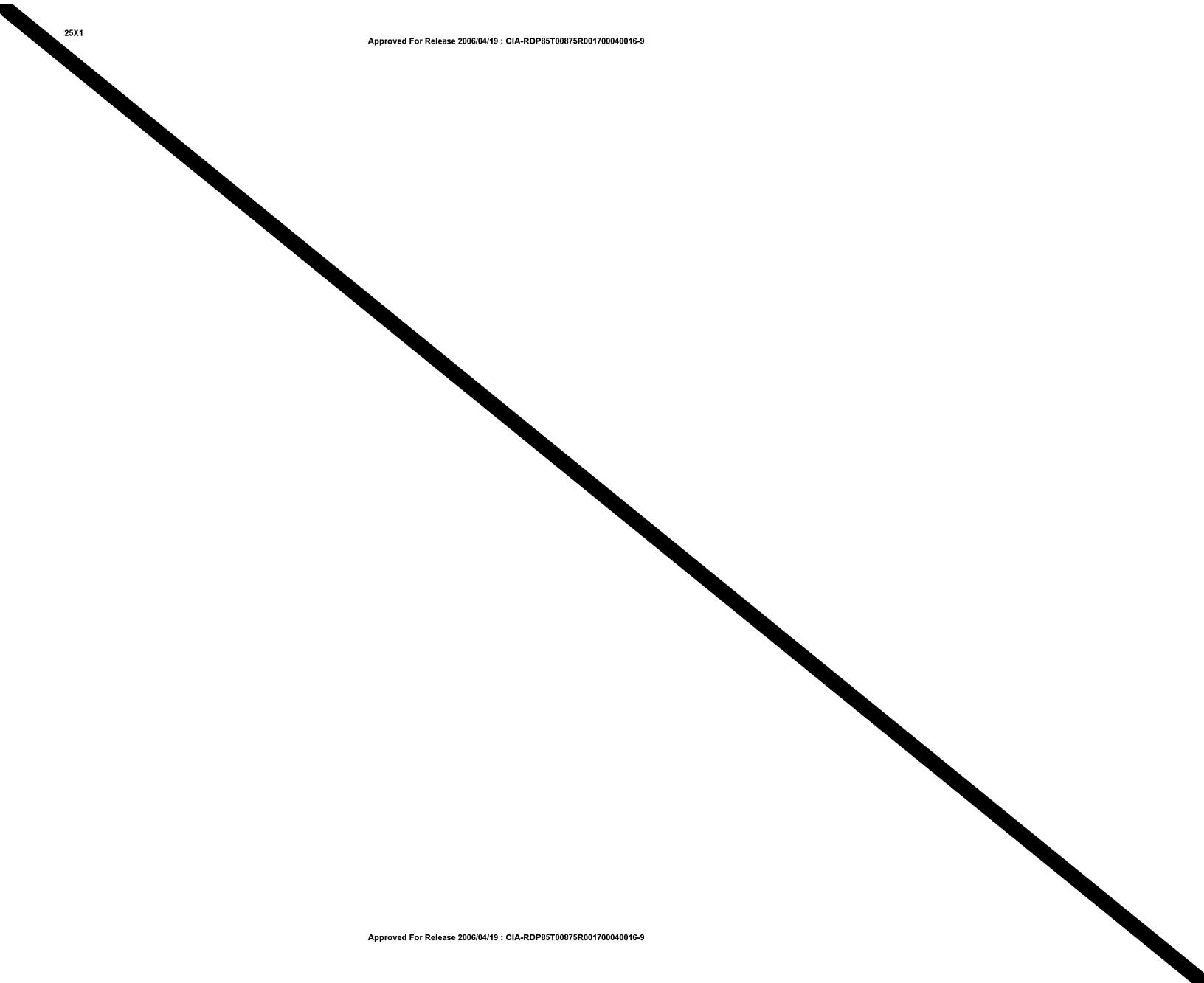

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Intelligence Memorandum

The Philippines' Rice Problem

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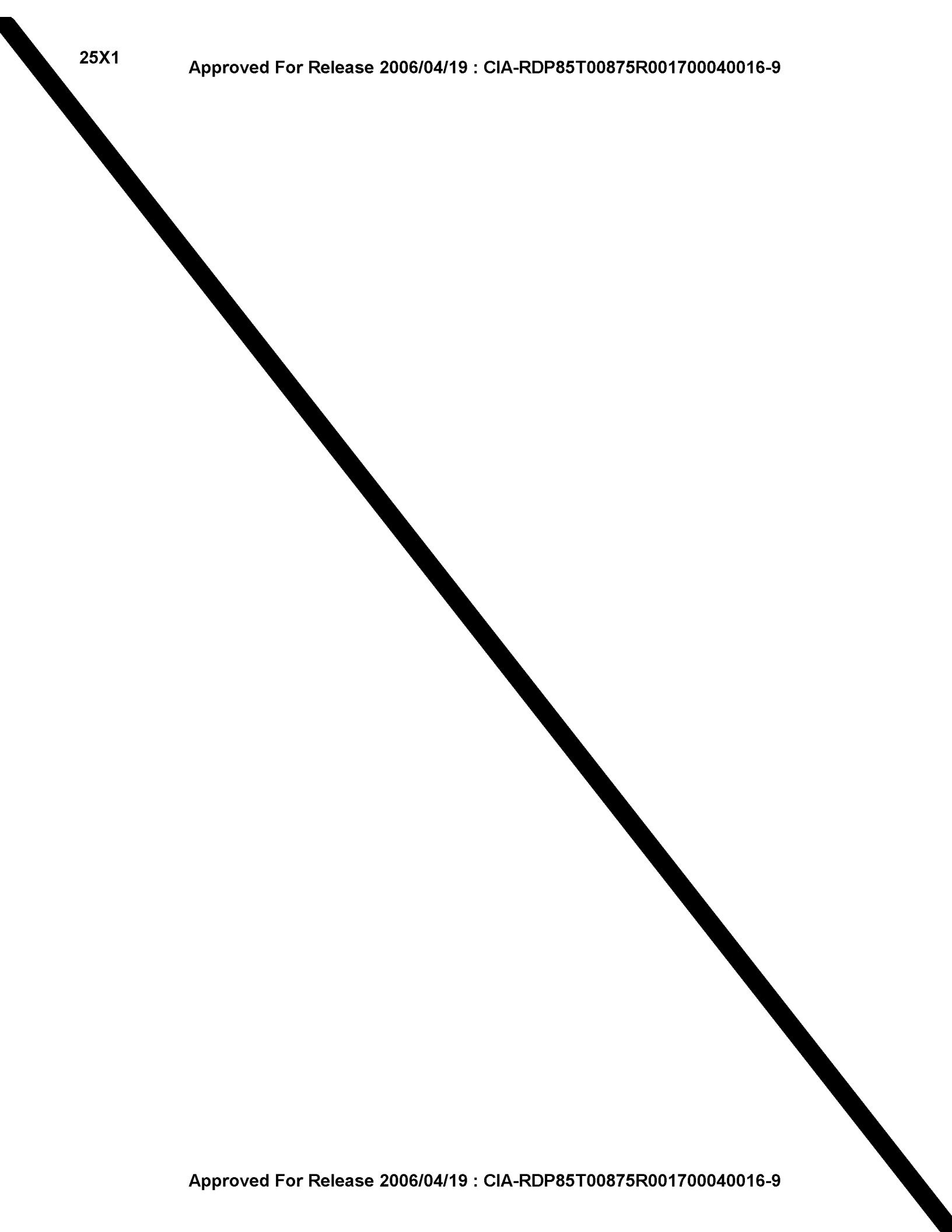


Approved For Release 2006/04/19 : CIA-RDP85T00875R001700040016-9

CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
September 1972

INTELLIGENCE MEMORANDUM

THE PHILIPPINES' RICE PROBLEM

Introduction

1. The Philippines was among the first countries to embark upon the "green revolution." With a new variety of rice seed, Manila set out in 1966 to increase production substantially and eliminate its longstanding dependence on rice imports. The program seemed a success initially, since imports were avoided during 1968-70. But large imports were needed again in 1971 and the country is heading toward record rice imports this year. In fact, for the first time in many years Manila is asking Washington for PL-480 rice. This memorandum discusses Manila's effort to expand rice output, assesses the program's shortcomings, and considers the potential for renewed progress. It also evaluates the impact of the recent devastating floods on the rice growing areas.

Discussion

Background

2. For many years, rice has been the mainstay of the Filipino diet. Today about 80% of the country's 39 million people eat rice as their primary food, and it is grown on about 40% of the country's cultivable land. Indeed, nearly all farms are partly devoted to rice production. Most rice land – 6.6 million acres – is cropped using the lowland technique of impounding water with dikes. Another 1.3 million acres are planted in upland rice, which utilizes dry-land farming techniques. About half of the land in lowland rice is irrigated and half depends on rainfall for its water catch.

Note: This memorandum was prepared by the Office of Economic Research and coordinated within the Directorate of Intelligence.

3. While natural conditions are adequate for rice growing, the Philippines has consistently recorded some of the lowest yields of any major producing country. During 1964-66, for example, Philippine rice yields averaged about 1,150 pounds per acre, compared with some 1,250 to 1,760 pounds in other southeast Asian countries (see Table 1). Moreover, the average 65% yields obtained in converting paddy rice to milled rice are among the world's lowest.

Table 1

Average Rice Yields for Selected Countries
1964-66

	Pounds per Acre
South Vietnam	1,758
Pakistan	1,456
Thailand	1,452
Burma	1,444
India	1,253
Philippines	1,154

4. Gains in Philippine rice production traditionally have been due mainly to expanded acreage rather than improved agricultural methods. Between 1921 and 1966 expanded acreage accounted for 80% of the increase in production. Rice output averaged an annual increase of only about 2% during this period, about the same as population. As a result the Philippines was never self-sufficient for any appreciable length of time.

5. In the early 1960s the Philippines reached the point where the best lands were already under cultivation. In addition, during the 1960s some rice acreage was planted to other crops, such as sugar and coconuts, to which Manila was giving a high priority. Consequently, while the total planted area increased slowly, rice acreage declined. Because little was being done to increase yields, rice production stagnated between 1961 and 1967 (see Table 2).

Table 2

Philippine Rice Data

Thousand Metric Tons

Year[a]	Production of Paddy Rice, by Crop Year	Imports: Milled Rice, by Calendar Year	Imports: Paddy Rice Equivalent,[b] by Calendar Year	Imports: Paddy Rice Equivalent, by Crop Year[c]	Available: Gross	Available: Net[d]	Consumption of Paddy Rice, by Crop Year[e]	Change in Stock of Paddy Rice, by Crop Year
1961	-	186	286	-	-	-	-	-
1962	3,910	31	48	167	4,077	3,669	3,669	0
1963	3,966	256	394	221	4,187	3,768	3,797	-29
1964	3,842	300	462	428	4,270	3,843	3,930	-87
1965	3,992	570	877	670	4,662	4,196	4,068	128
1966	4,073	108	166	522	4,595	4,136	4,210	-74
1967	4,095	290	446	306	4,401	3,961	4,358	-397
1968	4,562	0	0	223	4,785	4,306	4,510	-204
1969	4,446	0	0	0	4,446	4,001	4,668	-667
1970[f]	5,235	0	0	0	5,235	4,712	4,831	-119
1971	5,343	437	672	336	5,679	5,111	5,000	111[f]
1972	5,300	500[g]	769	720	6,020	5,418	5,175	243[f]

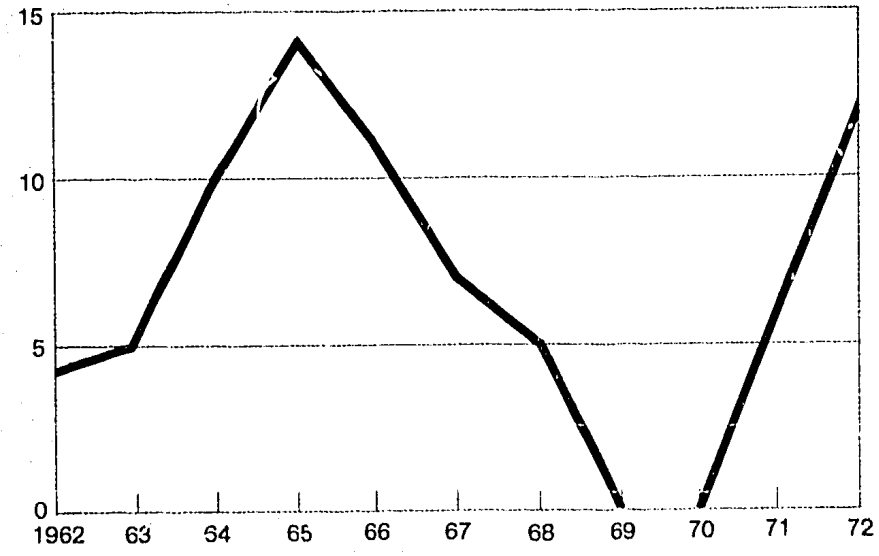
a. The crop year ends on 30 June of the year stated.
b. Milled rice is 65% of paddy rice.
c. Calendar-year import figure changed to crop year by adding together the two calendar years in which the crop year falls and dividing by two.
d. Gross available rice is reduced 10% to exclude rice used for non-human consumption purposes – seed, animal feed, industrial use, and waste.
e. Assuming 3.5% annual growth compared with population growth of 3.1%; for estimating purposes, consumption was assumed to be equal to available rice in 1962, a year when rice imports were slight.
f. A discrete increase occurred in the rice production series in 1970 because of an improved reporting system. How much of the 1970 production rise was real and how much due to the statistical change is unknown. Because the consumption figure is principally based on the production estimate for 1962, it too could be increased. Such an adjustment in the consumption series would make the decline in rice stocks shown for 1970 larger, and change 1971 and 1972 stock figures from an increase either to a decrease or to no or little change.
g. Minimum estimate.

Launching the "Green Revolution" Among Rice Farmers

6. President Marcos launched the "green revolution" in 1966 in an effort to fulfill his 1965 campaign promise to improve the conditions of the rural population, most of whom live near the subsistence level. He also hoped the program would enhance his re-election chances in 1969. A major objective was to boost rice production. Increased rice imports were contributing to growing balance-of-payments problems. Average annual rice imports jumped from 109,000 metric tons in 1947-62 to 429,000 tons in 1963-67[1] when imports fluctuated between 5% and 14% of the rice supply on a crop year basis (see Figure 1). In 1965, rice imports were $50 million, or about 6% of total imports.

Figure 1

Philippines: Rice Imports as a Percentage of Gross Rice Supply



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7. The key to Manila's program was widespread use of new high yielding variety (HYV) rice seeds developed at the International Rice Research Institute at Los Banos in the Philippines. Scientists there had developed HYV rice seeds suitable for the tropics by crossbreeding traditional tropical varieties with high yielding but disease-prone Taiwanese

1. Only milled rice is imported, but the amounts stated are in paddy equivalents.

seeds. Because the new varieties have stiff stems, they can absorb more fertilizer and water to produce a heavy seed without falling over as traditional varieties often do when heavily fertilized. The HYVs also have shorter growing seasons, making possible more double cropping.

8. HYV seeds were incorporated into the agricultural reform program started in 1963 under former President Macapagal. A major goal of that program, as subsequently enlarged by President Marcos, was to convert tenant farmers to leaseholders. About 45% of all rice farmers were tenants in the early 1960s. It was hoped the change would help boost rice production since a leaseholder, guaranteed control of his farm for a specific time, is more likely to improve his land than a tenant who could be forced off his land at any time. Apart from improving land tenure arrangements, the government promised increased credit, more fertilizer, and expanded extension services to guide farmers in using the new rice seeds. The government's plan to increase appreciably the area under irrigation was critical, since a controlled water supply and heavy fertilizer use are essential for optimum HYV yields.

Achievements, 1968-70

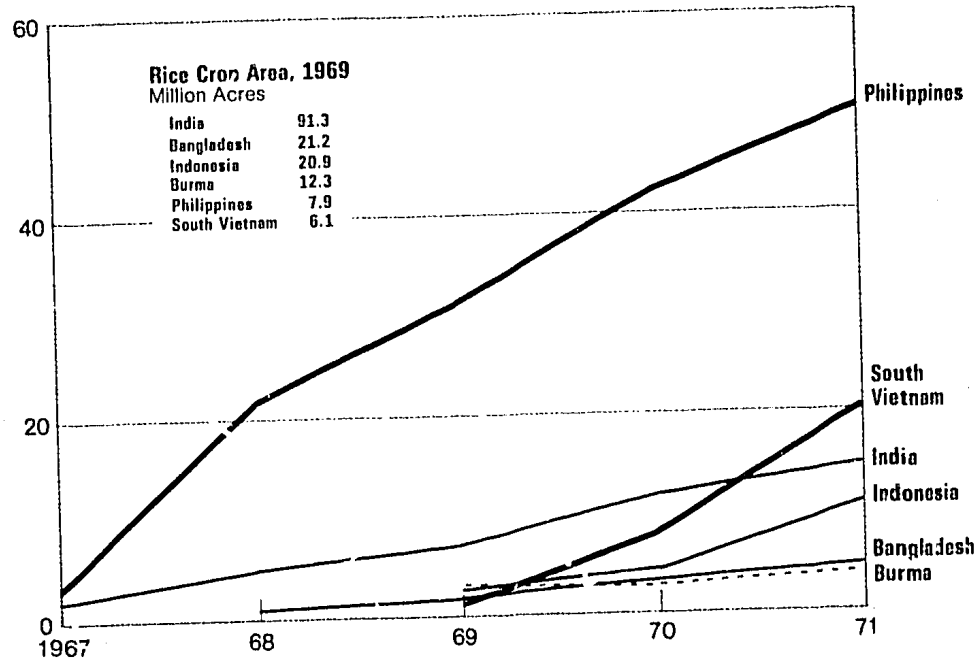
9. Among Asian rice producers, the Philippines achieved the most rapid and widest dissemination of HYV seeds. By 1970, 42% of its rice acreage was planted to such seeds (see Figure 2), compared with 12% at most among other major producers. Moreover, some 60% of the Philippines' irrigated rice area was sown with HYVs, and the share for the lowland rain-fed acreage rose to about one-third. The results were substantial. After stagnating near 4 million tons annually during 1962-67,[2] rice output jumped by about 20% to an annual average of more than 4.7 million tons[3]

2. Production data are for crop year ending on 30 June of the year stated.

3. Philippine rice production statistics are of questionable reliability, and rice consumption and stocks can only be inferred from the production data. Estimating production is difficult for Manila because rice is grown mainly on numerous small plots scattered throughout the country. In addition, as with other official Philippine statistics, there is the suspicion of data manipulation for political purposes. For example, rice production estimates by the Philippine Rice and Corn Production Coordinating Council for 1968 and 1969 are some 10% to 15% higher than those of the Bureau of Agriculture Economics, which constitute the official series. Moreover, there are inconsistencies between estimates for production, yields, area planted, consumption, and changes in stocks. These discrepancies are indicated by the Food and Agriculture Organization in its 1971 report, **Introduction and Effects of High-Yielding Varieties of Rice in the Philippines.**

Figure 2

Percentage of Rice Lands Planted to High Yielding Variety Seeds



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during 1968-70 (see Table 2). The exact gain in 1970 is unknown, however, because of a change in statistical estimating procedures that raised reported output. Because the earlier data were not adjusted upward, there is a discrete jump in 1970 in the Philippine rice production series.

10. Increased rice output seems to have come almost entirely from higher yields. Although one Philippine agricultural agency reported an increase of 10% in rice acreage, another indicated a decline by a like percentage. The change in acreage was probably small since there is no evidence of a significant shift between rice and other crops and it is highly unlikely that marginal land would be brought into production to plant HYV seeds. Almost all the rise in yields probably resulted from the increased use of HYVs combined with a much greater use of fertilizer, increased double cropping, and an increase in the area irrigated. The 25% expansion of the area irrigated between 1967 and 1970 alone could have accounted for about one-third of the rise in output. At the same time the use of HYVs allowed the multicropped land to be more than doubled.

11. With increased local production, the Philippines did not import rice between 1968 and 1970. Manila became convinced that its perennial rice shortfall had been overcome and was beginning to worry about how to dispose of future rice surpluses, which they expected to reach 1 million tons by 1975. Philippine Government leaders reportedly were told of the statistical change in reporting in 1970 but they seemed to disregard it. In this psychological climate, the government considerably lessened its emphasis on expanding rice production in favor of other economic activities, including other crops and industry. In reality, although the Philippine rice situation had substantially improved, production still failed to match consumption, and the appearance of self-sufficiency was achieved only by sharply drawing down domestic rice stocks to very low levels.

Problems, 1971-72

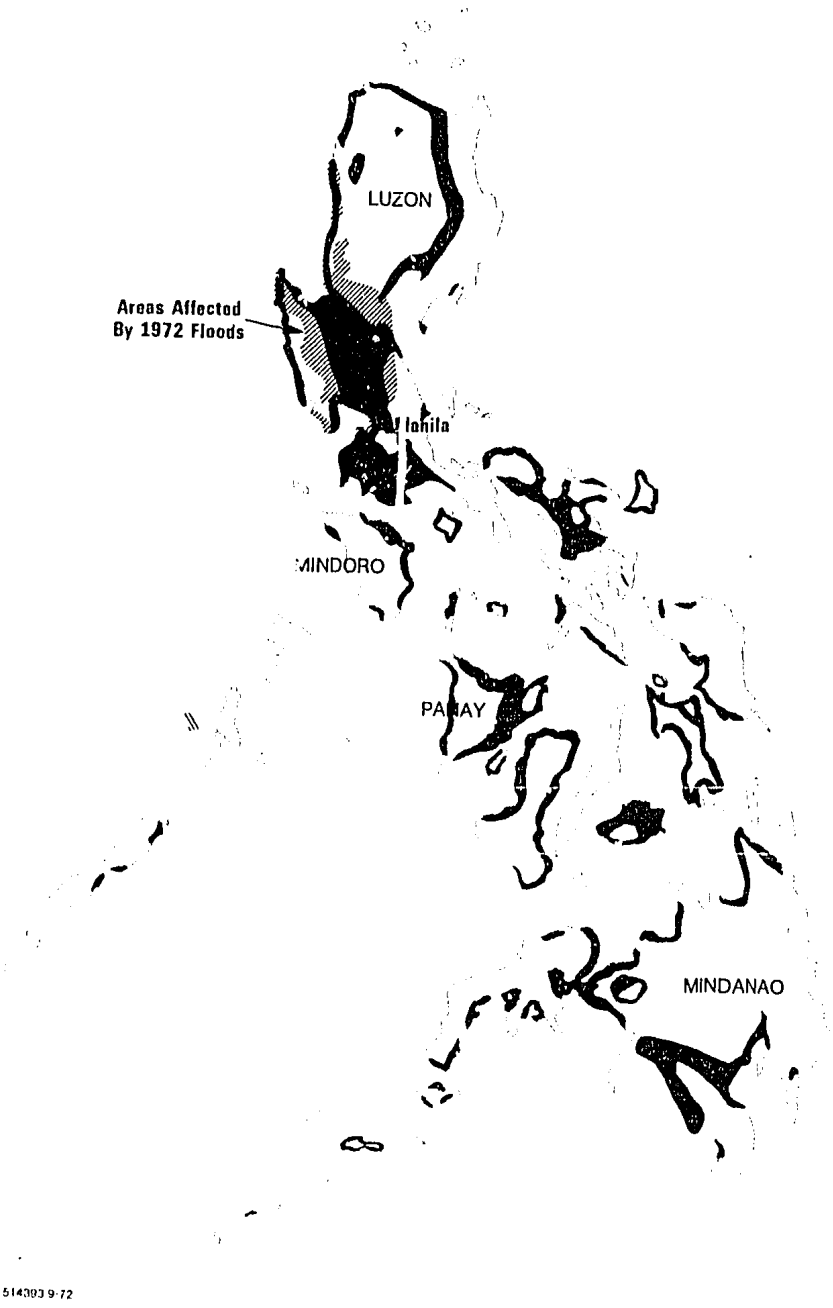
12. Following a jump in 1970, rice production rose again in 1971, but only slightly, and fell marginally in 1972. With consumption continuing to rise and with stocks low, imports grew sharply. In calendar year 1971 they were some 670,000 tons – the second highest in the country's history – and Manila expects imports in 1972 to top 770,000 tons and perhaps exceed the 1965 record. For a time at least, the Philippines has again become one of the world's leading rice importers.

13. Manila claims that the primary reasons for the production difficulties since 1970 were political disturbances in Mindanao (a leading rice growing area – see Figure 3), the worst typhoons in several years, and increased incidence of tungro, a disease affecting rice. No doubt these factors, especially tungro, hampered production, but other conditions probably had an even larger impact.

14. A basic reason for the leveling off of rice output is the difficulty of increasing yields beyond the initial spurt. When HYVs are first introduced, a rise in yields is fairly easy to achieve by planting on the best irrigated lands and applying more fertilizer. While additional and considerably higher gains are still technically possible, a much more painstaking effort is now needed. Even approaching optimum yields requires the meticulous management of the proper combination of water, seeds, fertilizer, and labor. It takes years and a sustained program to transfer this knowledge to large numbers of farmers tilling small plots and for the farmers to accumulate experience in the proper methods.

15. The amount of land planted to HYVs rose in 1971, but the increases were slower than in 1968-70. While many farmers planted HYV seeds for the first time, some farmers returned to traditional varieties. They found that the "miracle" seeds did not perform as advertised, which in

Philippines: Rice Growing Areas Figure 3



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some cases was attributable to the failure of farms to adopt new techniques fully. Also, the reversion occurred because the new seeds are prone to the tungro disease and because consumers were dissatisfied with the taste of the hybrid rice. New HYVs have overcome some of these problems, but many farmers are hesitant to use them because of the difficulties they had with the first generation. Yields on land newly planted to HYV seeds, moreover, were probably relatively low because the best irrigated land was already in use.

Government Policy

16. Just at the time that greater efforts by the Philippine Government were needed to maintain momentum, Manila became much more involved with other problems. In early 1970, Manila, believing its rice problem solved, eased its promotional efforts. The Marcos government also was increasingly preoccupied with a severe balance-of-payments problem. The means it chose to solve this problem hurt the farmer more than other segments of the economy, largely because of the political clout of urban groups.

17. Manila's application of credit restraints to hold down imports in 1970 hit agriculture especially hard. During 1970-71, agricultural credit grew much slower than non-agricultural credit, whereas, during the previous decade both had increased at about the same rate. From 1962 to 1969, loans from commercial and semi-government financial institutions to agriculture increased 16.5% annually, thanks to government encouragement. With the tighter monetary situation, agricultural credit growth slowed to 6.5% annually during 1970-71 and there was a decline in real terms as wholesale prices increased 17.5% annually. Although a consistent series on loans to rice growers is not available, fragmentary information suggests that the volume has actually fallen since 1969.

18. Manila's attempts to reduce the balance-of-payments deficit worked against the rice farmer in other ways. The 1970 peso devaluation raised import prices by nearly 75%. Since half the country's fertilizer supply comes from overseas, prices of this important input rose sharply and were largely responsible for reduced fertilizer use on rice acreage in 1970-71.

19. Altogether, while only rough approximations can be made because of limited data, the prices the farmer pays for his goods in recent years have climbed more rapidly than the price he receives for rice. Retail rice prices have spiraled, especially in 1971, because of growing shortages, but non-agricultural wholesale prices have risen even faster. Moreover, much of the benefit from the increase in retail rice prices has apparently gone to middlemen and landowners rather than to farmers. This results from the rice farmers' inability to finance substantial stocks and their limited direct access to urban markets.

20. The land reform program designed to turn tenant farmers into leaseholders has not gone well. Since the early 1960s, the number of tenant farmers as a percentage of all farmers has been reduced from 45% to 35%. In part this reflects the resistance of landowners combined with the reluctance of some tenants to break with traditional ways. In recent years, however, the slow progress also reflects the government's unwillingness to devote the necessary funds to carry out a meaningful land reform program. Meanwhile, Manila, for political reasons, has moved to prevent the most efficient and most profitable use of HYV. Some landowners with large and well-irrigated land were evicting their tenants because they could profit more by planting HYVs on a coordinated large-scale basis with hired labor rather than by using the traditional tenant system. Manila, worried about the political repercussions of a mass migration from the rural areas to the cities, passed laws that made it very difficult for landowners to evict tenants.

The Impact of the Recent Flood

21. The Philippine rice problem has been compounded by the recent floods, the worst in modern times. Central Luzon, one of the country's major rice producing regions, was particularly hard hit. The floods came at an early stage of the crop cycle, and farmers can still replant. This delay, however, will push the harvest into the dry season and thus may reduce yields somewhat. In addition to making up production losses, higher imports will be required to replace rice stocks destroyed by the floods.

Prospects

22. Philippine rice production could increase substantially over the next five years. Yields from HYV seeds, as well as overall rice yields, are still low by international standards. A major production breakthrough, however, would need substantial government support for a continuous and intensive effort to improve farming techniques, more low-cost loans, and greater profit incentives for the farmer. The need to raise rice yields will even become greater if Manila implements its ambitious plans to increase feedgrain output (corn, sorghum, and soybeans) during the next few years. With overall crop acreage expected to rise only slowly, land available for rice production could decline.

23. Although the potential for higher rice yields exists, the supply of the necessary physical inputs, especially irrigated land, will limit the possible improvement. While sufficient amounts of fertilizers and insecticides can be purchased from foreign suppliers quickly, developing water systems takes considerable time. Manila is planning to bring an additional 700,000 acres under irrigation, but the bulk of this will not be available until at least 1975, when the Upper Pampanga project is scheduled to be completed.

Some 60% of current irrigated rice lands are planted with HYV, and, although that still leaves room for considerable extension, much of the remaining irrigated land is of poor quality because of silted channels and ditches, ineffective gates, and poorly maintained pumps. Only about 8,000 acres are planned to be rebuilt annually through 1975, and even this modest goal may not be achieved. Only slightly more than 1,000 acres a year were rehabilitated during 1970-71, compared with a plan of about 4,000 acres. Moreover, the recent floods caused damage to the irrigation system that will take years to overcome. Consequently, unless Manila steps up its efforts to better the use of its present irrigation, including providing more credits for pumping equipment, rice output will rise only slowly until at least the mid-1970s.

24. In any case, Manila is likely to fall far short of committing the necessary resources to achieve sustained self-sufficiency in rice production. Some additional spending and greater loans to rice farmers will likely be forthcoming but will be limited by balance-of-payments problems and the farmers lack of political clout. Manila is unlikely to provide adequate financial assistance and incentives to the farmers at the expense of other sectors because it has little to gain politically and possibly much to lose. While rural unrest is minimal, rapidly rising rice prices are a cause of great concern. Therefore, from a political point of view, Manila is taking the most rational course by importing cheap rice. Since most imported rice now is being obtained on highly favorable credit terms, these purchases have little immediate impact on the Philippines' foreign exchange position.

25. Altogether, sustained self-sufficiency is many years off. At best, the Philippines could reach this position by 1975 with an average annual increase in production of 7%,[4] or at about the record growth level achieved between 1968 and 1970. The availability of water from the large Upper Pampanga irrigation scheme after 1975 would help in maintaining self-sufficiency through the late 1970s. But the chances are that the average annual increase during the next few years will be closer to the 3.5% consumption growth rate that would still be good by historical standards. Under these circumstances, the annual average domestic deficiency would be around 600,000 tons.

4. A 7% average annual increase in rice production during 1973-75 would require planting all irrigated rice lands to HYV by 1975, a 10% annual increase in yields on irrigated rice lands already planted to HYV, and a 2% annual increase in yields on non-irrigated rice lands.