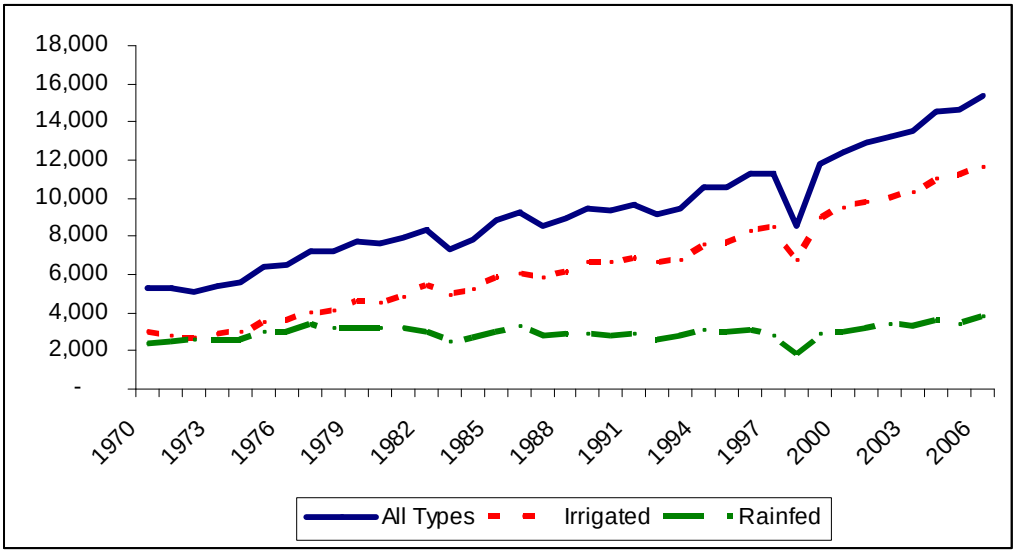

Figure 2. Estimated paddy rice production, by crop type, Philippines, 1970-2006

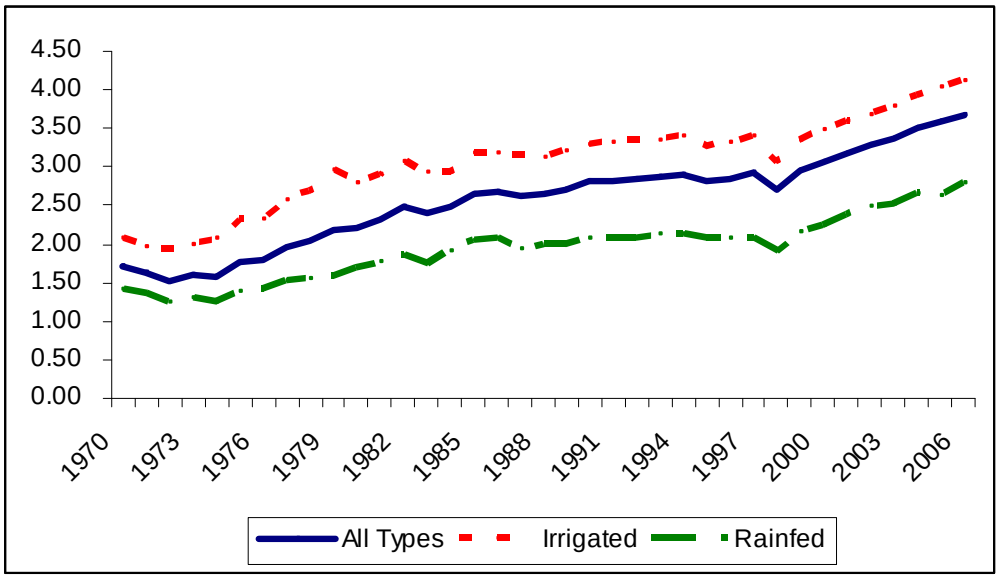

Figure 3. Estimated paddy rice yield per hectare, by crop type, Philippines, 1970-2006

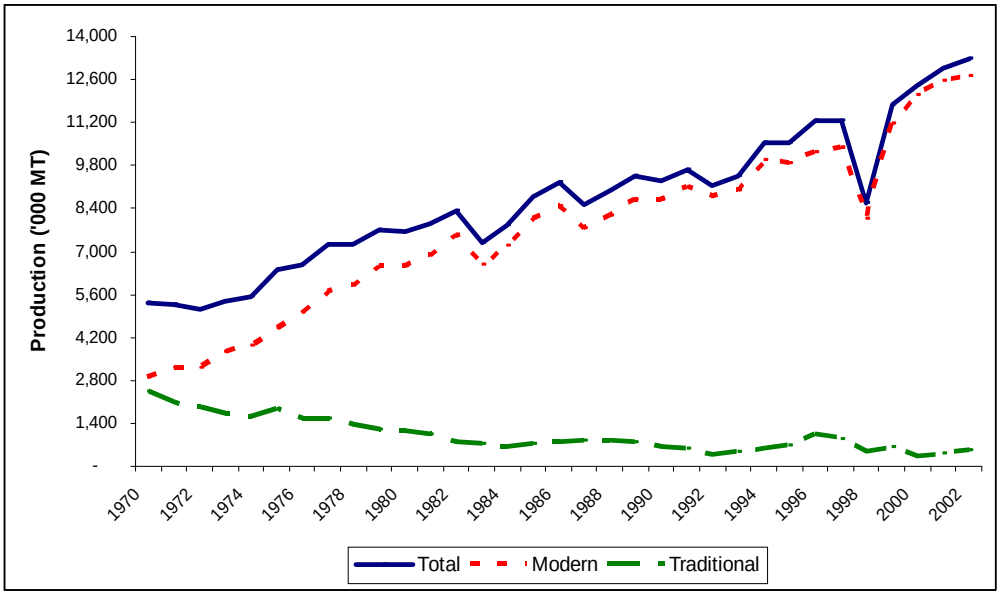

Figure 4. Estimated paddy rice production, by variety, Philippines, 1970-2002

Table 2 and Figure 5 show that from 1971 to 2006, the trend in rice production exhibits higher year-to-year variability while a trend in population is quite smooth. The 'rice production growth rate' series shows a very significant movement during 1997-1999, when the strongest El Niño and La Niña were experienced by the country. The largest decrease in the volume of

production happened during 1997-1998, followed immediately by a very significant increase in 1998-1999.

Although the trends in production and yield per hectare of paddy rice both exhibit an upward trend from 1970 to 2006, it seems that domestic production is still not sufficient to meet the rising demand for rice, considering that population is rapidly growing. An average of 3.38% annual growth in rice production over the period 1971-2006 is considered slow relative to a rapid growth of population over the same period at an average of 2.46%.

Table 2. Growth rates of paddy rice production and population over the period 1971-2006

Year	Paddy Rice Production Growth Rate	Population*/ Growth Rate
1971	-1.26	2.79
1972	-2.69	2.79
1973	5.33	2.79
1974	3.01	2.79
1975	15.01	2.77
1976	2.53	2.71
1977	10.88	2.71
1978	-0.59	2.71
1979	6.56	2.71
1980	-0.50	2.65
1981	3.46	2.33
1982	5.35	2.33
1983	-12.47	2.33
1984	7.32	2.33
1985	12.48	2.33
1986	5.01	2.33
1987	-7.65	2.33
1988	5.05	2.33
1989	5.44	2.33
1990	-1.47	2.58
1991	3.80	2.37
1992	-5.63	2.37
1993	3.34	2.37
1994	11.70	2.37
1995	0.02	2.13
1996	7.05	2.36
1997	-0.13	2.36
1998	-24.09	2.36
1999	37.78	2.36
2000	5.11	2.36
2001	4.56	2.36
2002	2.44	2.36
2003	1.73	2.36
2004	7.38	2.36
2005	0.73	2.36
2006	4.96	2.36
Average	**3.38**	**2.46**

Notes: */ midyear (July 1) estimates

Sources: BAS – basic data on paddy rice production;

PIDS – total population estimates

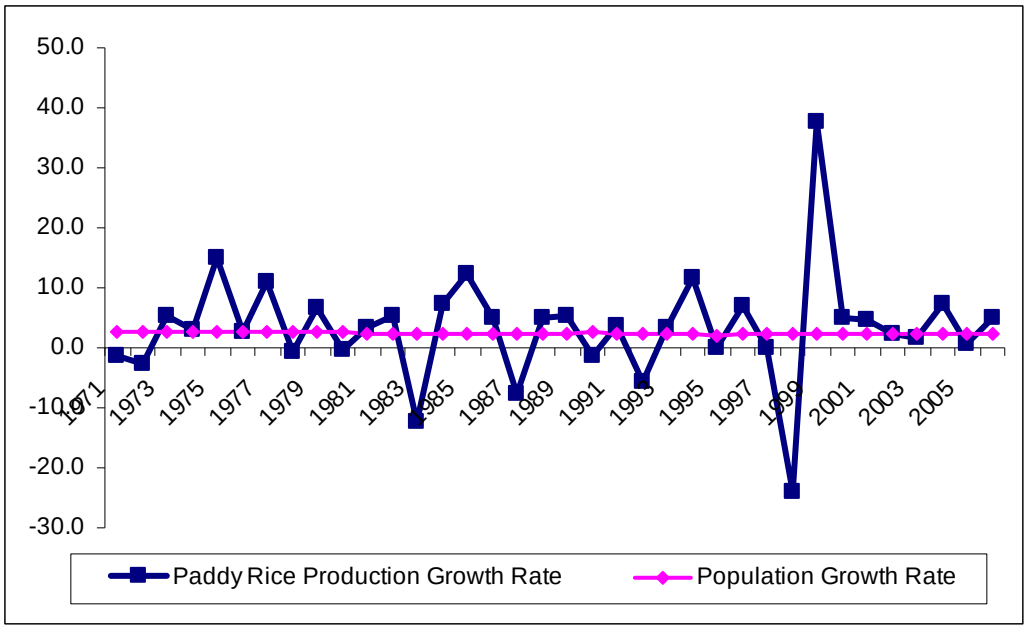

Figure 5. Paddy rice production growth rate vis-à-vis population growth rate, 1971-2006

3 The National Food Authority (NFA)

3.1 Evolution and Mandates of the NFA

The involvement of the government in rice marketing can be traced in as early as 1936 when the National Rice and Corn Corporation (NARIC) was created to ensure price stability through procurement of palay from the farmers and importation during cases of emergency (Ponce, 2004). Because NARIC became a tool for rationing rice, its credibility became so low that the government has to change it to Bigasang Bayan (BIBA) in 1944. BIBA was created to perform the same functions as those of NARIC. Since rice became harder to find in the open market which led to the decrease in the credibility of the agency, BIBA was later changed to Rice and Corn Administration (RCA). (Sicat, 2003) After a few decades, with many successor agencies in between, the National Food Authority (NFA) under the name National Grains Authority (NGA) was created in 1972 to serve as the government buffer stock agency that would help in the management of food supply crises in the country. The NGA later became the NFA in 1981 upon expansion of the NGA's scope to grains and non-food items as well as other operations such as production, manufacturing, processing and packaging of food products. The NGA/NFA has the combined functions of a trading agency of the defunct Rice and Corn

Administration (RCA) and regulatory agency of the Rice and Corn Board (RICOB). (Tolentino et al, 2002)

The mandates of the NFA include: (1) ensuring the food security of the country, and; (2) ensuring the stability of supply and price of the staple grains for the benefit of farmers, consumers and other grains sector stakeholders (Tolentino et al, 2002). On food security in cereals in times and places of calamity or emergency, either natural or man-made, staple food requirements in calamity/emergency-stricken areas shall be made available within 48 hours response time. On the stabilization of grains supplies and prices, both at the farm-gate and consumer levels, farm-gate prices shall be kept at levels that provide farmers a reasonable return on their investment while retail prices shall be kept at reasonable levels for consumers. (Reburiano, 2005)

3.2 Rice Marketing Activities of the NFA

3.2.1 Procurement of Rice

3.2.1.1 Domestic Procurement of Paddy Rice

Part of the regular program activities of the NFA is domestic procurement (or, commonly termed as “procurement”) of paddy rice from individual farmers and farmer-organizations at a support price that is applicable across the country, regardless of the location and other conditions. Some factors push ex-farm price to go higher than the support price. The support price is evaluated by the IACRC based on the following parameters: cost of production, consumer price index, income of rice farmers relative to those producing other crops and cost of end-product to consumers. The objective of this support price implementation is primarily to protect farmers from price fluctuations, especially during peak harvest months while assuring them of a ready market that guarantees a fair return on investments (Ramos, 2000).

In 2005, the buying price was set at 10.50 pesos per kilogram. As of October 2007, the effective price became 11.50 pesos per kilogram. However, this price is applicable only if the paddy rice meets some standards of the NFA, which include moisture content (minimum of 14%) and cleanliness (minimum 95% purity). Usually, the paddy rice has a 26%-moisture content right after harvest. If the moisture content increases and/or purity decreases, a corresponding adjustment is made on the support price to cover for expenses that shall be incurred by the NFA to dry and clean the paddy rice stocks purchased. Adjustments are made on the weight of the paddy rice, using the Equivalent Net Weight (ENW) Table, which is generated from several variables including the official buying price and the NFA's drying costs. Also, the NFA provides three types of procurement incentive payments, aside from the support price: (1) drying incentive; (2) cooperative incentive, and; (3) delivery or transport incentive. The drying incentive of 50 centavos is given if the paddy rice brought by the farmer to the buying station is already dry. The cooperative incentive, which is about 25 centavos, is also called the Cooperative Development Incentive Fund (CIDF) fee and is provided to the accredited farmer-organizations that sell rice to the NFA. The third item, however, is provided if the farmer will be the one to bring the paddy rice to the buying station and is about 10 centavos. (Tolentino et al, 2002)

Domestic procurement operations usually occur twice a year. The bulk of procurement happens during the main harvest season; that is, from October to December. During this period, it is favourable for the NFA to procure rice since the price in the market is generally lower due to larger supply. Procurement also occurs during the Palagad season (from March to May) but only minimal. During summer, only small number of farmers who have access to irrigation facilities afford to plant, leading to generally lower level of production. Accordingly, price of rice is relatively higher. Also, the paddy rice produced in this season is relatively drier and of better quality and thus, higher in price.

Procurement operations usually take place in NFA buying stations distributed nationwide. These buying stations may be located beside the local warehouses or near the production areas so as to avoid the complexity of the procurement process. More often than not, the NFA leases some of their buying stations before the procurement season and then leases them out afterwards to reduce cost. The NFA may also go directly to far-flung areas with relatively high volume of production and low price of paddy rice using mobile trucks (either owned or contracted). The buying team may either go to municipal collection centers or proceed directly to the farmers.

If the farmer/farmer-organization wants to sell his/its paddy rice to the NFA, especially when the prevailing market price is lower than that offered by the NFA, he/it has to go to any buying station or municipal collection centers, as the case may be. The NFA buying team will weigh the paddy rice in order to determine the price. However, before selling a bag of paddy rice to the NFA, the farmer/farmer-organization first has to secure a “passbook”; “farmer passbook” for the individual farmers and “master passbook” for the farmer-organization. The “passbook” includes the name and picture of the landowner or the authorized representative, information on physical area and location of the farm, historical records on area planted, average yield and volume sold for a specific cropping season. From this set of information, the maximum procurable volume of paddy rice can be determined.

Meanwhile, the funding of local procurement usually comes from the corporate funds of the National Government and borrowings from lending institutions.

3.2.1.2 Importation of Rice

In 1985, Executive Order No. 1028 stated that the NFA was vested with the exclusive authority to import rice subject to the approval of the President. In response to public pressure, however, the private sector was allowed to import rice starting May 1999. By that time, a total of 27 auctioneers were allowed to bid and were awarded allocations ranging from 100 to 15,000 metric tons imported rice at a minimum equalization fee of 50 centavos per kilogram. The fee serves as a payment above the FOB and tariffs made for every kilogram. While the NFA rice imports continue to be duty free, the private sector imports carry a 50% in-quota tariff under the Minimum Access Volume (MAV). (Ramos, 2000; Mangabat, 1999).

Importation is actually resorted to after the IACRC has identified that a production shortfall exists and there is a need for additional stocks to stabilize supply and prices, or if the NFA stocks do not meet the increasing demand in the market. Factors affecting the importation decision are: (1) production estimates from the BAS; (2) report on weather situation from the PAGASA (Reburiano, 2005).

The Inter-Agency Committee on Rice and Corn (IACRC) is the authorized body that decides on the volume and timing of importation based on the IAC assessment of rice and corn situation. (See Box 1) The IACRC meets quarterly to assess the supply/demand situation for rice and corn and, based on this, recommends the volume as well as the timing of importation, if necessary. This passes through the Secretary of the Department of Agriculture (DA) to the NFA Council and finally approved by the President.

Box 1. The Inter-Agency Committee on Rice and Corn (IACRC)

The Inter-Agency Committee for Rice and Corn (IACRC), used to be known as the Inter-Agency Technical Working Group on Cereals and Feedgrains, is one of the oldest and most important committees under the Department of Agriculture (DA) giving advice to the DA Secretary on what to recommend in terms of issues on rice and corn. The two important commodities were combined in one committee because policies on rice and corn in the Philippines are interlinked since they are substitutes in many areas in the country. (Recide, 2005)

The IACRC is normally chaired by whoever sits as the highest official in the DA – Policy and Planning. All throughout, Dr. Romeo S. Recide (Director of BAS) acts as the Vice-Chair since the BAS provides most of the technical inputs used in the deliberations of the Committee. For the membership, the Committee tries to cover all possible aspects in terms of looking at policy considerations regarding rice which are as follows: Department of Trade and Industry (DTI), because of trade issues; Field Operations Service (FOS) under the DA, because it is in-charge of programs and operations at the ground level; National Agriculture and Fishery Council (NAFC), in order to provide consultancy with the private sector; National Economic Development Authority (NEDA), because of economic issues; GMA-Rice and GMA-Corn, two banner programs of the DA; National Food Authority (NFA), for the procurement, storage and pricing of rice; Philippine Farmers Advisory Board, to represent the farmers' groups; Bureau of Animal Industry (BAI), to provide inputs on the status of animal feeds; Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), to provide the weather forecasts that are valuable inputs in making policy decisions; Philippine Rice Research Institute (PhilRice), for rice research issues; National Irrigation Administration (NIA), for the status of irrigation facilities; Department of Finance (DOF), because when it comes to importation, there has to be some assurance that the financial arrangements are going to be well-covered. (Recide, 2005)

The general function of the Committee is to provide advice to the Secretary of the DA on policy issues regarding rice and corn, importation, exportation and prices. The specific functions

are the following: (1) To provide the Secretary of Agriculture with regular and timely rice and corn situations, e.g., production and price trends, supply and demand forecasts, and other information that will assist the Secretary in making policy decisions; (2) To monitor developments in related sectors (such as wheat, feedgrains, livestock and poultry) and come up with recommendations on issues affecting rice and corn; (3) To provide quick-response analysis to facilitate prompt assessment of the impact of changes in factors of production as these affect the profitability and productivity of rice and corn, and; (4) To further encourage participation of other government agencies and private sector concerned, in analyzing and monitoring the performance of the cereals and feedgrains sector, through consultations. (DA, 1995)

The Committee holds quarterly meetings under normal circumstances. The typical agenda during those meetings composed of two sets: (1) weather report from PAGASA, and; (2) Rice and Corn Supply-Demand Situation and Outlook from the BAS. The weather report from PAGASA is part of the so-called Standard Operating Procedures (SOP). Thus, the Committee always has somebody from the PAGASA to report on the current weather situation and forecast. The document on Rice and Corn Supply-Demand Situation and Outlook, however, includes report on production estimates and forecasts from the BAS combined with the weather forecast from the PAGASA. This document is used by IACRC in coming up with a set of recommendations regarding importation. (Recide, 2005)

In assessing the supply/demand situation for rice and corn, the following inputs are needed: (Refer to Figure 6)

(1) Results of the Rice and Corn Production Survey (RCPS) conducted by the Bureau of Agricultural Statistics (BAS) every quarter, which include: (See Box 2)
    (a) final production estimates for the last quarter;
    (b) production forecasts for the next quarter based on the standing crops; and,
    (c) production forecasts for the quarter after the next quarter based on planting intentions

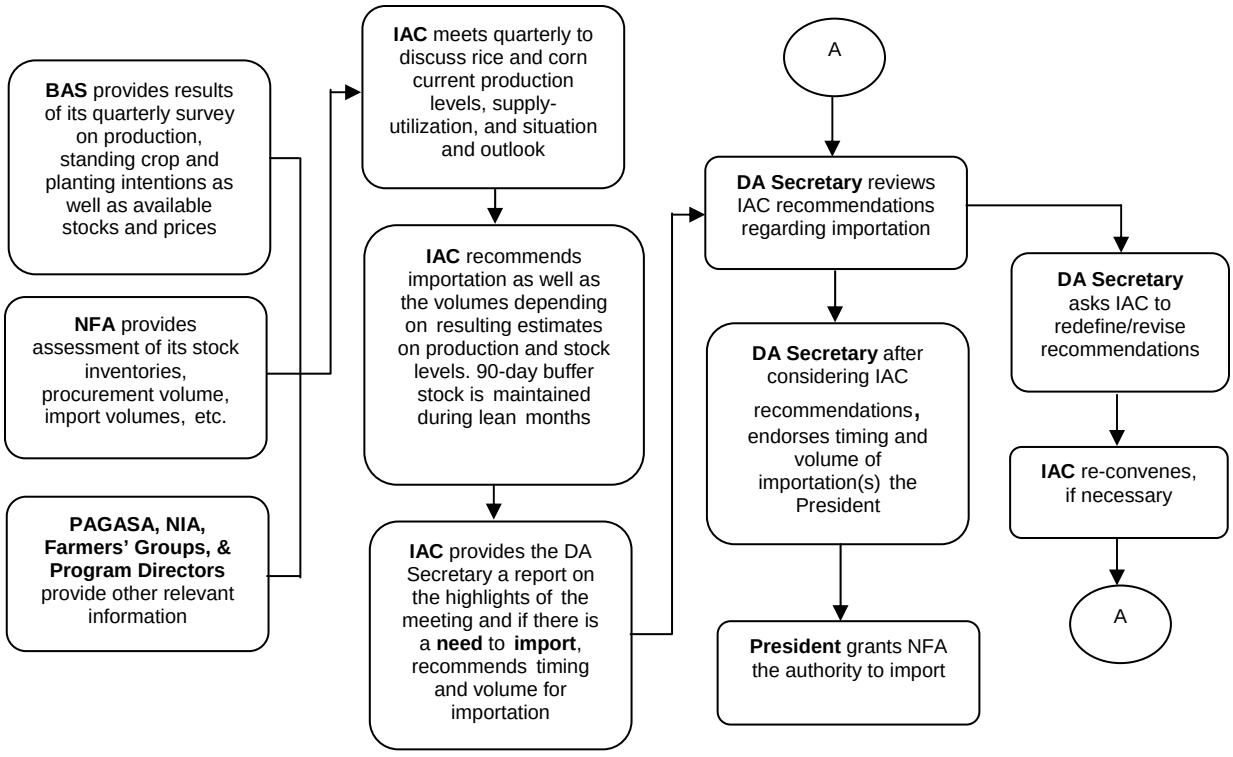

Figure 6. IACRC Assessment of Rice and Corn Situation

(2) Assessment of the NFA accomplishments, which include stock inventories and procurement volume (both domestic and international)

(3) Forecast of PAGASA

(4) Other relevant information provided by the different IACRC member-institutions such as NIA, Farmers' Groups and DA Programs

As early as January, there must be a final decision whether to import or not because it takes time to conduct negotiation for rice. Normally, the NFA prepares market analysis both of the world and local market situations. Information on prices and some quality considerations may be sourced from the Internet or from the Food and Agriculture Organization (FAO). Thailand and Vietnam have been the country's primary suppliers of imported rice since the

1990s, accounting for at least 60% of total import quantities (Intal & Garcia, 2005). Bulk of imports should arrive during March to April.

Box 2. The Rice and Corn Production Survey (RCPS)

The BAS obtained data on rice and corn production through the Rice and Corn Production Survey (RCPS), which replaced the old Rice and Corn Survey (RCS) by improving the survey methodologies. The RCPS was formally made part of the regular activities of the Bureau in 1994 and has been conducted every quarter in major rice/corn-producing provinces and every semester in minor rice/corn-producing provinces, with the previous quarter/semester as the reference period. The survey consists of the Palay Production Survey (PPS) and Corn Production Survey (CPS), which cover sample rice and corn farming households in sample barangays in the identified major and minor rice- and corn-producing provinces. (NSCB, 2000) (Refer to Annex 1 for the list of provinces covered by the PPS and CPS)

The data collection in RCPS is usually done during the first twelve days of the month after the reference quarter. Each round generates the following: (1) final production estimates for the immediate past quarter of the current survey round; (2) production forecasts for the current quarter based on standing crop; and (3) production forecasts for the next quarter based on planting intentions of farmers (CPS). (BAS, 2005) Since the cropping cycle is usually three months, whatever is planted within the next three months should be harvested three months after that. In effect, BAS provides estimates for six months, or two quarters, ahead. It should be noted, however, that the forecast for the next quarter is more definite than that of the quarter after the next. In BAS's studies, forecast error based on the standing crops is about 5%, while forecast error based on planting intentions is about 10%. This is where weather information is going to come in. The forecasting model is deterministic and does not have a probabilistic component. During the next quarter, the second round of the survey will be conducted in order to check whether the standing crops of the previous quarter are ready for harvest or not, and whether the planting intentions that the farmers reported the previous quarter are in the ground already or not. (Reburiano, 2005)

3.2.2 Distribution of Rice

In order to realize the mandate of the NFA to stabilize grains supplies and prices, both at the farm-gate and consumer levels, the agency sells milled rice to the market at a subsidized price throughout the year, particularly during the lean months (Tolentino et al, 2002). While the farmers want higher selling price, the consumers want lower buying price. In order to balance these two things, the President issues an executive order giving a price ceiling to both of the farmers' and the NFA's, the same nationwide. Thus in 2005, the NFA was selling ordinary rice at 18 pesos per kilo to the general public, regardless of the income and expenditure capacity, the cost and despite of the fact that the price of the imported rice ranges from 25 to 26 pesos. (Reburiano, 2005) In October 2007, the consumer's price of local rice was increased by 25 centavos per kilogram.

Further, sellers that are classified under the so-called 'regular distribution system' are allowed to put a margin of 2 pesos per kilo while only 1 peso per kilo for those under the Targeted Rice Distribution Program (TRDP). Sellers under the 'regular distribution system' are the retailers or market outlets accredited by the NFA. The spread of 2 pesos per kilogram allowed for these sellers is actually 1.50 pesos in Metro Manila. It is said that consumers in Metro Manila demands well-milled rice as compared to regular-milled one in the province. The TRDP, on the other hand, primarily aims to target the NFA's price subsidies to those who are considered poor or families with incomes below the food threshold (13,000.00 per annum in 2003). Each of these families is entitled of 10 kilograms of NFA rice per week. The implementation of the program started in early 2001 and includes "Bigasan sa Palengke", NFA rolling stores, and so on. For this 'pro-poor' program, the NFA identified 15 "hot spot" areas in the country where the price of the milled rice is around 14 to 15 pesos per kilo. The Department of Social Welfare and Development (DSWD) provide the listing of poor families under these "hot spot" areas.

Meanwhile, the NFA influences domestic prices by selling from its total stock at the mandated selling price, provided that the stocks are large enough. (Tolentino et al, 2002) But if the stocks are in deficit, the private traders compete with each other leading to higher market price of rice.

The volume of imports determined by the IACRC is enough to satisfy the stock requirements of each province. Thus, when it arrived at the warehouses, the NFA managers already know the specific location and allocation of the total rice imports based on the targets reported by the provincial economists of the NFA. In terms of distribution, the NFA prioritizes those provinces classified under the 'critical' areas. The surplus provinces may be allowed to run out of buffer stocks but not those 'critical' provinces.

Moreover, the frequency of distribution (whether every week or every other day) depends on the availability of transport facilities as well as the storage capacity of warehouses. Also, if El Niño did not materialize or at least the expected intensity has not been experienced, actual distribution may be modified accordingly. But then, the usual distribution period is from June to August.

3.2.3 Storage of Rice

One of the mandates of the NFA is to ensure food security in cereals, which is realized by maintaining an average of at least 15-day level stock at any given time in all warehouses nationwide (Reburiano, 2005). The maintenance of this emergency rice reserve was agreed upon by the Legislative-Executive Development Advisory Council (LEDAC) in early 1996 due to the 1995 "rice crisis" (Tolentino et al, 2002). This emergency rice reserve allows the NFA to respond to the rice distribution needs of relief agencies such as the Department of Social Welfare and Development (DSWD), National Disaster Coordinating Council (NDCC) and the Philippine National Red Cross (Tolentino et al, 2002). In addition, this 15-day buffer serves as a contribution to the Association of Southeast Asian Nations (ASEAN) rice security reserve, which was agreed to be at least

12,000 metric tons every year (Ramos, 2000). During the lean months, however, a 30-day level stock has to be maintained.

Given that the national average of stock requirement is good for 15 days, the location-specific stocks vary by province according to their classification:

(1) Self-sufficient (if the production of the province is just enough for consumption) – 5 days;
(2) Surplus (from the level of production, the province can still supply to private traders outside the province) – 2 days;
(3) Less critical (the province still has production but is less than the food requirement and has to be supplied) – 15 days, and;
(4) Very critical (the province has no production and totally dependent on the inflow delivered by the NFA) – 30 days.

(For the list of provinces classified under the four different classification groups, as of January 2007, refer to Annex 2)

Moreover, due to 1995 fiasco, President Ramos once issued Administrative Order mandating effectively the government to have a food security buffer of equivalent to 90 days at the end of June or July 1st of every year; 30 days should be with NFA, 15 days should be for the commercial, and 45 days must be in the hands of the households. (Reburiano, 2005) The normal storage period is from January to May so as to insure enough stock inventories before the lean season. This period covers the arrival of the imported rice, which should happen during the period March-April, and local procurement during the Palagad season, which is from March to May. Thus, the July 1st inventory is composed of the locally procured rice during the main harvest season (October to December), plus those from the Palagad season (March to May), and imported rice (which usually arrive during the period March to April).

3.2.4 Dispersal of Rice

Dispersal of rice usually happens before the lean season from the surplus to the critical areas so as to avoid the adverse effects of rainy season. The NFA identifies which 'surplus' province should supply to the 'deficit' area; probably the nearest one in order to gain efficiency. There are two types of dispersal operations: (1) inter-regional, and; (2) intra-regional. Also, there are two modes of dispersal activities: (1) by land, whether through NFA-owned or private/contracted trucks and; (2) by sea, through contracted vessels.

In order to shift the imported rice to the needy/critical areas, especially the island provinces, the country has major and minor depot areas, which includes key cities such as Metro Manila, Cebu, Davao, Zamboanga, Cagayan de Oro and General Santos. These depot areas are port areas that are usually deeper than the typical ones, where the imported rice is being unloaded. This dispersal activity is indicated in the contract with the exporting country and should be observed in order to insure the safety and quality of the rice transported.

3.3 NFA Target Setting

The NFA holds a national planning conference every semester to prepare new set and review previous set of monthly targets on procurement, distribution, dispersal, milling, re-milling and other decision items with the NFA. Around the period November-December, the NFA prepares new set of monthly targets, which is good for the succeeding two years; that is, operational targets for the first year and budgetary estimates for the second year. The mid-year planning, on the other hand, basically reviews the accomplishments of the first semester vis-à-vis the targets set for the period during the national planning conference. This mid-year planning or the first-semester assessment is held every July. [In the past, national planning conference is held every quarter. But due to funding constraint, this is held on a semestral basis.]

The targets are based on the estimates of the daily per capita consumption requirement (in terms of rice) per province, which are sourced from the BAS. In order to evaluate if the targets have been met, the provincial economists conduct daily evaluation/assessment of the situation within a province, as part of the regular activities of the NFA. In here, several provincial indicators will be examined such as the prevailing market and farmgate prices, population figures (from Census of Population), weather forecast, production forecast, trade practices, peace and order situation, political events and other occurrences within the province. These indicators will be compared with the past experiences and/or historical trends and will be examined how these would affect the accomplishments of the province. Whether the accomplishments are equal to or higher than or lower than the targets will be reported by the provincial economists and will be consolidated at the regional offices to be submitted directly to the NFA Central Office twice a week. The Central Office then prepares a monthly report on accomplishments vs. targets, by province, and will be reviewed during the national planning conference the following semester. These reports will be the basis of operational targets for the following year.

4 Link between Rice Policy Decisions of the NFA and Seasonal Climate Forecast (SCF)

4.1 Rice Policy Decisions of the NFA

4.1.1 Domestic Procurement of Paddy Rice and Support Price to Farmers

One of the policy objectives of the government is to provide the local producers or the farmers a reasonable return on investment. In order to carry out this objective, the NFA procures paddy rice from the farmers at a support price that is relatively lower than the prevailing price in the market. Thus, one of the major policy decision points that the NFA has to make is how much volume of paddy rice to procure to be able to defend its support price.

Figure 7 shows the percentage share of paddy rice procurement to total paddy rice production. It can be seen from the figure that the share of procured paddy rice to total production had been decreasing from 1970s to late 1990s. It was only in 1999 that the share somehow recovered at 4.76% (from a very insignificant 0.72%). The average share of paddy rice procurement in 1970s was about 6.8%, declining to 5.4% in 1980s and then all the way down to 2.6% in 1990s. From 2000 to 2006, the average share increased slightly to approximately 3.2%. Generally, from 1975 to 2006, paddy rice procurement is only 4.3% of the total paddy rice production. This is a relatively small figure compared to the 5-10% mandated target (Ramos, 2000).

Ramos (2000) cited some possible reasons why NFA procurement was very low, particularly in the period 1994-1998, and these include the following: (1) support prices fell below actual paddy prices; (2) additional transaction costs that farmers have to bear because of strict quality standards set by the NFA, especially the poor ones who do not have access to post-harvest facilities; (3) many paper works involved in the transactions, including the encashment of check payments compared to cash payments when they sell to private traders.

Moreover, a number of studies suggest that for NFA to effectively influence the rice market, specifically the farmgate prices, paddy rice procurement should be at least 25% of the total paddy rice production (Glipo et al, 2002).

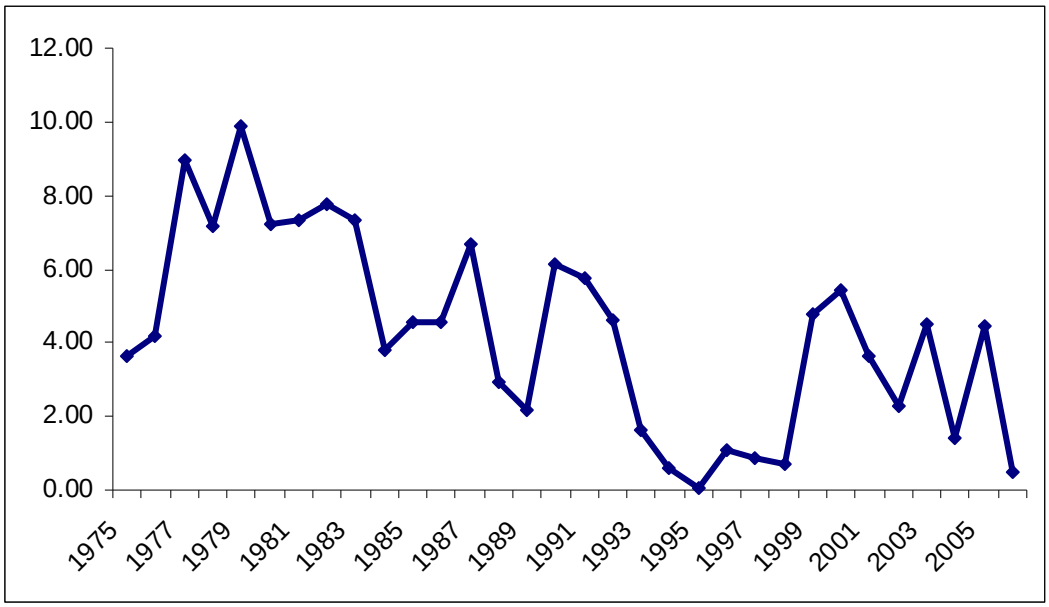

Figure 7. Percentage Share of Paddy Rice Procurement to Total Paddy Rice Production

4.1.2 Storage of Rice/Maintenance of Buffer Stocks and Retail Price Subsidy for Consumers

Another objective of the NFA is to maintain stability in the supply and retail price of rice by maintaining buffer stocks. Stabilization of rice supply usually goes with stabilization of the retail price of rice in the market, which benefits the consumers. Thus, another policy decision point that the NFA has to make is how much volume of rice to store or to maintain in order to stabilize the supply of rice and consequently, the retail price in the market.

Buffer stocks serve as protection during cases emergency (Ramos, 2000). Thus, the government maintains buffer stocks that are equivalent to 30-day level during lean months and 15-day level at any given time. Also, it requires that the total stock (including

the commercial and household sectors) should be equivalent to 90-day level at the end of June or at July 1.

Looking at the trend of the equivalent number of days of beginning stocks in Figures 8, it can be observed that the total stock was declining during 1992-1995. (Refer also to Table 3 and Annex 3) The two lowest stock levels recorded were in September 1995 and October 1993, respectively. The level stock increased in 1996 until it reached its maximum in May 1999 (not to mention December 1991). During 2000-2006, the movement of stocks had been stable on average.

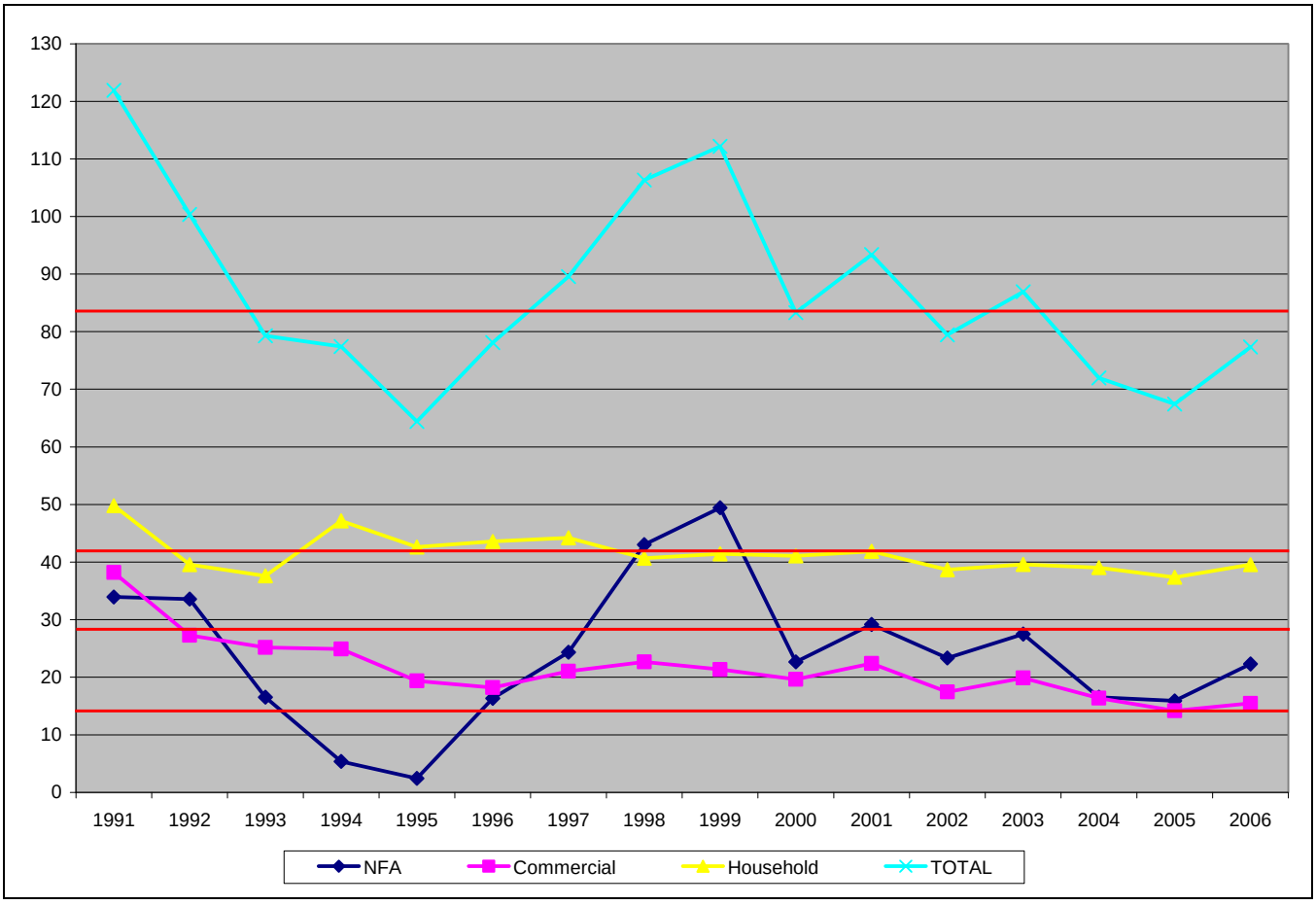

Figure 8. Average beginning stock equivalent (in days), 1991-2006

Table 3. Average beginning stock equivalent (in days), 1991-2006

Year	NFA	Commercial	Household	TOTAL
1991	34	38	50	122
1992	34	27	40	100
1993	17	25	38	79
1994	5	25	47	77
1995	2	19	43	64
1996	16	18	44	78
1997	24	21	44	90
1998	43	23	41	106
1999	49	21	41	112
2000	23	20	41	83
2001	29	22	42	93
2002	23	17	39	79
2003	27	20	40	87
2004	17	16	39	72
2005	16	14	37	67
2006	22	15	40	77

Source: BAS – basic data on beginning stock inventory

Examining each of the components of the total stock, it seems that its trend is almost parallel to that of the NFA stock. This somehow implies that of the three components of the total stock, the NFA stock is the most influential. The lowest levels were noted from the second half of 1994 up to first half of 1996 and the peak ones from the first half of 1998 up to first half of 1999. On the other hand, both the commercial and household stocks had remained stable from 1991 to 2006, on average.

Since the food security mandate of keeping buffer stocks or meeting reserve requirements was issued only in 1996, it would be reasonable to examine whether or not the required level of stock had been followed during the period 1996-2006. Looking at Table 4, it can be observed that on the average, the 90-day level requirement for the total stock at the start of the lean season (or July 1) had not been met. As shown in Annex 3, this requirement had only been met for the first three years after the issuance of the food security mandate; that is, from 1997 up to 1999. Also, it is ironic that the actual level of the total stock had been higher in other months. Similarly, the actual stock level of household sector had been below the 45-day level stock requirement in July but higher in other months. On the other hand, the commercial sector had managed to comply with the

15-day level requirement at the start of the lean season (July 1). Moreover, it can be seen that the NFA stock had complied only with the 30-day level requirement during the month of July but the actual stock level had been decreasing from August to September. In months other than the lean months, it is clear that the NFA had followed the 15-day level requirements.

Table 4. Average beginning stock equivalent (in days) per month, 1996-2006

Month	NFA	Commercial	Household	TOTAL
January	22	20	51	93
February	22	19	43	84
March	23	17	37	77
April	25	19	45	89
May	29	22	48	99
June	31	22	38	91
July	31	19	32	81
August	29	16	26	71
September	27	15	23	64
October	25	16	32	73
November	26	20	55	101
December	26	22	60	108

Source: BAS – basic data on beginning stock inventory

Meanwhile, Figure 9 clearly shows that the actual levels of stock were generally lower than the required levels during February-March and June-October. Note that the latter covers the lean months when stocks are mostly needed. On the other hand, the stocks are higher during the periods April-June and November-January.

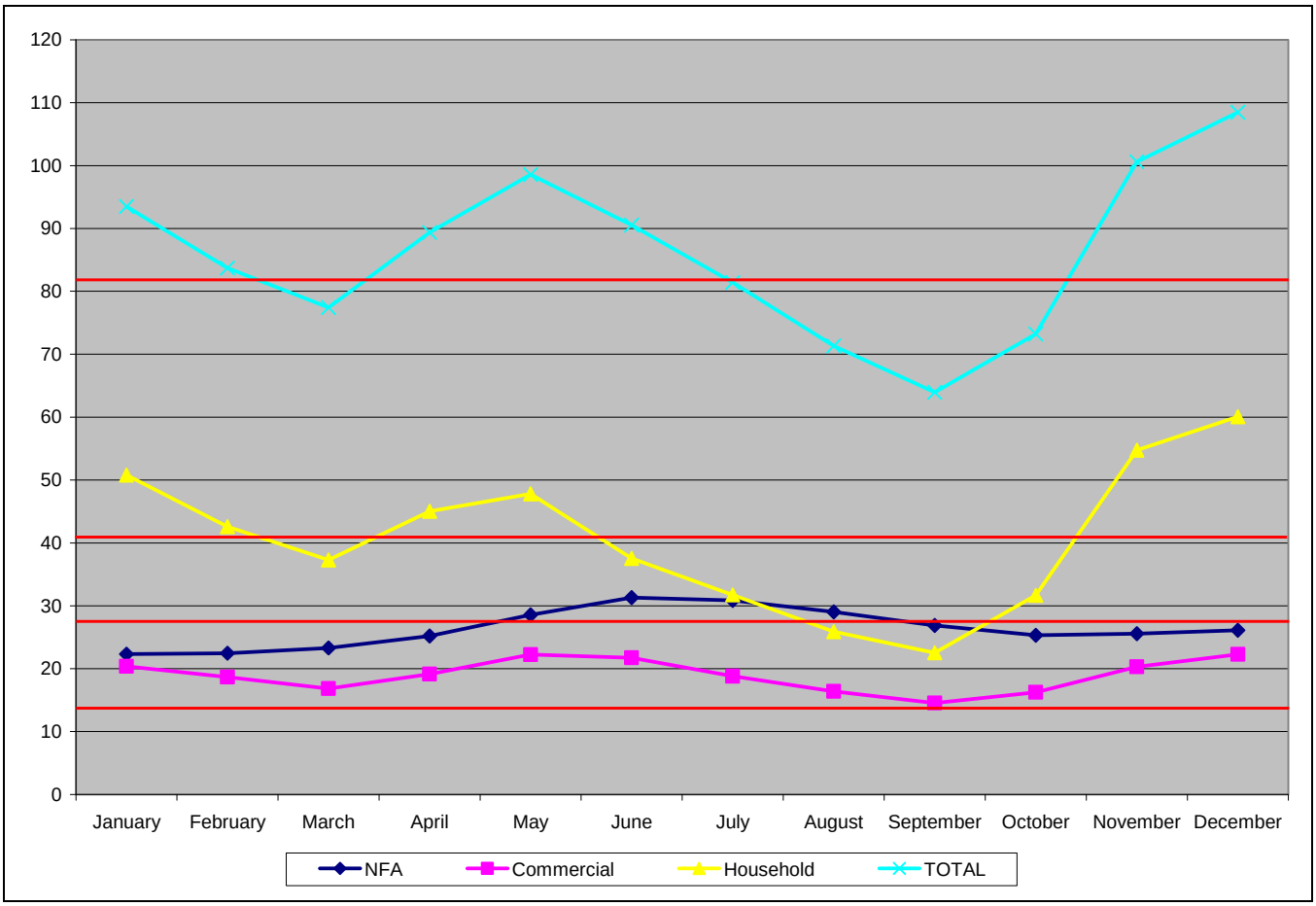

Figure 9. Average beginning stock equivalent (in days) per month, 1996-2006

The NFA can influence retail prices if it has enough stocks of rice (Tolentino et al, 2002). Since NFA stock has a significant influence on the total stock, sufficient level of it (particularly during lean months) will likely lead to stabilization of the retail price of rice in the market and in turn, benefit the consumers. While the data shows that the level of NFA stock is generally lower during critical periods, the NFA argued that they still have these so-called in-transit stocks which can be utilized during cases of emergency. However, these stocks are not covered by the monthly rice stock inventory and so they are not regularly monitored.

4.1.3 Importation of Rice

4.1.3.1 The Philippines Being a Net Importer

Examining the rice supply and utilization accounts (see Annex 4), it can be seen that the movement of rice stock inventory remains stable from 1991 to 2006 (Refer also to Figure 10). This is because the total supply and the total demand have almost the same rate of growth over time, except for the early 1990s. If imports were to be deducted from the total supply, the gap between total supply and total demand is relatively closer, particularly during 1996-2006 (see Figure 11). This observation implies that after the 1995 rice crisis, the country had been importing more rice in order for the total supply meet the total demand. One prominent drop in the 'total supply less imports' series is in 1998, when the strongest El Niño episode occurred. This is also the time when total supply almost went below the total demand, until importation was made. For the period 1991-2006, the volume of rice imports in 1998 is the highest.

Figure 11 provides a rationale why the Philippines have to remain a net importer of rice. For the period 1991-2006, domestic production could hardly meet the local demand. It can be observed that except for 1991, local demand had been higher than domestic production. However, upon adding imports in the equation, the supply could already meet the local demand. Thus, from early 1990s up to 2006, importation has been playing a very significant role in the supply-demand situation in the country.

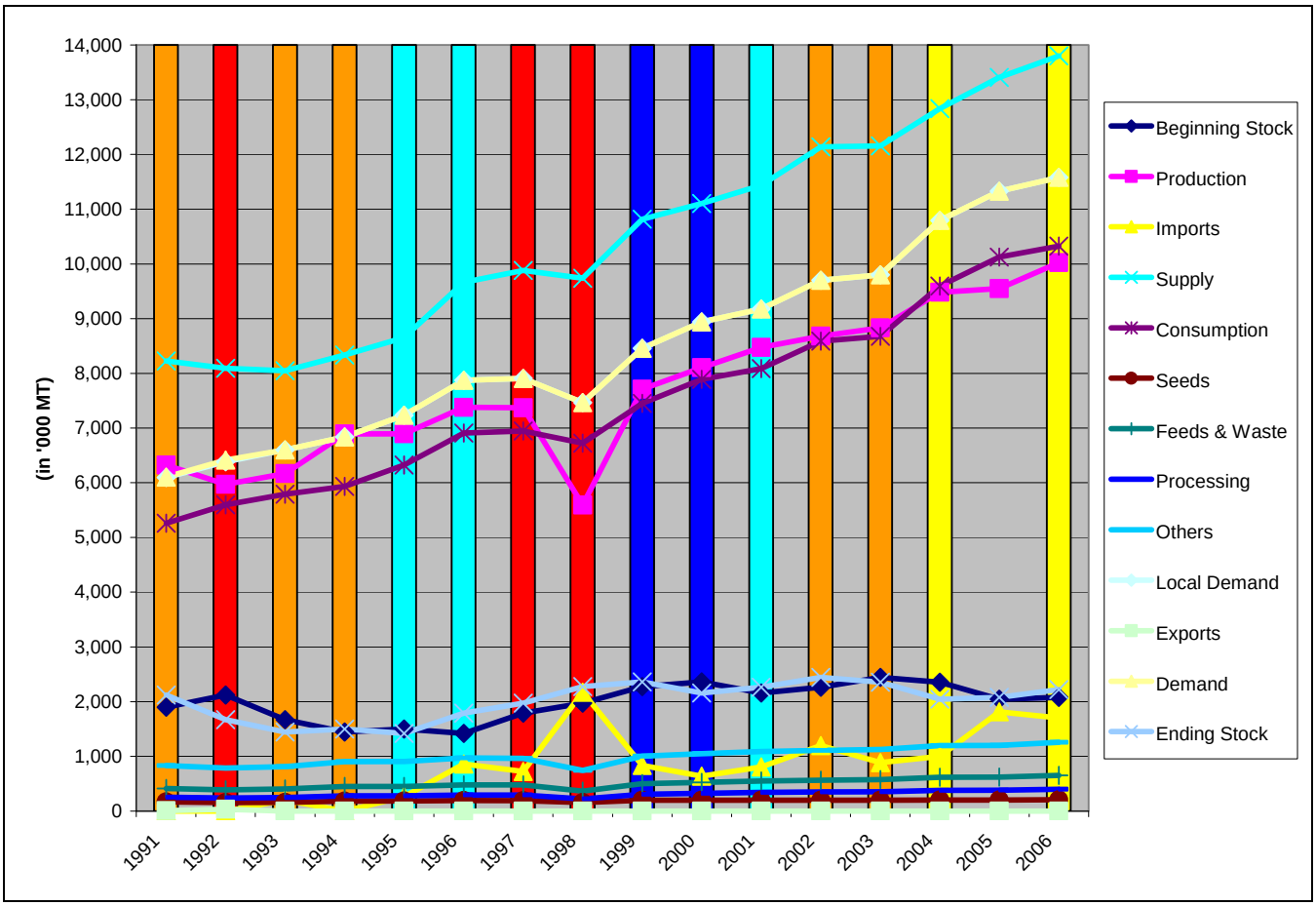

Figure 10. Rice Supply and Utilization Accounts, in '000 MT, Philippines, 1991-2006

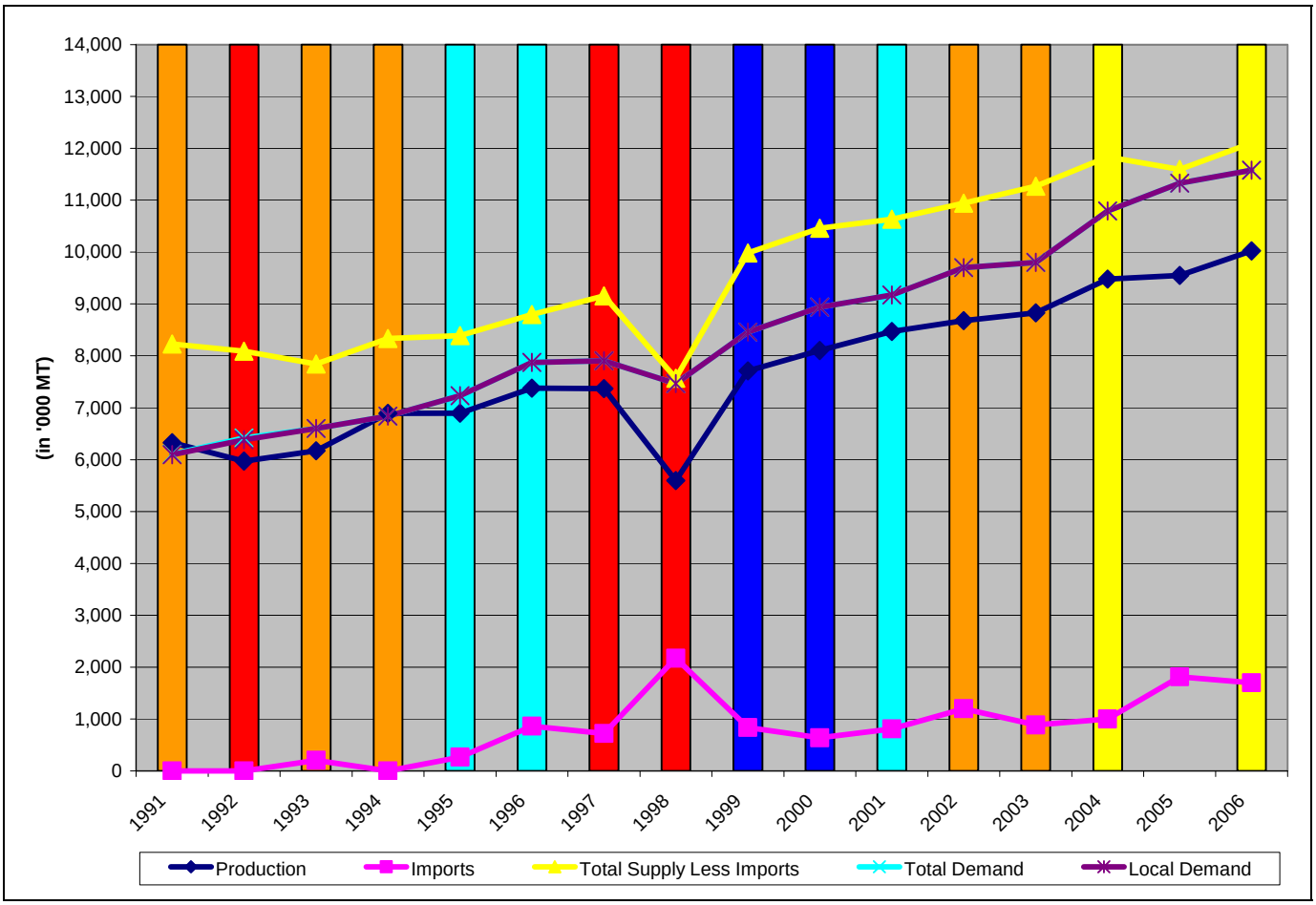

Figure 11. Rice Production, Total Demand, Total Supply, and Imports, in '000 MT, Philippines, 1991-2006

4.1.3.2 Volume and Timing of Rice Imports

In the Philippines, importation has remained one of the most influential forms of government intervention in the rice sector (Ramos, 2000). It is also considered as the country's last resort in filling up the gap between supply of and growing demand for rice primarily because production is not sufficient to meet the demand. Also, it is much more efficient than domestic procurement in maintaining the level of rice stocks, as evidenced by a large gap between the released price for the consumers and support price for the farmers. This may lead to stabilization of supply as well as retail price in the market, which is beneficial to consumers. Importation may also be beneficial to farmers. Although in the

short-run, it adversely affects the farmers, in the long-run, it may help them increase their productivity and become more competitive.

While importation is considered as one of the most influential forms of government intervention, it is also one of the most expensive. Thus, the decisions on the volume as well as timing of rice importation are among the most important policy decisions of the government.

If the government does not meet the required level of stock, particularly during lean months, and still have total supply greater than or equal to total demand, then it may not be really necessary to strictly comply with this mandate. This somehow suggests that there is a room for flexibility as to the optimal level of stocks that the government should maintain (Ramos, 2000).

Figure 12 displays the actual scenario of the rice supply-demand situation in the Philippines from 1991 to 2006. This is just the monthly version of Figure 10. It shows that the total supply is far greater than the total demand most of the time and it seems that the contribution of production to total supply is not that significant. It can also be observed that importation had been done several times, particularly after 1995.

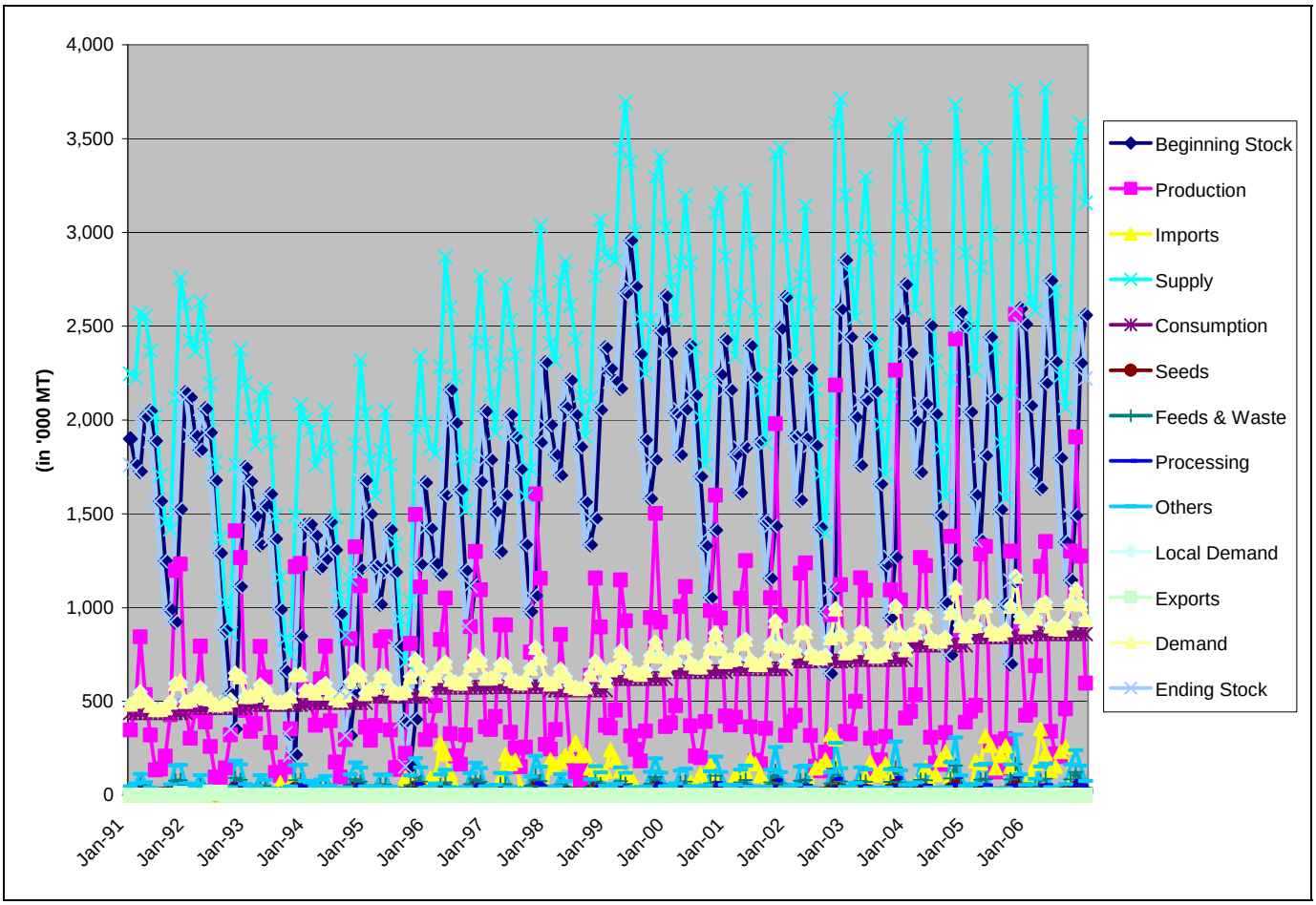

Figure 12. Actual rice supply-demand situation in the Philippines, in '000 MT, 1991-2006, monthly

Moreover, the data suggest that actual deliveries of imports had occurred throughout the year, even after June 30. Factors affecting this include availability of the agency's funds, negotiations with suppliers in the world market, weather conditions in exporting countries, delivery of BAS production data, among others. Tolentino et al (2002), in his study, found that almost half of the volumes contracted on by the NFA with foreign suppliers arrived later than agreed upon. He noted that oftentimes, imports arrived after the lean months, even during the harvest season.

4.2 Value of Seasonal Climate Forecast (SCF)

The rice policy decisions, particularly on importation, of the NFA are based on total production from BAS, which is projected using statistical forecast based on expected harvested areas and potential yield per hectare. These, however, are not linked systematically to official seasonal climate forecast (SCF). Because the Philippine agriculture is greatly affected by extreme climate events like El Niño or La Niña, accurate SCF information will be a valuable input to policy decisions in the rice sector.

Kajisa & Akiyama (2003) noted that inaccurate forecasts of the volume as well as timing of rice importation during times of shortage often caused the domestic price of rice to surge. Also, Howarth Bouis demonstrated that uncertainty about the timing of imports caused unusual rice price fluctuations in the Philippines from 1961 to 1972 (Ramos, 2000). Late imports can also lead to higher storage costs, since they would not be disbursed immediately and thus, cause an unintended build-up of stocks (Unnevehr, 1985).

The rice crisis experienced by the country in 1995 was mainly due to ill-timing of imports and the ill-quality of its supply forecasts (Ramos, 2000). During that time, importation is crucial because the increase in local demand was 5.8% while the increase in production from 1994 to 1995 was only 0.03% (an almost negligible value), which was partially due to occurrence of drought in the early 1990s (AGILE, 2000, as quoted by Intal & Garcia, 2005). The contraction of rice imports between 1990 and 1994, however, can be explained by the imposition of the Magna Carta of Small Farmers. Before 1996, importation is to be implemented if the shortage situation was determined upon consultation with farmer representatives and other industry actors, as mandated by the Magna Carta, instead of the IACRC (Ramos, 2000). Because of what happened in 1995, larger volumes of rice were imported during 1996-1998. Thus, when the worst El Niño occurred, there were large stocks in the hands of the government. In fact, what happened in 1998 was over-importation, perhaps because the government did not want to experience rice crisis again and partly because it was an election year. (Intal & Garcia, 2005)

Some lessons can be learned from what happened in the past. First is the contraction of rice imports between 1990 and 1994. Starting third quarter of 1990 up to the end of 1991, the warm episode of El Niño Southern Oscillation (ENSO) had been experienced by the country. (See Annex 6 for Episodes of ENSO from 1970 to 2004) It then worsened in the first quarter of 1992 up to the second quarter. But it did not end there. The warm episode continued until the end of 1993, then returned in the second half of 1994 up to the first quarter of 1995. Such a long period of an extreme climate event is a strong indication that shortage in production will probably happen, enough to consider importation. Should the decision makers considered using SCF in making policy decisions before 1990, the adverse effect would have been lessened. Also, the rice crisis would have been avoided if policy decisions, especially the volume and timing of importation, were linked to SCF. Moreover, over-importation would have been avoided if SCF was considered in planning for the level of importation. Since 1996 can be considered a normal year, it seems that the volume of imports during that time was unreasonable. The total supply less imports for that period was far greater than the demand.

According to NFA, the weather information from PAGASA is mainly useful in the distribution aspect of the NFA as well as in the programming of the shipping schedules of the imports. However, it seems that such information is not directly correlated with the actual volume and timing of importation. Perhaps linking crop production and import decisions more systematically with seasonal climate forecast will enhance the usefulness of these forecasts at a more practical level.

5 References

Bureau of Agricultural Statistics (BAS). 2005. *BAStat Interactive Database.* Available from the World Wide Web: (http://www.bas.gov.ph)

Bureau of Agricultural Statistics (BAS). 2005. *Mandate of the Bureau of Agricultural Statistics [online]*. Available from the World Wide Web: (http://www.bas.gov.ph)

David, C. and A. Balisacan. 1995. *Philippine Rice Supply and Demand: Prospects and Policy Implications*. PIDS Discussion Paper Series No. 1995-28, October 1995. Makati City, Philippines: Philippine Institute for Development Studies.

Department of Agriculture. 1995. *Amending Special Order (S.O.) No. 305: Renaming the Inter-Agency Technical Working Group on Cereals and Feedgrains; Redefining the Functions*. S.O. No. 155, Series of 1995. March 7, 1995.

Kajisa, K. & T. Akiyama. 2003. *The Evolution of Rice Price Policies over Four Decades: Thailand, Indonesia, and the Philippines*. Tokyo, Japan: Foundation for Advanced Studies on International Development. July 2003.

National Statistical Coordination Board (NSCB). 2000. *Profile of Censuses and Surveys Conducted by the Philippine Statistical System*. Makati City, Philippines.

Fernandez, M..D. and C. Cruz. 2005. *Interview on Distribution Policy of NFA.* Quezon City, Philippines. National Food Authority.

Glipo, A., V. Vibal and J. Cainglet. 2002. *Trade Liberalization in the Philippine Rice Sector: Implications of HB 3339 on Rural Employment and the Country's Food Security*. Development Forum, No. 1, Series 2002.

Intal, P. and M. Garcia. 2005. *Rice and Philippine Politics*. PIDS Discussion Paper Series No. 2005-13. .Makati City, Philippines: Philippine Institute for Development Studies.

Mangabat, M. C. 1999. *Effects of Trade Liberalization on Agriculture in the Philippines: Commodity Aspects*. Working Paper No. 51, December 1999.

National Food Authority (NFA). 2006. *About NFA [online]*. Available from the World Wide Web: (http://www.nfa.gov.ph)

National Statistical Coordination Board (NSCB). 2005. *Table 26: Gross Value Added in Agriculture, Fishery & Forestry by Industry Group, 2002 to 2004*. Makati City, Philippines.

National Statistics Office (NSO). 2003. *2003 Family Income Expenditure Survey Results (FIES*). Metro Manila, Philippines.

Philippine Rice Research Institute (PhilRice). 2004. *Philippine Rice Statistics Handbook (1970-2002)*. Volumes 1-3. Maligaya, Muñoz, Nueva Ecija: PhilRice.

Ponce, E.R. 2004. An Analysis of Rice Performance and How the Philippine Government Manages Rice Programs: 1900-2003. *Managing Rice Knowledge: The Last 100 Years*. Brown Bag Presentation, December 2004, NEDA sa Makati Building, Makati City, Philippines.

Ramos, C. G. 2000. *State Intervention and Private Sector Participation in Philippine Rice Marketing*. Quezon City, Philippines. Management and Organizational Development for Empowerment, Inc.

Reburiano, M. P. 2005. *Presentation on NFA Rice Importation*. Paper presented at the First Consultation Meeting on ACIAR Project, 8 July, NEDA sa Makati Building, Makati City, Philippines.

Recide, R. S. 2005. *Presentation on Inter-Agency Committee on Rice and Corn (IACRC)*. Paper presented at the First Consultation Meeting on ACIAR Project, 8 July, NEDA sa Makati Building, Makati City, Philippines.

Roumasset, J. 2000. *Black-Hole Security*. Working Paper No. 00-5, April 2000.

Sicat, G. P. 2003. The Philippine Economy During the Japanese Occupation, 1941-1945. UPSE Discussion Paper No. 0307, November 2003. Quezon City, Philippines: University of the Philippines School of Economics (UPSE).

Tecson, E. 2005. *Interview on Local Procurement of NFA.* Quezon City, Philippines: National Food Authority.

Tolentino, B., B. de la Peña, E. Noveno, B. Rayco, and I. L. Villapando. 2002. *101 Facts About the NFA.* DA-DOF-ADB TA 3429, May 10, 2002.

Unnevehr, L. J. 1985. *The Costs of Squeezing Marketing Margins: Philippine Government Intervention in Rice Markets*. The Developing Economies, Volume 23 (2): 159-172.

Annex 1. List of Provinces Covered by the RCPS

PHILIPPINES	Palay Production Survey (PPS) Number of Barangays		Corn Production Survey (CPS) Number of Barangays	
Region/Province	Major Producers (Quarterly Survey)	Minor Producers (Semestral Survey)	Major Producers (Quarterly Survey)	Minor Producers (Semestral Survey)
CAR (CORDILLERA ADMINISTRATIVE REGION)				
Abra		10		
Apayao	40			10
Benguet		10		
Ifugao		10		10
Kalinga	40			
Mountain Province		10		10
REGION I (ILOCOS REGION)				
Ilocos Norte	40			10
Ilocos Sur	40			10
La Union	40			
Pangasinan	40		40	
REGION II (CAGAYAN VALLEY)				
Batanes				
Cagayan	40		40	
Isabela	40		40	
Nueva Vizcaya	40			10
Quirino		10		
REGION III (CENTRAL LUZON)				
Aurora		10		
Bataan		10		
Bulacan	40			10
Nueva Ecija	40			10
Pampanga	40			10
Tarlac	40			10
Zambales		10		
REGION IV-A (CALABARZON)				
Batangas	40			10
Cavite		10		
Laguna	40			
Quezon				
Rizal				
REGION IV-B (MIMAROPA)				
Marinduque		10		
Mindoro Occidental	40			10
Mindoro Oriental	40			10
Palawan	40			10
Romblon		10		
REGION V (BICOL REGION)				
Albay	40		40	
Camarines Norte		10		
Camarines Sur	40		40	
Catanduanes		10		
Masbate	40		40	
Sorsogon	40			10
REGION VI (WESTERN VISAYAS)				
Aklan	40			
Antique	40			
Capiz	40			10
Guimaras		10		10
Iloilo	40		40	
Negros Occidental	40		40	

Annex 1. (continued)

PHILIPPINES	Palay Production Survey (PPS) Number of Barangays		Corn Production Survey (CPS) Number of Barangays	
Region/Province	Major Producers (Quarterly Survey)	Minor Producers (Semestral Survey)	Major Producers (Quarterly Survey)	Minor Producers (Semestral Survey)
REGION VII (CENTRAL VISAYAS)				
Bohol	40		40	
Cebu		10	40	
Negros Oriental		10	40	
Siquijor		10		
REGION VIII (EASTERN VISAYAS)				
Biliran		10		10
Eastern Samar		10		10
Leyte	40		40	
Northern Samar	40			10
Southern Leyte		10		
Western Samar	40			
REGION IX (ZAMBOANGA PENINSULA)				
Zamboanga del Norte	40		40	
Zamboanga del Sur	40		40	
Zamboanga Sibugay	-	-	-	-
Zamboanga City		10		10
REGION X (NORTHERN MINDANAO)				
Bukidnon	40		40	
Camiguin		10		
Lanao del Norte	40		40	
Misamis Occidental		10	40	
Misamis Oriental		10	40	
REGION XI (DAVAO REGION)				
Compostela Valley	-	-	-	-
Davao City		10	40	
Davao Oriental		10	40	
Davao del Sur	40		40	
Davao Province	40		40	
REGION XII (SOCCSKSARGEN)				
North Cotabato	40		40	
Sarangani		10	40	
South Cotabato	40		40	
Sultan Kudarat	40		40	
CARAGA ADMINISTRATIVE REGION				
Agusan del Norte		10		
Agusan del Sur	40		40	
Surigao del Norte	40			
Surigao del Sur	40			
ARMM (AUTONOMOUS REG. OF MUSLIM MIND.)				
Basilan		10		
Lanao del Sur	40		40	
Maguindanao	40		40	
Sulu		10		
Tawi-Tawi		10		

Source: “Profile of Censuses and Surveys Conducted by the Philippine Statistical System”, May 2000, NSCB

Annex 2. Approved Provincial Classification, by NFA, dated January 17, 2007

REGION/PROVINCE	Provincial Classification
NCR	
Batanes	VC
Cavite	VC
Metro Manila	
North District	VC
South District	VC
East District	VC
Central District	VC
ILOCOS REGION	
Abra	LC
Benguet	VC
Ilocos Norte	S
Ilocos Sur	SS
La Union	LC
E. Pangasinan	SS
W. Pangasinan	LC
CAGAYAN VALLEY	
Cagayan	S
Ifugao	LC
Isabela	S
Kalinga-Apayao	S
Mt. Province	VC
Nueva Vizcaya	S
Quirino	S
Allacapan	S
CENTRAL LUZON	
Aurora	S
Bataan	LC
Bulacan	VC
Nueva Ecija	S
Pampanga	VC
Tarlac	S
Zambales	VC

REGION/PROVINCE	Provincial Classification
SOUTHERN TAGALOG	
Batangas	LC
Infanta	VC
Laguna	LC
Mamburao	S
Marinduque	VC
Occidental Mindoro	S
Oriental Mindoro	SS
Palawan	SS
Quezon	LC
Romblon	VC
BICOL REGION	
Albay	LC
Camarines Norte	LC
Camarines Sur	SS
Catanduanes	VC
Masbate	VC
Sorsogon	LC
WESTERN VISAYAS	
Aklan	S
Antique	S
Capiz	S
Iloilo	S
Negros Occidental	VC
CENTRAL VISAYAS	
Bohol	LC
Cebu	VC
Negros Oriental	LC
Siquijor	VC
EASTERN VISAYAS	
Northern Leyte	S
Southern Leyte	LC
Biliran	S
Western Samar	VC
Northern Samar	VC
Eastern Samar	VC

REGION/PROVINCE	Provincial Classification
WESTERN MINDANAO	
Zamboanga City	VC
Zamboanga del Norte	VC
Ipil/ Zamboanga Sibugay	SS
Zamboanga del Sur	S
NORTHERN MINDANAO	
Bukidnon	S
Misamis Oriental	VC
Misamis Occidental	LC
Camiguin	VC
Lanao del Norte	LC
CARAGA	
Agusan del Norte	VC
Agusan del Sur	LC
Surigao del Norte	VC
Surigao del Sur	VC
SOUTHERN MINDANAO	
Davao City	VC
Gen. Santos City/Sarangani	VC
Davao del Sur	SS
Davao del Norte	LC
Davao Oriental	VC
Compostela Valley	LC
CENTRAL MINDANAO	
Sultan Kudarat	S
North Cotabato	S
Koronadal/South Cotabato	S
ARMM	
Maguindanao	SS
Tawi-Tawi	VC
Sulu	VC
Lanao del Sur	LC
Basilan	VC

Note: The previous classification was made in 1997 and then in 2005.

Source: National Food Authority

Annex 3. Equivalent No. of Days of Beginning Stocks, 1991-2006

Month	NFA	Commercial	Household	TOTAL
Jan-91	32	45	53	130
Feb-91	31	44	45	119
Mar-91	30	39	47	116
Apr-91	30	40	68	138
May-91	31	44	62	137
Jun-91	35	43	67	145
Jul-91	37	41	47	125
Aug-91	37	38	31	107
Sep-91	36	28	28	92
Oct-91	36	28	36	99
Nov-91	36	34	52	121
Dec-91	38	35	62	135

Month	NFA	Commercial	Household	TOTAL
Jan-92	40	34	61	136
Feb-92	42	29	45	116
Mar-92	44	29	36	109
Apr-92	44	28	46	119
May-92	45	30	39	114
Jun-92	44	32	33	108
Jul-92	41	28	36	105
Aug-92	32	25	25	82
Sep-92	25	23	20	68
Oct-92	16	19	26	61
Nov-92	14	23	51	87
Dec-92	16	27	56	100

Month	NFA	Commercial	Household	TOTAL
Jan-93	20	28	56	104
Feb-93	21	26	41	87
Mar-93	21	21	34	75
Apr-93	20	26	38	83
May-93	20	30	40	90
Jun-93	19	30	34	83
Jul-93	18	29	38	85
Aug-93	16	24	24	64
Sep-93	13	20	22	54
Oct-93	11	18	27	55
Nov-93	11	22	44	78
Dec-93	9	29	54	93

Month	NFA	Commercial	Household	TOTAL
Jan-94	8	25	54	88
Feb-94	7	25	38	70
Mar-94	7	23	37	66
Apr-94	7	26	50	83
May-94	6	29	50	85
Jun-94	6	31	45	82
Jul-94	6	26	44	76
Aug-94	5	23	32	60
Sep-94	4	19	30	54
Oct-94	3	19	43	65
Nov-94	2	26	68	96
Dec-94	3	27	74	104

Month	NFA	Commercial	Household	TOTAL
Jan-95	3	24	59	85
Feb-95	3	23	46	72
Mar-95	3	21	40	64
Apr-95	2	23	46	71
May-95	2	25	48	75
Jun-95	2	28	38	68
Jul-95	2	21	31	54
Aug-95	1	14	25	40
Sep-95	2	7	20	30
Oct-95	2	10	35	46
Nov-95	4	16	58	78
Dec-95	4	19	67	90

Month	NFA	Commercial	Household	TOTAL
Jan-96	4	17	53	74
Feb-96	**7**	16	45	68
Mar-96	9	14	39	62
Apr-96	16	15	48	79
May-96	23	20	51	94
Jun-96	28	21	41	90
Jul-96	27	19	37	84
Aug-96	21	17	28	66
Sep-96	17	16	26	59
Oct-96	13	17	39	69
Nov-96	15	22	52	89
Dec-96	15	25	63	103

Annex 3 (continued)

Month	NFA	Commercial	Household	TOTAL
Jan-97	16	24	53	93
Feb-97	13	22	44	79
Mar-97	12	20	40	73
Apr-97	16	19	49	84
May-97	25	22	55	102
Jun-97	32	23	44	98
Jul-97	38	20	35	94
Aug-97	36	18	29	83
Sep-97	31	15	24	70
Oct-97	26	17	30	73
Nov-97	23	24	60	107
Dec-97	23	27	68	118

Month	NFA	Commercial	Household	TOTAL
Jan-98	24	24	58	106
Feb-98	31	21	48	100
Mar-98	37	22	40	99
Apr-98	43	28	48	119
May-98	47	29	46	122
Jun-98	47	28	38	113
Jul-98	50	22	32	104
Aug-98	48	18	26	92
Sep-98	49	17	22	89
Oct-98	46	16	29	92
Nov-98	46	19	46	111
Dec-98	49	27	54	129

Month	NFA	Commercial	Household	TOTAL
Jan-99	44	20	46	110
Feb-99	47	19	38	104
Mar-99	53	15	37	104
Apr-99	54	17	45	117
May-99	56	24	51	131
Jun-99	60	24	41	124
Jul-99	60	22	33	115
Aug-99	53	25	29	107
Sep-99	46	19	26	91
Oct-99	42	21	36	98
Nov-99	40	24	55	118
Dec-99	39	26	61	126

Month	NFA	Commercial	Household	TOTAL
Jan-00	33	22	52	108
Feb-00	28	19	46	93
Mar-00	25	17	38	81
Apr-00	22	20	44	86
May-00	23	23	48	94
Jun-00	25	22	37	84
Jul-00	23	21	30	74
Aug-00	21	16	25	63
Sep-00	16	15	23	55
Oct-00	16	19	33	68
Nov-00	18	19	55	92
Dec-00	21	22	61	104

Month	NFA	Commercial	Household	TOTAL
Jan-01	21	22	54	96
Feb-01	20	22	42	84
Mar-01	23	22	38	82
Apr-01	23	22	48	94
May-01	26	27	48	101
Jun-01	34	28	38	100
Jul-01	36	22	32	91
Aug-01	38	18	26	82
Sep-01	35	19	22	77
Oct-01	32	20	32	83
Nov-01	31	23	61	116
Dec-01	32	23	61	116

Month	NFA	Commercial	Household	TOTAL
Jan-02	29	20	47	95
Feb-02	26	18	39	83
Mar-02	24	17	35	76
Apr-02	22	18	44	84
May-02	21	20	48	89
Jun-02	19	20	36	75
Jul-02	19	16	30	64
Aug-02	18	14	23	55
Sep-02	18	12	20	50
Oct-02	20	14	29	63
Nov-02	30	20	57	108
Dec-02	34	19	58	112

Annex 3 (continued)

Month	NFA	Commercial	Household	TOTAL
Jan-03	30	23	49	102
Feb-03	33	21	41	95
Mar-03	31	19	36	86
Apr-03	28	21	43	92
May-03	27	23	49	99
Jun-03	30	22	35	87
Jul-03	27	19	28	75
Aug-03	25	16	23	65
Sep-03	24	14	20	58
Oct-03	24	17	31	72
Nov-03	24	22	59	105
Dec-03	25	22	61	108

Month	NFA	Commercial	Household	TOTAL
Jan-04	23	19	46	89
Feb-04	21	18	39	78
Mar-04	20	15	35	70
Apr-04	17	18	46	81
May-04	19	21	48	88
Jun-04	17	18	36	71
Jul-04	13	15	31	59
Aug-04	14	12	25	50
Sep-04	15	10	19	45
Oct-04	14	14	31	59
Nov-04	13	18	54	86
Dec-04	12	19	59	90

Month	NFA	Commercial	Household	TOTAL
Jan-05	30	23	49	102
Feb-05	33	21	41	95
Mar-05	31	19	36	86
Apr-05	28	21	43	92
May-05	27	23	49	99
Jun-05	30	22	35	87
Jul-05	27	19	28	75
Aug-05	25	16	23	65
Sep-05	24	14	20	58
Oct-05	24	17	31	72
Nov-05	24	22	59	105
Dec-05	25	22	61	108

Month	NFA	Commercial	Household	TOTAL
Jan-06	23	19	46	89
Feb-06	21	18	39	78
Mar-06	20	15	35	70
Apr-06	17	18	46	81
May-06	19	21	48	88
Jun-06	17	18	36	71
Jul-06	13	15	31	59
Aug-06	14	12	25	50
Sep-06	15	10	19	45
Oct-06	14	14	31	59
Nov-06	13	18	54	86
Dec-06	12	19	59	90

Source: BAS – basic data on beginning stock inventory

Annex 4. Rice Supply and Utilization Accounts, in '000 metric tons, Philippines, 1991-2006

Year	Beginning Stock	Production	Imports	Supply	Consumption	Seeds	Feeds & Waste	Processing	Others	Local Demand	Exports	Demand	Ending Stock
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
1991	1,899.30	6,326.00	0.06	8,225.36	5,263.00	167.99	411.19	253.04	832.22	6,095.22	10.00	6,105.22	2,120.13
1992	2,120.13	5,970.00	0.63	8,090.77	5,599.00	156.87	388.05	238.80	783.72	6,382.72	35.10	6,417.82	1,672.95
1993	1,672.95	6,170.00	201.61	8,044.56	5,792.00	161.00	401.05	246.80	808.85	6,600.85	0.00	6,600.85	1,443.71
1994	1,443.71	6,892.00	0.16	8,335.87	5,935.00	179.11	447.98	275.68	902.77	6,837.77	0.00	6,837.77	1,498.10
1995	1,498.10	6,894.06	263.25	8,655.41	6,326.00	184.36	448.11	275.76	908.24	7,234.24	0.00	7,234.24	1,421.17
1996	1,421.17	7,379.00	862.34	9,662.52	6,906.00	193.80	479.64	295.16	968.60	7,874.60	0.00	7,874.60	1,787.92
1997	1,787.92	7,370.00	722.40	9,880.32	6,944.00	188.46	479.05	294.80	962.31	7,906.31	0.00	7,906.31	1,974.00
1998	1,974.00	5,595.00	2,170.83	9,739.84	6,723.00	155.49	363.68	223.80	742.97	7,465.97	0.00	7,465.97	2,273.87
1999	2,273.87	7,708.00	834.38	10,816.25	7,451.00	196.19	501.02	308.32	1,005.53	8,456.53	0.29	8,456.82	2,359.42
2000	2,359.42	8,103.00	638.72	11,101.15	7,892.00	198.07	526.70	324.12	1,048.88	8,940.88	0.22	8,941.11	2,160.04
2001	2,160.04	8,472.00	808.23	11,440.27	8,086.00	199.41	550.68	338.88	1,088.97	9,174.97	0.01	9,174.98	2,265.29
2002	2,265.29	8,679.00	1,196.60	12,140.90	8,589.00	198.47	564.14	347.16	1,109.77	9,698.77	0.00	9,698.77	2,442.13
2003	2,442.13	8,829.00	886.45	12,157.58	8,677.00	196.51	573.89	353.16	1,123.56	9,800.56	0.02	9,800.58	2,357.01
2004	2,357.01	9,481.00	1,000.13	12,838.13	9,596.00	202.41	616.27	379.24	1,197.92	10,793.92	0.98	10,794.90	2,043.23
2005	2,043.23	9,550.37	1,812.37	13,405.97	10,126.00	199.65	620.77	382.01	1,202.44	11,328.44	0.03	11,328.47	2,077.49
2006	2,077.49	10,023.67	1,700.34	13,801.49	10,324.00	204.05	651.54	400.95	1,256.53	11,580.53	0.01	11,580.55	2,220.95

Notes:

* Figures under columns (b), (c), (f), (g), (h) and (k) were just sum of the monthly figures.
* Figures under columns (d), (i), (j) and (l) were derived by PIDS based on the formula used in the computation of the monthly figures.
* Figures under columns (a) and (m) were adjusted based on the computation of the monthly figures.
* Figures under column (e) were computed as follows: = {[(Per Capita Consumption, in kilograms x Total Population) / 1,000] / 1,000}; in '000 metric tons; used the following formula in converting kilogram to metric ton: kilogram = metric ton/1,000 [1 kilogram x (1 ton/907.2 kilogram) x (0.9072 metric ton/1 ton) = (0.9072/907.2) metric ton].

>> Per capita consumption data were just figures under Total Net Food Disposable (from the original SUA table of BAS), converted into kilograms, multiplied by the Total Population figures (midyear; as of July 1), which were computed by PIDS.

Sources of basic monthly data:

BAS - stock inventory, production, per capita consumption, estimates for non-food consumption items;
NSO - imports and exports;
PIDS - population estimates