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# The Philippines Priorities and Prospects for Development Basic Economic Report

(In Three Volumes)

Volume II: The Sectors

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East Asia and Pacific Region

East Asia and Pacific Programs Department

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CURRENCY AND OTHER EQUIVALENTS

Currency Unit	=	Peso (P)
US\$1.00	=	P 7.5
P 1.00	=	US\$0.1333
US\$1 million	=	P 7,500,000

Fiscal Year

Through 1976	:	July 1 to June 30
Beginning 1977	:	January 1 to December 31

Tables

...	=	zero or negligible
--	=	not applicable
n.a.	=	not available

This report is based primarily on the findings of an economic mission which visited the Philippines in April/May 1975. The preliminary findings of the mission were further updated after discussions with the Government in December 1975 and January 1976.

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## Chapter 3

### URBAN DEVELOPMENT

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## Chapter 3

### URBAN DEVELOPMENT

#### A. Patterns of Urban Growth

3.01 Although the Philippines is still a predominantly rural economy, a substantial proportion of its population lives in urban areas. In 1974, almost 30 percent of the population lived in chartered cities and other urban areas. 1/ This is a higher percentage than in many other southeast Asian countries 2/ and represents a steady increase over the 25 percent of the Philippine population in urban areas in 1960 (Table 3.1). The urban sector is characterized by the extreme primacy of the Manila Metropolitan Area (MMA), which accounts for over one-third of the urban population, and by a number of rapidly growing secondary cities.

3. Much of the population growth of these urban centers may be attributed to migration from rural areas to search for more productive employment. Rapid expansion of the service sector, 3/ especially the informal service subsector, has prevented this population growth from being translated into open unemployment in the cities. More than three-quarters of new jobs in the cities are being provided by the service sector, which now accounts for well over half of urban employment. Despite the significantly higher average incomes in urban areas - especially of the MMA - than of rural areas, the disparities are greater, and a substantial proportion of the urban population lives in absolute poverty with inadequate housing and limited or no access to water supplies and sanitation facilities, electricity, and urban transportation.

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1/ The definitions of urban concepts used in this chapter are discussed in Technical Note I attached to this chapter.

2/ The proportion of the population resident in urban areas of some other Asian countries in 1970 was: 10 percent in Laos, 15 percent in Thailand, 18 percent in Indonesia, and 28 percent in Malaysia. Figures are based on Population Division, Department of Economics and Social Affairs of the United Nations Secretariat, "Trends and Prospects in Urban and Rural Population, 1950-2000", ESA/P/WP.54. (New York, April 25, 1975).

3/ The service sector includes: commerce; electricity, gas, water and sanitation; transport, storage, and communications; government, community, business and recreation; domestic services; and personal services other than domestic. This broad definition naturally includes wide divergencies in the reliability of data available on the various subsectors, but is the one normally used in the Philippines for the collection of employment information.

### Size and Distribution of Urban Centers

3.03 The urban population of the Philippines increased from approximately 6.9 million in 1960 to about 10.0 million in 1970 at an average annual growth rate of 4.0 percent (Table 3.1). During the same period, the overall population of the country increased from 27 to 37 million at an average rate of 3.0 percent per annum. This urban growth has not, however, been spread evenly across cities of various sizes, but appears to have been greatest in a few of the largest urban centers. The MMA, for example, which has 12 percent of the national population, also has one of the highest growth rates of the country.

3.04 Natural increase accounts for approximately two-thirds of the growth rates in most urban areas, and rural-urban migration is estimated to account for about one-third. Many of those who migrate are able to earn higher incomes than in their places of origin; few therefore return to their rural homes in spite of the squatter and slum conditions in which many of them live when they arrive in the largest cities. <sup>1/</sup> Though the natural rate of increase plays a large role in the growth of urban areas, it is less than that in the countryside because of the rising age of marriage in urban areas and the more rapid spread of family planning methods in urban than in rural areas. Therefore, despite the lower mortality rate of urban areas, their rate of natural increase was 2.6 percent in 1970 compared to 3.2 percent in rural areas.

3.05 While there has been a significant concentration of the urban population into a few large centers, these centers are distributed across the major islands (Map 3.1). Many of the urban areas besides those in the MMA with substantial growth rates are located on Mindanao. Population movement to Mindanao has been caused both by opportunities for industrial employment (particularly in the Iligan Bay area, where the availability of hydroelectric power has generated significant industrial activity) and by the availability of land, which has caused new farmlands to be cultivated and agricultural processing and marketing centers to grow. The promise of agricultural opportunities on Mindanao has only recently begun to decline as immigration has created population pressures on the existing agricultural land.

3.06 The locations of the urban centers appear to reflect the significant economic and social disparities among the eleven regions. The less developed regions (Ilocos, Cagayan, Bicol, Eastern Visayas, and Central Visayas) are generally less urbanized than the more developed ones, and the rate of urbanization has been slower.

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<sup>1/</sup> For a discussion of migration in the Philippines, see K.L. Zachariah, "Migration in the Philippines with Particular Reference to less Developed Regions," restricted circulation memorandum of the Development Economics Department, World Bank, July 2, 1975.

Table 3.1 Urban Population: 1960 and 1970

Area	Population (In thousands)		Percent of Urban Population		Average Annual Growth Rate 1960-70
	1960	1970	1960	1970	
<u>Manila Metropolitan Area</u>	2,722	4,404	33.3	36.5	5.0
Manila City	1,139	1,331	13.9	11.0	1.6
Quezon City	398	754	4.9	6.2	6.6
Caloocan	146	274	1.8	2.3	6.5
Pasay	133	206	1.6	1.7	4.5
Others	906	1,839	11.1	15.2	7.3
<u>Major Chartered Cities</u> <sup>b/</sup>					
Davao	226	392	2.8	3.2	5.6
Cebu	251	347	3.1	2.9	3.3
Iloilo	151	200	1.8	1.7	3.4
Zamboanga	131	200	1.6	1.7	4.3
Bacolod	119	187	1.5	1.5	4.6
Basilan	156	144	1.9	1.2	-0.8
Angeles	76	135	1.0	1.1	5.9
Butuan	80	131	1.0	1.0	3.3
Cagayan de Oro	69	124	1.0	1.1	6.0
Cadiz	89	124	1.1	1.0	3.4
Batangas	83	109	1.0	1.0	2.8
Olongapo	45	108	1.0	1.0	9.2
San Pablo	71	106	1.0	1.0	4.1
Iligan	58	104	1.0	1.0	6.0
Other Urban Areas	3,841	5,246	47.0	43.5	3.2
Total Urban	8,168	12,071 <sup>d/</sup>	100.0	100.0	4.0
Adjusted Urban <sup>c/</sup>	6,861	10,140			4.0
Total Philippines	27,088	36,684			3.0

a/ As defined by the Bureau of the Census and Statistics (BCS) in 1970.

b/ Chartered cities with populations over 100,000 in 1970, excluding cities in the MMA.

c/ For adjustment rationale and methodology, see Table 1, Chapter 4.

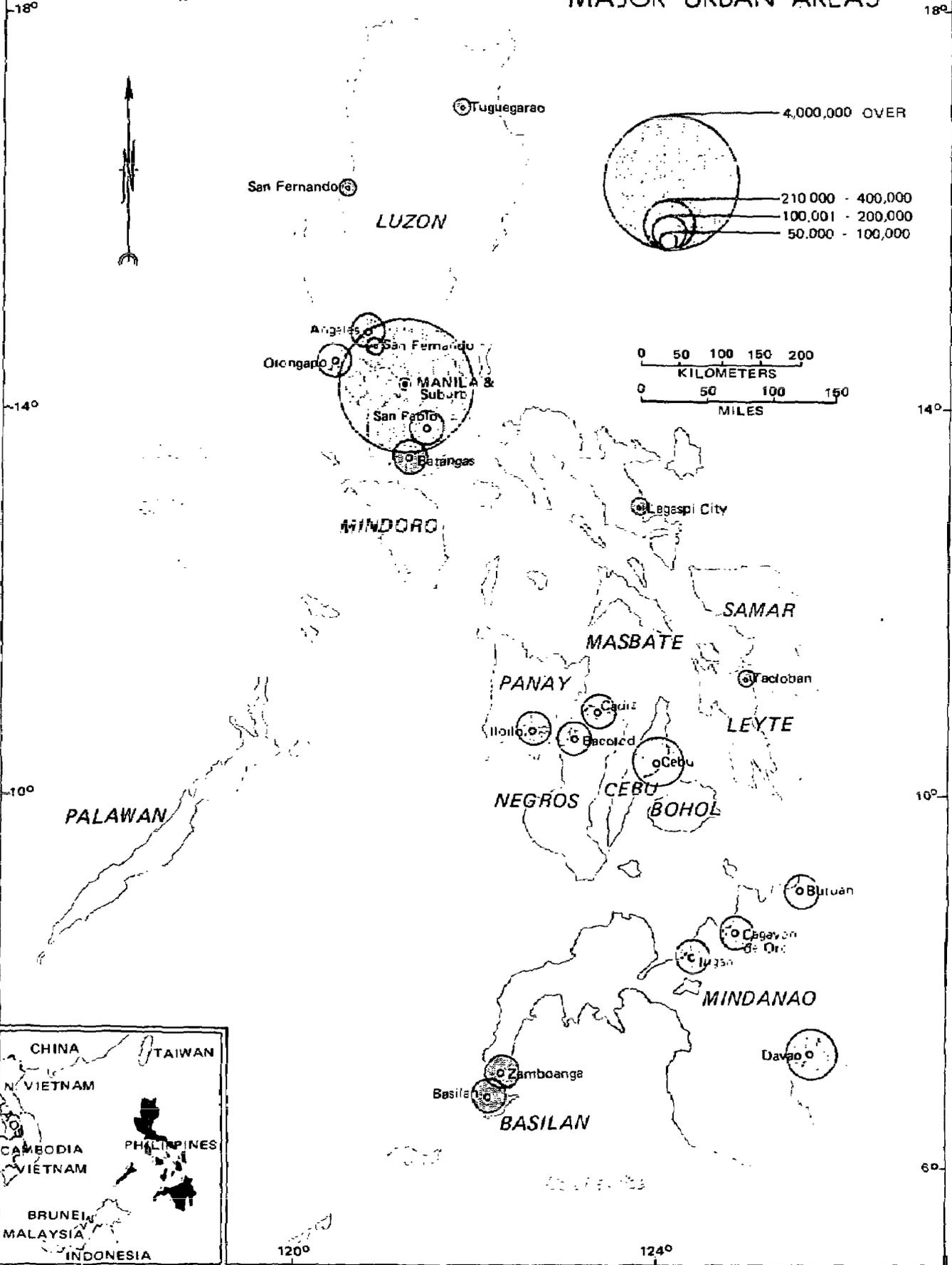
d/ Based on 1960 definition of urban by the BCS. According to the 1970 census definition, the urban population was 11,668,000.

Sources: BCS, The Growth of the Urban Population in the Philippines and its Perspective (Manila, n.p. 1973), p. 23; Mercedes B. Concepcion, "110 Million by the Year 2001," Philippine Sociological Review (July-Oct. 1970), p. 216, and Ernesto Pernia, "The Philippine Urban Structure," University of the Philippines Population Institute Research Note 25 (1974), Table 3; and Mission estimates.



# PHILIPPINES MAJOR URBAN AREAS

The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.





3.07 Manila Metropolitan Area: The MMA dominates the urban sector with 37 percent of the total urban population. <sup>1/</sup> It contains over 4.5 million inhabitants and has been growing at a rate of 5 percent per annum. The MMA comprises 5 cities and 23 municipalities which form parts of 4 provinces. These jurisdictions, with a total land area of 870 square kilometers, include a core city (Manila City), an inner ring of 9 urbanized communities, and an outer ring of 18 communities which have only recently begun to urbanize (Map 3.2). The inner ring has grown rapidly and now contains over half the MMA population. Manila City, on the other hand, has declined steadily as the population center of the MMA and now accounts for only one-third.

3.08 It is estimated that in the largest urban centers, including the MMA, migration accounted for about half the total population gain in recent years. Because the largest proportion of migrants to the MMA in the past settled in the core city, Manila City became the most densely populated area in the Philippines, with 34,746 persons a square kilometer. Overcrowding is reflected in the average household size of 6.9 persons, the largest among the urban areas of the Philippines. <sup>2/</sup>

3.09 Until very recently, no single administrative or political entity had jurisdiction over the entire area generally known as the MMA. This lack may be traced to such factors as its rapid growth and the resulting blurring of boundaries, as well as to the strong commitment to local government autonomy among some of the local units. Only in November 1975 were four cities <sup>3/</sup> and thirteen municipalities <sup>4/</sup> placed under the authority of a governor and a Metropolitan Manila Commission responsible for coordinating the integrated development of the area.

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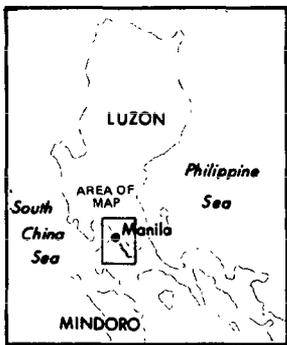
<sup>1/</sup> In only nine other developing countries does the principal city hold a larger percentage of the total national population than does Manila, and in only two (Thailand and Peru) is there a greater dominance of the principal city over the next three largest cities within the nation.

<sup>2/</sup> It is interesting to note that while the number of households in the Philippines increased by 43 percent from 1961 to 1971, the number of urban households increased by only 26 percent during that same period. The slower rate of household growth was due to an increase in the average size of the urban household resulting in large part from migration and the high cost of land and other amenities. In Manila and its suburbs, the average household size increased from 6.1 members in 1960 to 6.9 members in 1970. Other urban areas increased in household size from 4.7 members in 1960 to 6.1 members in 1970. See Bureau of the Census and Statistics, (BCS), Population Census of the Philippines, 1960 and 1970.

<sup>3/</sup> Manila, Quezon, Pasay, and Caloocan.

<sup>4/</sup> Makati, Mandaluyong, Paranaque, San Juan, Pasig, Navotas, Malabon, Valenzuela, Marikina, Las Pinas, Muntinglupa, Pateros, and Taguig.





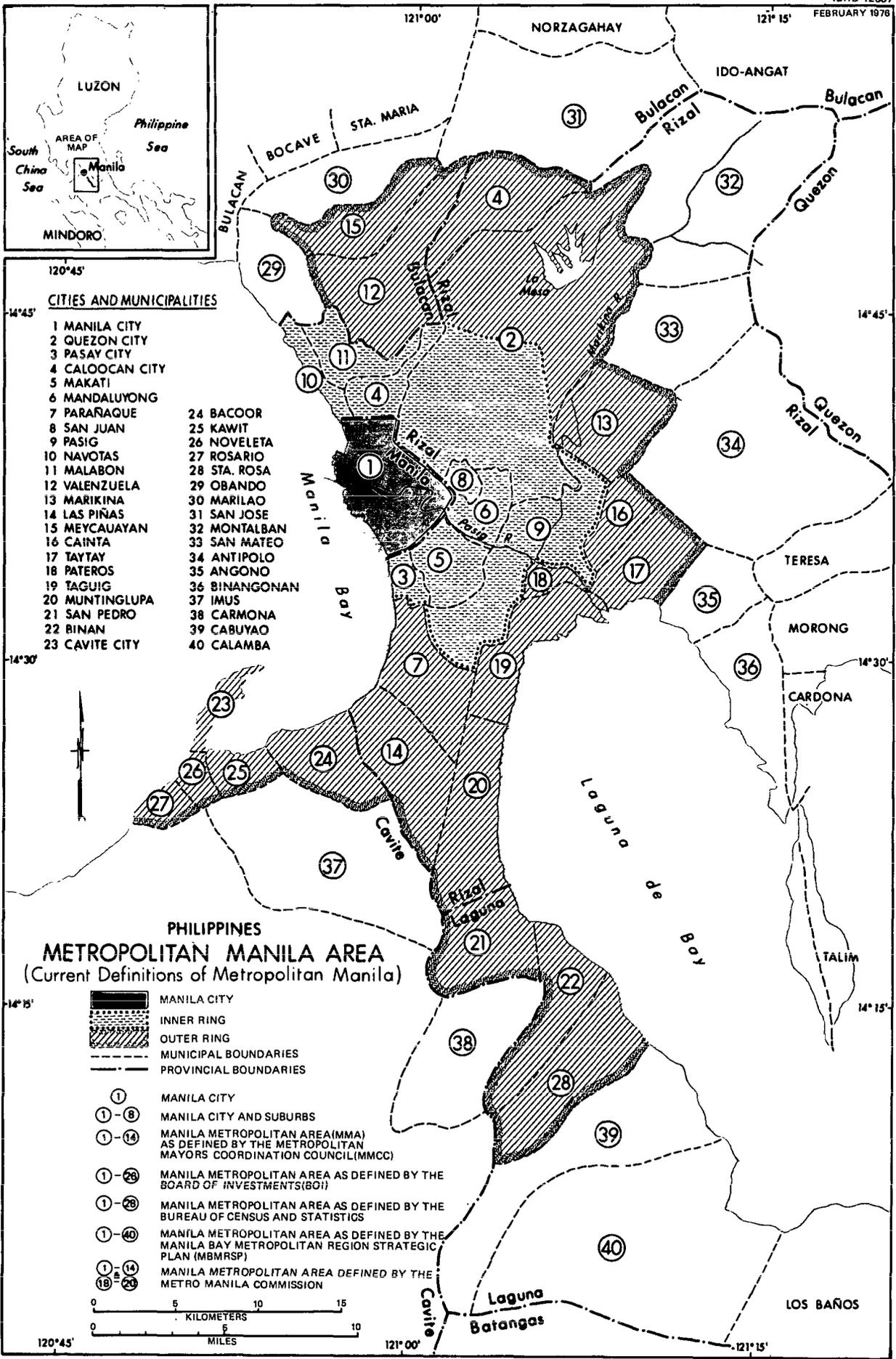
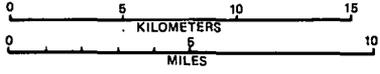
**CITIES AND MUNICIPALITIES**

- |                 |               |
|-----------------|---------------|
| 1 MANILA CITY   | 24 BACOR      |
| 2 QUEZON CITY   | 25 KAWIT      |
| 3 PASAY CITY    | 26 NOVELETA   |
| 4 CALOOCAN CITY | 27 ROSARIO    |
| 5 MAKATI        | 28 STA. ROSA  |
| 6 MANDALUYONG   | 29 OBANDO     |
| 7 PARAÑAQUE     | 30 MARILAO    |
| 8 SAN JUAN      | 31 SAN JOSE   |
| 9 PASIG         | 32 MONTALBAN  |
| 10 NAVOTAS      | 33 SAN MATEO  |
| 11 MALABON      | 34 ANTIPOLO   |
| 12 VALENZUELA   | 35 ANGONO     |
| 13 MARIKINA     | 36 BINANGONAN |
| 14 LAS PIÑAS    | 37 IMUS       |
| 15 MEYCAUAYAN   | 38 CARMONA    |
| 16 CAINTA       | 39 CABUYAO    |
| 17 TAYTAY       | 40 CALAMBA    |
| 18 PATEROS      |               |
| 19 TAGUIG       |               |
| 20 MUNTINGLUPA  |               |
| 21 SAN PEDRO    |               |
| 22 BINAN        |               |
| 23 CAVITE CITY  |               |



**PHILIPPINES  
METROPOLITAN MANILA AREA  
(Current Definitions of Metropolitan Manila)**

- |  |                       |
|--|-----------------------|
|  | MANILA CITY           |
|  | INNER RING            |
|  | OUTER RING            |
|  | MUNICIPAL BOUNDARIES  |
|  | PROVINCIAL BOUNDARIES |
- 
- |              |   |
|--------------|---|
| ①            | MANILA CITY   |
| ①-⑧          | MANILA CITY AND SUBURBS   |
| ①-⑭          | MANILA METROPOLITAN AREA(MMA)<br>AS DEFINED BY THE METROPOLITAN<br>MAYORS COORDINATION COUNCIL(MMCC)    |
| ①-⑳          | MANILA METROPOLITAN AREA AS DEFINED BY THE<br>BOARD OF INVESTMENTS(BOI)                                 |
| ①-㉔          | MANILA METROPOLITAN AREA AS DEFINED BY THE<br>BUREAU OF CENSUS AND STATISTICS                           |
| ①-④①         | MANILA METROPOLITAN AREA AS DEFINED BY THE<br>MANILA BAY METROPOLITAN REGION STRATEGIC<br>PLAN (MBMRSP) |
| ① & ⑭<br>⑱-㉔ | MANILA METROPOLITAN AREA DEFINED BY THE<br>METRO MANILA COMMISSION                                      |





3.10 Other Urban Areas: The structure of and relationships among the urban areas of the Philippines are rapidly changing. The greatest growth since 1960 has occurred in the population and number of cities of 100,000 or more. The population contained within this group of cities grew at 4.2 percent per annum during the 1960s, compared to 5.0 percent for the MMA and 4.0 percent per annum for all urban centers (Table 3.1). While the number of such cities doubled during the decade, in 1970 they continued to represent about 20 percent of the total urban population. In contrast to cities larger than 100,000, other urban areas grew much more slowly, increasing on average by 3.2 percent per annum during the 1960s. While it is possible that there were significant gross population flows to and from these centers, on a net basis migration accounted for only a small proportion of their growth.

3.11 A detailed discussion of the growth of small and medium-sized urban centers is hampered not only by inadequate information about their characteristics, but also by the lack of a clear and consistent definition of an urban place in the Philippines over successive census periods. The current definition includes places with certain urban characteristics, even though a large part of the labor force and land may be in agriculture. In addition, some of the places listed in the census as "cities" have populations of less than 5,000, while others with populations in excess of 5,000 are not defined as urban areas.

#### Production and Employment in Urban Areas

3.12 The functional characteristics of the major urban centers are indicated by the distribution of employment. In 1973 about 29 percent of employed persons were in urban areas. Since 1965, when BCS data on urban employment first became available, urban employment has expanded at approximately the same rate as the labor force (about 3.5 percent per annum), with no apparent secular trend in urban unemployment, which ranged from 8 to 12 percent during the 1965-1973 period. This growth in employment was almost wholly due to the service sector, which accounted for over 80 percent of new jobs and increased its already large share of employment in urban areas from 60 percent in 1965 to 67 percent in 1973. Industry provided about a quarter of employment in 1973, while the remainder was in agriculture. <sup>1/</sup>

3.13 A large portion of the growth in service sector employment has apparently been in the informal subsector, which is estimated to account for over 60 percent of total service employment in both urban and rural areas combined. As such, this low-wage subsector is playing an important role by providing "safety valve" employment, especially for migrants, in the Philippines' rapidly growing cities.

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<sup>1/</sup> Because of the way in which the census defines urban areas, much of the urban population lives in areas that are predominantly rural in character. Consequently, much of the employment is in agriculture. See Technical Note I to this chapter.

3.14 Employment in the MMA presently accounts for approximately one-tenth of the national employment. In 1970 services accounted for over two-thirds of MMA employment, and industry (manufacturing and construction) for slightly less than one-third. <sup>1/</sup> (Table 3.2)

Table 3.2. Resident Employment in Metropolitan Manila by Sector, 1970 <sup>/a</sup>

Sector	<u>Metropolitan Manila</u>		<u>Philippines</u>	
	Number	Percent	Number	Percent
Agriculture	46,515	3.1	6,440,000	51.2
Mining and quarrying	5,495	0.4	56,000	0.5
Manufacturing	332,750	22.1	1,472,000	11.7
Utilities	11,484	0.8	58,000	0.4
Construction	98,665	6.6	467,000	3.7
Commerce	207,237	13.8	1,531,000	12.2
Transport and communications	145,178	9.7	518,000	4.1
Services	<u>595,554</u>	<u>39.6</u>	<u>1,132,000</u>	<u>9.0</u>
Total <sup>/b</sup>	1,503,350	100.0	12,584,000	100.0

<sup>/a</sup> The BCS definition of the MMA reflects a larger share of the population engaged in agricultural activity than indicated elsewhere in this report.

<sup>/b</sup> Because sectors with relatively little employment are excluded, columns do not add to totals.

Source: BCS, Population Census of the Philippines, 1970 and Survey of Households, 1971.

3.15 The unemployment rate in Metropolitan Manila has tended to be significantly higher than the national rate. <sup>2/</sup> The BCS data on the labor force, employment, and unemployment show that between 1965 and 1971 measured unemployment remained at approximately 6 to 7 percent for the Philippines as a whole, and declined within the MMA from 16 to 11 percent. In general the highest unemployment rates were experienced by the male population.

<sup>1/</sup> There are, however, a large number of people in the information service subsector whose earnings and savings potential is not substantially greater than that of the mass of people in rural areas.

<sup>2/</sup> Much of the unemployment in the MMA and other urban areas, however, is of a temporary nature; migrants often spend their initial weeks or months in the area searching for employment.

3.16 Metropolitan Manila has traditionally been dominant not only as the population center of the country, but also as a source of growth within the national economy. The MMA's contribution to the gross national product has been increasing and is now over 26 percent. Her economic dominance is demonstrated even more vividly by her region's share of gross domestic product, which, according to the latest regional account figures available, amounted to nearly one-half in 1967. <sup>1/</sup> In nearly all sectors, Manila's region contributed significantly to gross national product. In terms of gross value added, it accounted for 63 percent in manufacturing; 71 percent in utilities; 64 percent in commerce; 77 percent in transport; 69 percent in communications and storage; and 54 percent in services. <sup>2/</sup> The MMA accounts for a very high proportion of sectoral value added in all secondary and tertiary fields, with a relatively low percentage of the national labor force working in these sectors. This indicates that average labor productivity is substantially greater in the Manila area than in the rest of the Philippines.

Level of Urban Incomes <sup>3/</sup>

3.17 It is estimated that total family income in the Philippines grew by about 4.7 percent per annum in real terms during 1961-71, and that urban incomes increased at about 5.5 percent a year during that period. By 1971 the average family income in urban areas was about P 9,500 (US\$1,500), more than twice that in rural areas.

3.18 According to income and expenditures surveys, the distribution of incomes in urban areas improved between 1965 and 1971; the Gini coefficient decreased from 0.53 in 1965 to 0.45 in 1971 (Table 3.3). The share of reported income going to the 40 percent of urban families with the lowest incomes increased from 11.3 percent in 1963 to 14.0 percent in 1971. The share of the top 20 percent decreased from 57.2 percent in 1965 to 50.7 percent in 1971. In view of the problem of understatement of income, however, it is not clear that these were, in fact, the actual trends.

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<sup>1/</sup> National Economic and Development Authority (NEDA), "Regional Accounts" (Manila, 1967, processed).

<sup>2/</sup> As would be expected, its contribution was much less significant in agriculture, fisheries, and forestry (18 percent) and in mining and quarrying (7 percent).

<sup>3/</sup> The main source of information about urban and rural incomes and expenditures are the Family Income and Expenditures Surveys conducted by the Bureau of the Census and Statistics in 1957, 1961, 1965, and 1971. Their usefulness in studying trends in income and expenditure growth and distribution, however, is limited by the apparently extensive underreporting of income and, to a lesser extent, expenditures and population. It is believed that the underestimation of income was about 25 percent in 1956, 1961, and 1965, and about 35 percent in 1971. Private consumption expenditures were probably underestimated by about 19 percent in 1961 and 17 percent in 1971, but roughly matched the national accounts in 1965.

3.19 A more accurate assessment of household incomes can probably be obtained by analyzing changes in the distribution of family consumption patterns over the same period of time. In terms of the distribution of family expenditures, the consumption among the lowest 40 percent in urban areas remained approximately the same from 1961 to 1965 - around 15 percent - but grew to approximately 17 percent in 1971 (Table 3.3). The share of consumption of the upper 20 percent, on the other hand, declined slightly in the same period (1961 - 1971), from 48 percent to 45 percent. Any improvement in the distribution of wealth in urban areas that has occurred has probably been influenced by such factors as the access to educational opportunities within urban areas and the upward mobility associated with higher educational levels. Thus the expansion in the informal service subsector, which provides income-earning opportunities for those with even relatively little education, would also have contributed to this end.

3.20 The considerable data on income and expenditure in the Philippines indicate that urban incomes are substantially higher than rural incomes and that there are significant disparities both among and within cities. After the average minimum income of P 650 per capita <sup>1/</sup> is adjusted for the higher living costs of urban areas, 30 percent of the urban population was below the minimum income level in 1971 (Table 3.4). Urban poverty, however defined, appears to be concentrated in Metropolitan Manila and in the key urban centers of the Visayas, which have absorbed some of the spillover of the rural poor. Although the incidence of urban poverty is higher in the Visayas than in Metropolitan Manila, however, the absolute numbers of those in poverty are significantly less in the Visayas.

3.21 Living conditions of the urban poor are best illustrated by reference to the Metropolitan Manila area. Low income households in the MMA have tended to concentrate in Manila City, where 45 percent of the total slum and squatter population reside. Six municipalities in the inner ring also have heavy concentrations of the poor, while the outer ring has a relatively low percentage who are poor. Available data suggest marked similarities in the characteristics of the poor within Metropolitan Manila, regardless of their location.

3.22 Poor families are distinguished from the rest of the metropolitan population by a lack of regular employment, inadequate housing, and a low level of publicly provided services. There is a greater concentration of employment in marginal sectors (e.g., informal services), more sporadic employment, and a higher percentage of unemployed. According to a 1968 survey of a slum settlement in Tondo, the common complaints of the respondents were the lack of water, roads, and toilets. <sup>2/</sup> The level of education among poor

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<sup>1/</sup> See Chapter 7.

<sup>2/</sup> Aprodicio L. Laquian, "Slums and Squatters in Six Philippine Cities," Final report on a research grant from the Southeast Asia Development Advisory Group (SEADAG) of the Asia Society (New York: SEADAG, March 23, 1972, processed), p. 70, and Zachariah, "Migration in the Philippines," p. 34.

Table 3.3. Distribution of Family Income and Household Expenditures  
in All Philippines and Urban Areas

Family Income Group	1957		1961		1965		1971	
	Total	Urban	Total	Urban	Total	Urban	Total	Urban
<u>Percentage of Total Family Income</u>								
Lowest 20 percent	4.5	4.5	4.2	3.8	3.5	3.8	3.7	4.6
Second 20 percent	8.1	8.0	7.9	7.5	8.0	8.0	8.2	9.4
Third 20 percent	12.4	12.2	12.1	12.5	12.8	12.0	13.2	13.4
Fourth 20 percent	19.8	20.0	19.3	19.5	20.2	18.7	21.0	21.9
Top 20 percent	55.1	55.3	56.4	57.1	55.4	57.5	53.9	50.7
Top 10 percent	39.4	39.6	41.0	40.9	40.0	41.7	36.9	33.4
<u>Percentage of Total Household Expenditures</u>								
Lowest 20 percent	5.04	n.a.	5.98	5.09	5.65	5.24	5.92	6.2
Second 20 percent	9.03	n.a.	10.32	9.78	10.25	9.67	10.18	10.52
Third 20 percent	13.02	n.a.	14.68	14.56	14.57	14.41	14.76	15.68
Fourth 20 percent	20.03	n.a.	21.03	22.36	21.10	21.37	21.98	24.59
Top 20 percent	52.88	n.a.	47.98	48.22	48.43	49.31	47.16	45.23
Top 10 percent	35.42	n.a.	31.66	31.09	32.49	32.73	30.81	26.79
Top 5 percent	23.38	n.a.	21.00	18.73	21.43	18.80	19.37	16.50
Gini coefficient	0.48	0.49	0.50	0.52	0.51	0.53	0.49	0.45

Source: BCS, Family Income and Expenditure Surveys for 1957, 1961, 1965 and 1971.

Table 3.4: Urban Poverty, 1971

Category	Metropolitan Manila	Other Urban Areas	All Urban Areas
Threshold income per capita /a	P 870	P 700	n.a.
Population /b (in thousands)	4,648	7,907	12,555
Population below threshold income (in thousands)	1,525	2,230	3,755
Percentage of population below threshold income	32.8	28.2	30.0

/a Pesos per capita in 1971 prices.

/b Unadjusted urban population. See Table 3.1.

Note: In Chapter 7, P 650 per capita is given as the average threshold income for the Philippines, that is, the minimum amount needed to provide an adequate diet and other essential needs. This income level, however, is not an adequate measure of minimum needs in urban areas, where living costs are significantly higher. Different threshold incomes were therefore estimated for Metropolitan Manila and other urban areas. This was done by using the Philippine-wide estimate of P 650 as a base and applying to it the cost of living factors for Manila and other urban areas implicitly derived by Lucinda Abrera, "Philippine Poverty Thresholds," in Development Academy of the Philippines, Measuring Philippine Welfare: Social Indicators Project (Manila, 1975), Chap. 5.

Source: BCS, Family Income and Expenditure Survey, 1971, and Mission estimates.

families in Metropolitan Manila, nowever, is surprisingly high. In various areas, between 5 and 15 percent have some college level training, although the average is lower than that of the overall metropolitan area.

3.23 In general, despite the economic and social disadvantages which frequently mark the poor in Philippine cities, squatters and slum dwellers consider their present lives better than their former situations. Those making such a positive assessment include 86 percent of respondents in a survey in Baguio, 90 percent in Cebu, 82 percent in Davao, 81 percent in Iligan, 68 percent in Iloilo, and 51 percent in Manila. It is interesting to note that the smallest percentage is found in Manila. <sup>1/</sup>

#### Patterns of Urban Expenditures

3.24 Future patterns of both urban and rural production and employment will be increasingly influenced by the consumption preferences of urban households, since these areas may be expected to account for an increasingly larger proportion of population and expenditures. The urban population, which represents about 30 percent of the total population, is estimated to account for approximately 40 percent of total private expenditures in the Philippines.

3.25 Food accounts for nearly half the household budget of all income groups in urban areas (Table 3.5). There is a high level of malnutrition, however, and a correlation between income level and nutritional status. Large, low-income families receive fewer calories per capita and less adequate nutrition than higher income groups, although the same percentage of the household budget is spent on food. Housing expenditures represent 12 to 13 percent of total family expenditures and have fluctuated around that level for the past decade. The percentage expenditures for most other items in the household budgets have remained nearly the same for the same period.

3.26 Expenditure elasticities appear to be highest for consumer durables, housing, medical care, education, and transport, all of which are greater than unity. Estimates suggest that elasticities for expenditures on services within urban areas are less at higher levels of income, following the same pattern as in rural areas.

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<sup>1/</sup> Laquian, "Slums and Squatters," p. 70.

Table 3.5 Distribution of Expenditures and Expenditure Elasticities  
for Urban Families

	Percentage Distribution of Family Expenditures <u>a/</u> (In percent)			Expenditure Elasticities		
	1961	1965	1971	I <u>b/</u>	II <u>c/</u>	III <u>d/</u>
	Food	50.3	48.2	48.9	.95	.80	.77
Alcohol and tobacco	5.7	4.6	4.7	.62	.63	1.08
Clothing	6.4	6.0	6.3	.97	1.02	1.63
Consumer durables	2.1	2.0	2.6	1.39	1.19	(
Housing	10.9	13.7	12.5	1.26	1.27	( 1.63
Utilities	3.9	3.6	3.6	.84	.84	(
Medical care	1.9	1.7	2.0	1.10	1.02	2.20
Education	4.0	4.4	4.4	1.18	1.20	
Transportation	2.0	3.6	4.0	1.59	1.42	2.77
Other services	10.2	10.1	9.8	.92	1.32	( 1.90
Taxes and gifts	1.7	2.1	1.2	.32	n.a.	(
Total	100.0	100.0	100.0			

- Sources: a/ Data from BCS, Family Income and Expenditure Surveys for relevant years.  
b/ Mission calculation of aggregate expenditure elasticity using ratio of percentage change during 1961-71 of specific items to that of total expenditure, at 1965 constant prices, after first adjusting survey expenditure data to correct for underestimation of population and expenditures.  
c/ Unpublished per capita expenditure elasticities estimated by A. Kelly, Duke University, and J. Williamson, University of Wisconsin, from BCS, Family Income and Expenditure Survey, 1965. Elasticities are derived from a log-linear expenditure function for each commodity group.  
d/ Data from Edita A. Tan and Gwendolyn R. Tecson, "Patterns of Consumption in the Philippines," Institute of Economic Development and Research, University of the Philippines, Discussion Paper No. 74-9, July 15, 1974, processed. Estimates used a double log expenditure function.

### The Shortage of Housing in Urban Areas

3.27 The large and growing housing shortage in the urban areas of the Philippines has been caused by a number of interrelated factors, including the low levels of household incomes, high and rising costs of land and construction, a shortage of credit, and relatively inactive public sector involvement in construction and financing. Although the housing shortage appears to exist in all major urban areas, it is particularly acute in Manila. It is also especially acute for the low income households in rapidly growing urban areas, which results in a large proportion of the population squatting and/or living in dwelling units without either adequate access to services or credit to improve their housing conditions. Although the housing problems of the Philippines are not unique, they appear to be more serious than in at least some other developing countries in the region where the rate of urbanization has not been as high (e.g., Malaysia) or where the Government has played a more important role in the housing sector (e.g., Singapore).

3.28 Stock and Quality of Dwellings: In 1970 the total stock of housing in the Philippines was estimated at 5,573,000 units, of which 1,350,000 (or 24 percent) were in urban areas. It is difficult to analyze changes in the housing stock with any degree of accuracy because of the lack of annual construction statistics and the differentiation in classifications used in the 1960 and 1970 census. Roughly speaking, the annual growth rate of housing construction between 1960 and 1970 was about 3.0 percent, with urban areas averaging 4.5 percent per annum and rural areas only 1.9 percent. <sup>1/</sup> These figures indicate that housing in urban areas has just kept pace with population growth and has not allowed for the replacement of physically inadequate dwellings. <sup>2/</sup> The shortage of housing, resulting in overcrowding, poor construction quality, and inadequate services, appears to be growing particularly rapidly as population pressures increase. Because Metropolitan Manila is experiencing the greatest inflows of migrants, its housing shortage is especially acute. In a 1972 study, the Presidential Assistance on Housing and Resettlement Agency (PAHRA) concluded that about 50 percent of the national housing shortage was concentrated in the Metropolitan Manila Area.

3.29 A variety of housing units are currently available in the urban areas of the Philippines. Eighty-five percent in 1970 were single family dwellings, while 5 percent were apartments, and 6 percent were makeshift

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<sup>1/</sup> International Labor Office (Geneva: ILO, 1974), Sharing in Development, p. 212.

<sup>2/</sup> Of the total dwelling units classified as physically inadequate in 1970, 64 percent were in urban areas. See Jacobo S. De Vera, "Housing Need up to the year 2000 and Its Financial Implications" NEDA, National Conference on Housing, Development Academy of the Philippines (Tagaytay City, October 19-21, 1973), p. 6.

dwellings. 1/ In urban areas, 38 percent of the households are estimated to own both their houses and lots, compared to 54 percent in rural areas; 19 percent of those in urban areas rent both their houses and lots, compared to 0.3 percent in rural areas. The types of tenancy of the remaining population are described in Table 3.6.

3.30 The growing shortage of housing in urban areas is related to the quality of housing and the access to services. According to information from the 1967 survey of households, only about 20 percent of existing dwellings had piped water and flush toilets were available in only about 10 percent of the units. Electricity was used for lighting in between 15 and 20 percent of the dwellings and for cooking in only about 10 percent.

3.31 Construction and Access to Finance: Expenditures on housing construction during the period 1968-73 averaged about 2.5 percent of GNP (Table 3.7). Virtually all housing construction has been undertaken by the private sector. The traditional heavier construction is gradually being joined by more self-constructed, lighter dwellings, as migrants move to the urban centers and build makeshift housing. Government housing construction for the low-income population is numerically negligible, with only 13,500 units constructed from 1948-72. Neither the Government nor private industry has related housing construction to overall urban development plans, and this has resulted in an inadequate provision of services as well as of employment opportunities near residential areas, particularly near low income districts.

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1/ BCS, Census of the Philippine Population and Housing: Summary, Vol. II, 1960; and BCS, "Metropolitan Manila" (Manila, January 1973, processed).

Table 3.6. Quality Indicators of Dwelling Units, 1967  
(In percent)

Indicator	All Philippines	Urban	Rural
<u>Lighting used</u>			
Electricity	22.9	62.8	5.8
Kerosene pressure lamp	14.2	10.7	15.8
Other Kerosene lamp	57.7	24.1	72.1
Others	5.2	2.3	6.4
Not reported	0.1	0.1	
Total	100.0	100.0	100.0
<u>Source of Drinking Water</u>			
Water works	22.9	56.2	8.6
Communal drilled wells	15.9	13.7	16.8
Private drilled wells	11.4	13.5	10.5
Closed well with pump	11.5	6.7	13.5
Open well	21.3	6.9	27.4
Spring	11.5	0.8	16.1
Creek, stream, river irrigation	4.4	0.6	6.0
Rain water	1.3	1.5	1.2
Total	100.0	100.0	100.0
<u>Toilet Facilities</u>			
Water sealed <u>a/</u>	12.8	34.0	3.7
Cement bowl <u>b/</u>	7.2	14.1	4.2
Closed pit	26.9	21.4	29.3
Open pit	17.6	9.4	21.2
Public toilet	1.7	3.8	0.8
Pail system	0.3	1.1	
None	33.2	16.0	40.7
Not reported	0.2	0.1	0.2
Total	100.0	100.0	100.0
<u>Type of Tenancy</u>			
Both house or building and lot owned	49.3	37.9	54.2
House or building owned; lot free or squatted on	28.9	17.4	33.8
House or building owned; lot rented	11.1	18.6	7.9
Both house or building and lot free of charge	4.6	6.7	3.6
Both house or building and lot rented	6.0	19.3	0.3
Not reported	0.1	0.1	0.2
Total	100.0	100.0	100.0

a/ Enamel or cement bowl with seat.

b/ Set level with the floor, without a seat.

Source: "Living Quarters in the Philippines," Journal of Philippine Statistics, Vol. 19, No. 3, (July-September 1968), pp. ix-xxiii.

Table 3.7: Value of Housing Construction in the Philippines  
(In millions of pesos, at current prices)

Year	Housing Construction Investment			Share in GNP (In percent)
	Public /a	Private /b	Total	
1968	1	771	772	2.7
1969	2	829	831	2.6
1970	1	895	896	2.4
1971	1	1,021	1,022	2.3
1972	2	1,214	1,216	2.3
1973	1	1,538	1,539	2.5

/a Investments in social housing by the private sector.

/b Includes housing constructed by the private sector and financed by public institutions such as the Government Service Insurance System and the Social Security System.

Source: National Education and Development Authority (NEDA).

3.32 The major portion of housing financing has also been carried out by the private sector. Though there are public programs aimed at financing low-cost dwellings, in practice they have nearly always excluded the lower-income populations from obtaining home financing. The major formal sources of credit have been the Government Service Insurance System (GSIS) and the Social Security System (SSS). Their loans are available only to members, however, and usually benefit the highest paid employees in urban areas, particularly those in Metropolitan Manila.

3.33 Since the average loans of both the GSIS and SSS (about ₱ 28,609 and ₱ 21,767 respectively in 1970) amount to 8-9 times the median Philippine family income, it is evident that both institutions finance housing for families in the top 10 to 20 percent of the income distribution scale. Thus the relatively low earning GSIS member has, through his mandatory contribution, subsidized the housing of a few high income employees. A less important source of housing has been the Development Bank of the Philippines (DBP). Together, the GSIS, SSS, and DBP provided about 20 percent of the ₱ 1,100 million estimated to have been invested during 1971. As far as the private sector goes, savings banks, commercial banks, and savings and loan associations have become increasingly important sources of housing finance and currently account for another 20 to 30 percent of investment in housing. 1/

1/ ILO, Sharing in Development, pp. 214-215.

### Level and Quality of Other Urban Services

3.34 Directly related to housing and overall land use is the provision of public services, including social and physical infrastructure as well as transport facilities. In the Philippines, urban growth appears to have out-paced these services, and there is no set pattern for administering them in the MMA or elsewhere. Some services are the responsibility of the central government, city or province, while others are shared among various levels of government or provided privately. Many variations in the provision of services exist among jurisdictions depending on the financial and technical resources available, historical precedent, and political factors.

3.35 The range of services provided by a chartered city generally depends upon its income. Manila City and Quezon City are more autonomous than many because of their relatively high incomes; they can administer and even expand their services without depending on national aid. Manila City, for instance, provides free education from first grade to high school, while other local units of Metropolitan Manila rely much more on the central government. It is important to note that disparities in public service levels exist both among jurisdictions, as suggested above, and within jurisdictions, e.g., among neighborhoods within local units. 1/

3.36 In addition, some services are unevenly distributed throughout the country, with the poorer regions less adequately served. This situation tends to promote the lack of development in those regions and results in migration to the richer regions. The unequal pattern of investment in public services within jurisdictions and among regions is apparent not only in the case of public utilities such as water supply and sewerage, but also in the provision of health and educational facilities, in the location of Government offices and financial institutions, and in transportation facilities. The lack of Government intervention in the provision of some services has tended to exacerbate the situation. The telecommunications system, for example, which is privately controlled, has experienced cutthroat competition in the high density areas and a complete absence of service in other areas where profitability seems low. This situation has led to underutilization of channel capacity and parallel services to the high density markets, as well as to a complete lack of service to about two-thirds of the country.

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1/ The ratio of 1.26 hospital beds per 1,000 population in Tondo, the largest squatter area within the MMA, is far below the Manila City average of 6.48, and bus and jeepney capacity is below the city average in 80 percent of the below-average income districts, including Tondo.

3.37 Water Supply: The infrastructure for water supply, sewerage, and drainage is inadequate throughout the Philippines <sup>1/</sup> (Table 3.8). The most recent National Health Plan (1975-78) cited poor environmental sanitation as a major factor in the high incidence of communicable diseases in the country. Potable water is currently available to less than half the population in the Philippines. Only about 16.9 million people are estimated to have had an adequate supply of water in FY70; 3 million of these were in the Manila Metropolitan area. More than 1,000 barrios, 800 municipalities, and 6 cities are currently estimated to be without water supply systems. Moreover, existing systems require improvements and rehabilitation to meet the needs of a fast-growing population. The carrying capacity of the transmission and distribution mains has decreased over the years, and leakage has increased because of fractures in pipes as they settle, corrosion, and heavier traffic and loadings.

3.38 In the past, water was provided with little or no treatment in urban areas from springs or wells located in or adjacent to the urban centers. Although the growth in the urban population has now greatly increased the demand for a safe water supply, distribution systems have not expanded. The growing demand, the age of the systems, and the high leakage rates have gradually reduced water main pressure throughout the distribution systems; consequently the majority of those served receive an inadequate supply. There is low pressure during most of the day, and many systems are only supplied for a few hours at night. In many water districts, negative pressures exist in portions of the distribution system for at least part of the day, risking back siphonage of foul water into the mains.

3.39 There are few public faucets in many urban areas; their use is discouraged by many water districts because of excessive wastage. Frequently, however, one or two adjacent households will share a connection. Those not served by the public supply obtain water from springs, wells, streams, and rivers, or from vendors who sell water in cans or trucks. Preliminary census data show no substantial changes in the distribution of households by type of water supply used from 1967 to 1970; in addition, the

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<sup>1/</sup> In the Manila area, water is provided by the Metropolitan Waterworks and Sewerage System (MWSS), while in the provinces the Local Water Utilities Administration (LWUA) aids in guiding water supply development in districts with populations of 30,000 or more. The development of water supply facilities for urban populations of less than 30,000 and in the rural areas is under the Department of Local Government and Community Development.

Table 3.8 Percentage of Urban Population Served by Water Supply and Sewage Disposal Facilities in Selected Countries, 1970

Urban Connections	Philippines	Thailand	Korea	India
<b>Water Supply</b>				
House connections	55	52	84	39
Public standpipe	10	8	4	17
Total population served	65	60	88	56
<b>Sewage disposal</b>				
Public sewer system	4	na	31	34
Treated	28	na	...	12
Untreated	72	na	100	88
Household systems <sup>a/</sup>	84	66	31	46
Total population served	88	66	61	80

<sup>a/</sup> Pit, privy, septic tank, and buckets

Source: World Health Statistics Report (Geneva: World Health Organization, 1973), Vol. 26, part 2, tables 3 and 5.

absolute numbers of households with and without "adequate" <sup>1/</sup> service has grown at about the same rate as the total number of households. The inadequacy and unreliability of existing water supply systems may even affect the location of industries, forcing them to locate near a water course to supply their own needs.

3.40 Sewerage and Drainage: Sewerage and drainage facilities in the Philippines also need improvement and expansion. In 1975 not a single municipality in the country was completely sewerred. Many districts rely principally on individual septic tanks, pits, and the direct discharge of untreated sewage into nearby water courses. Well-planned and maintained drainage systems are nonexistent, and low-lying parts of the urban areas in many districts are subject to flooding each year. Because of population growth and the resulting increase in the quantity of sewage, the already high contamination risk to private wells and boreholes is increasing every year, especially during flood periods.

3.41 The prevailing method of solid waste refuse disposal in the Philippines is open dumping, coupled with burning and scavenging; this practice gives rise to health hazards such as rat and vermin infestation and the pollution of air and water. Because of inadequate sewage disposal facilities in the MMA, raw sewage is discharged into Manila Bay. Since no provision is made for collecting industrial waste, companies are obliged to locate their plants near waterways, even though this means of disposal increases the incidence of disease and pollution.

## B. Urban Development Strategies

3.42 An increasing proportion of the Philippine population will become urban in the future. Although the natural rate of urban growth may decrease, the limited employment opportunities in rural areas will probably cause the rate of rural-urban migration to accelerate, at least during the next decade. The net effect of these two trends is likely to be a continuation of the present urban growth rate of 4 percent per annum, resulting in an urban population in 1985 of approximately 18 million, one-third of the total, compared to one-quarter in 1960.

3.43 Urbanization patterns in the Philippines have been influenced more by general economic conditions than by any specific policies for altering the distribution of activities and population among regions, rural and urban areas, or urban centers of different sizes. In the past, the growth

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<sup>1/</sup> Adequate service for urban dwelling units refers to piped water. See Development Academy of the Philippines, "Measuring Philippine Welfare," Social Indicators Project, part 2 (Tagaytay City, January 1975, processed), pp. 6-18.

of many of the urban centers was spontaneous; there are indications that it will be increasingly directed in the future. More attention will have to be given to the geographical distribution of the population across the national territory and to the decentralization of urban development away from the Manila Metropolitan area to a number of other urban growth centers. There will also need to be an intensification of efforts to deal with the problem of absorbing the growing population in individual urban areas. Because of Metropolitan Manila's large size and the inadequate living conditions of much of the population, particular attention should be given to improving the level of services in the MMA and making them more accessible to low-income families.

### Decentralization

3.44 Despite the predominance of the MMA, a network of urban areas already exists across the major islands. They have grown as centers of trading, agricultural processing and marketing, and industrial activity. The growth of these centers has influenced a significant relocation of the population from rural areas, which has resulted in the formation of large slum and squatter communities. The heaviest flows of migrants have traditionally been to Metropolitan Manila. There is a strong case for trying to slow population growth within that area by an active policy of decentralization. To date, the intermediate-sized cities have been neglected in the Philippines as a focus of policy by the national government and even by their own municipal officials, who in most instances have given only scant attention to local development planning because of limited fiscal resources.

3.46 A policy of giving increased attention to the development of small and medium-sized cities and creating urban growth centers has particular merit in the Philippines. Such an approach should relieve population pressure both in the MMA and in rural areas, and increase the modernization spin-off which such urban centers would provide to the surrounding rural areas, in particular to rural areas in the Cagayan Valley and the Visayas, which have been neglected in the past. The recently-issued Presidential Decree 752, which grants to local governments the power to borrow from lending institutions, could significantly spur the growth and development of urban centers outside the MMA. Clear and detailed policy guidelines will still be required, however, to implement a policy of decentralization.

3.46 One regional center where significant growth may be expected in the future is Cebu City in the Visayas, which in 1970 was the third largest city in the Philippines, with about 350,000 people. Cebu, with the contiguous cities of Mandawe, Lapu-Lapu, Talisay, and Cordoba, is already becoming rapidly urbanized due to its mining and industrial potential. It has the

second most varied manufacturing base in the Philippines and its strategic location and accessibility make it the trading center for the central part of the Philippine archipelago. The Visayas currently contribute heavily to migration to both the MMA and Mindanao. The development of infrastructure and services in Cebu could aid in promoting private investment in the region and alter that pattern of migration.

3.47 On the island of Mindanao, two possible urban/regional growth poles - one in the south (Davao City) and another in the north (the Iligan Bay area) - should probably be encouraged. Davao is the largest city in Mindanao and the second largest in the country, with a population of 392,000 in 1970. The Iligan Bay area includes Iligan and Cagayan de Oro, with populations of 104,000 and 128,000, respectively, in 1970. The cities are separated by a distance of only 60 kilometers. The Iligan-Cagayan de Oro region has significant industrial growth potential, while Davao City is basically oriented towards agricultural production. Two closely linked urban centers such as Iligan and Cagayan de Oro should provide flexibility in planning the growth of the region and opportunities for developing specializations in close proximity. Cagayan de Oro presently has Xavier University and several good secondary schools, which offer the opportunity to build on an already existing educational base. Iligan City, with its growing industrial base, could develop specialized facilities for technical and machine-trade skills.

3.48 In cases like the Cagayan de Oro-Iligan area, where there are several urban centers to be built up within a single region, a persuasive case can be made for fostering development over more extensive areas than individual cities. Some regions (e.g., Southern Mindanao) need better transportation systems between their urban areas. Regional policy measures, perhaps introduced through the Regional Development Councils, <sup>1/</sup> should aid in improving transportation and communications linkages among the respective urban centers. A planning approach which takes into account areas larger than single cities should also consider the competing demands being made on the land by urban-industrial needs and by agricultural activity. Prime agricultural land should be protected from urban encroachment so that it can continue to provide food for the growing urban complexes. Particular attention will have to be given to this problem in the Manila area and in the Western Visayas.

3.49 The question is how public policy can promote decentralization. The major avenues open to Government are the encouragement of industry to locate in these growth centers and the improvement of their physical and social infrastructure. These closely interrelated measures are discussed in some detail in subsequent sections on industry, water supply, housing, and transportation. Other sectors which have an important bearing on the development of growth centers are discussed elsewhere in this report. Of

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<sup>1/</sup> See Chapter 4.

particular note are the Government's efforts to improve the electric power base outside the Central Luzon region. The power program proposes a relatively rapid annual growth in capacity in Mindanao and the Visayas (13 percent) compared to Luzon (8 percent). <sup>1/</sup>

#### Distribution of Urban Services

3.50 The need to improve the distribution of services within cities is particularly relevant for Metropolitan Manila. Manila dominates the urban sector, and even with a successful effort to decentralize urban growth, it will remain by far the Philippines' largest city in the foreseeable future. It accounts for a large share of the urban poor, and has not been able to cope with its rapid population growth. As a result, a large and growing number of families do not have access to essential urban infrastructure and services, notably water supply, sewage disposal, and transportation. In addition, the housing market has not provided housing at standards that low income families can afford, with the inevitable development of a large slum and squatter population. For these reasons, an intensive effort must be made to improve the living conditions of low income households in Metropolitan Manila. In order to have the maximum impact on as large a population as possible, trade-offs between the quality of service and the number of persons covered should be made in favor of the latter. Measures to improve services in Metropolitan Manila are discussed in more detail in the following sections on water supply, housing, and transportation.

3.51 Administration is an important element of any attempt to improve the levels of public services. The newly created Metropolitan Manila Commission under the overall supervision of a governor should facilitate the coordination of the activities of 17 local governments. Attempts at metropolitan area coordination in the delivery of certain services, particularly fire control and police activities, are now being made.

3.52 A National Housing Authority has also been established recently and is expected to have a separate division related to Metropolitan Manila. The Government is considering the establishment of a Metropolitan Manila Transportation Council which would be responsible for the planning and budgeting of all transportation projects. Each of these agencies is expected to be transferred eventually to the new Metropolitan Manila Commission. They should make it significantly easier for the Government to formulate and implement coherent strategies for the individual sectors and to focus available resources on disparities in service levels among jurisdictions.

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<sup>1/</sup> This effort is discussed in detail in Appendix III.

### Sector Strategies

3.53 Strategies for four sectors - industry, housing, water supply and sewerage, and transport - that are particularly pertinent for urban development are set out below. Other major sectors - electric power, health, and education - with significant implications for the urban strategy proposed are discussed elsewhere in the report. <sup>1/</sup> In general, the strategies proposed in these sections aim at a more equitable distribution of public and private resources both among urban areas and within urban areas.

3.54 Industry: Manufacturing activity is concentrated in the Greater Manila area and the adjoining provinces of Central and Southern Luzon. Statistical data relating to industrial establishments employing 5 or more workers indicates that 45 percent of all industrial workers are employed in the Greater Manila area alone. More detailed information on regional distribution for establishments employing 20 or more workers indicates that of a total of about 332,000 industrial workers, 156,000 are employed in Metropolitan Manila, 100,000 more in other parts of Luzon, and only 76,000 in the rest of the country, chiefly in Negros, Cebu, and three industrial centers in Mindanao.

3.55 The Government would like to distribute industrial employment on a much wider geographical basis, and it appears to recognize the complementary role of large and small industries in the process. <sup>2/</sup> So far as large industries are concerned, it has made a beginning by encouraging the expansion of some industries in areas where little exists at present, while prohibiting such growth in the Greater Manila area. An example is the textile industry, which is known to provide substantial employment per unit of capital invested.

3.56 Because of the need of industries, especially large-scale ones, for substantial infrastructure facilities and support from other industries, Government policy must emphasize not only dispersal but also creation of areas of industrial concentration. It would not be practical to encourage a dispersal of individual units unless the units are large enough or dependent on local availability of raw materials to an extent that justifies the creation of necessary supporting facilities at a new location.

3.57 The Government is proceeding along a number of avenues. The Board of Investments (BOI), for instance, often negotiates the location of a project before it is approved. At the same time, Government effort is beginning to improve the basic infrastructure in areas outside Manila. Perhaps this is most noticeable in the power sector where the Government has embarked on an ambitious program to generate and distribute electricity in Mindanao

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<sup>1/</sup> See Annex III and Chapter 7.

<sup>2/</sup> See Chapter 6 for a more detailed discussion of these issues.

and the Visayas. The Government has also pursued a policy of location by fiat, such as prohibiting certain industries from locating in Manila. While such a policy can prohibit investments in one place, it cannot guarantee investments in desired locations. The requirements for investments in a particular location are adequate supporting infrastructure (such as electricity, water, transportation, and financial services), the availability of qualified labor, and access to markets. Fiscal incentives without the infrastructure, labor, and markets are unlikely to be sufficient to induce most investments and, with these requirements, are probably not needed. The emphasis of policy should therefore be towards providing the necessary infrastructure, including the establishment of industrial estates in a few selected growth centers, rather than relying primarily on fiscal incentives or administrative decree.

### Housing

3.58 The ILO mission estimated the future growth of demand for housing in the Philippines. <sup>1/</sup> as a function of the rate of growth of household formation, the rate of growth of real income per household, and the income elasticity of housing demand. Under the assumption of 5 percent real income growth per household, the ILO model indicates the growth of housing construction to be about 9 percent per annum during the decade. Applying this rate to the estimated investment in housing in 1974 results in a housing investment of ₱ 3.8 billion (at 1974 prices) by 1980 or about 2.6 percent of GNP (Table 3.9). This forecast, however, does not include public housing, because the analysis is based on effective demand, which is negligible for low income groups under existing supply conditions.

3.59 The combination of very low average incomes, high natural rates of population growth, rapid urbanization, and public sector inactivity in the field of low cost housing has accentuated the housing problem in the Philippines. The shortage of adequate housing is particularly acute in the larger and faster growing urban centers, as evidenced by their high concentrations of squatters. A number of estimates, although rough, indicate that the housing construction needs of the Philippine population will be enormous over the next two decades. One forecast, for instance, suggests that the present annual pace of housing construction of two dwelling units per 1,000 population will satisfy only one-third of the future needs. <sup>2/</sup>

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<sup>1/</sup> ILO, Sharing in Development, pp. 218-219.

<sup>2/</sup> For instance, De Vera in "Housing Needs up to the Year 2000" estimates the additional housing requirement as 3.2 million units during 1970-80 and as 1.6 million during 1980-85, increasing the total stock by 51 percent during 1970-80. K.V. Ramachandran, et. al., in "Housing Projections for the Philippines, 1960-80," Economic Research Journal, Vol 19, No. 1 (June 1972), pp. 20-33, estimate the housing need as 10 million additional units during 1960-80, more than two and one-half times the housing stock in 1960.

3.60 The large variance between estimated housing requirements and production reflects a fundamental discrepancy between the current conditions of supply and demand in the housing market. Though this discrepancy cannot be measured precisely, its magnitude can be illustrated. While almost all housing construction in the Philippines is undertaken by the private sector, only a very small percentage of families can afford housing at current market prices. It has been estimated that only 14 percent of urban families, i.e., those with annual incomes of at least P 10,000, can afford current market prices for housing provided by the private sector. The dilemma may be roughly illustrated by using family expenditure data (Table 3.9). Assume a family with an annual income equal to the national average family income (P 3,746 or US\$564), 1/ no savings, and 55 percent of total income spent on food. After food expenses, the family has P 1,690 (US\$254) left to meet other living needs. It seems reasonable to assume that a "low priced" house of P 28,000 (US\$4,217) 2/ is beyond such families' means, since even under moderately concessional terms (10 percent downpayment and 10 percent interest over 20 years), this would involve an annual outlay of P 2,800, which is almost 80 percent of total income and one- and two-thirds times "available" income. 3/ If the situation is difficult for a person with an average income, it is hopeless for the poor.

3.61 The income constraint to increases in the housing stock is becoming more severe because the costs of land, building materials, and construction have been rising faster than the average level of family income. The cost of dwellings has also been affected by the gradual adoption (and often imposition) of higher construction standards. Because of this fact and the shortage of credit available to low income families, it is improbable that the private market will be able to provide adequate housing for the bulk of the population. The need for Government intervention is clear, its exact role less so. Because there appears to be a great deal of undeveloped and underdeveloped land within the presently urbanized area of the MMA, one step the Government should probably consider is the formulation of a policy to locate, acquire, and develop vacant lands for housing and general urban development.

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1/ Approximately one-third of MMA families, and 45 percent of Tondo Fore-shore families, earn less than this amount.

2/ A World Bank urban survey mission in 1973 estimated this to be about the lowest priced house currently being brought to the market in Manila.

3/ This is a crude calculation, based on rough estimates of cost of house, income, and percentage of income which might be available to purchase housing.

Table 3.9: Family Expenditures, 1971  
(In percent)

Expenditure Item	Total Family Expenditure	P 500 to P 2,999	P 3,000 to P 5,999	P 6,000 and over
Food	53.7	63.6	54.7	42.5
Clothing	6.2	5.4	6.4	6.6
Housing and furnishing	17.7	14.1	16.6	22.6
Recreation and personal care	5.2	3.9	5.2	6.8
Education, transportation, and communications	6.6	3.6	6.5	9.6
Miscellaneous	<u>10.6</u>	<u>9.5</u>	<u>10.6</u>	<u>11.9</u>
Total	100.0	100.0	100.0	100.0

Source: BSC and Jacop S. deVera, "Housing Need up to the Year 2000 and Its Financing Implications," NEDA, National Conference on Housing, Development Academy of the Philippines (Tagaytay City, October 19-21, 1973).

3.62 As noted above, the Government's past involvement in constructing housing has been negligible. The largest Government effort to date to aid the lower income groups has been the relocation of squatter families in the MMA to resettlement sites. By 1973, over 16,000 squatter families, or about 20 percent of that portion of the MMA squatter population believed to be indigent, had been resettled; more than half of them went to three project areas - Carmona, San Pedro, and Sapang Palay. An additional 9,000 families were relocated to their province of origin or elsewhere. The

resettlement program has suffered serious setbacks, however, with families abandoning their resettlement sites and returning to the MMA. 1/

3.63 Although the public efforts have been small and less than successful, fully meeting the housing need is beyond the financial and physical capacities of the Government alone. To triple the rate of housing investment, which some projections indicate is necessary, would require the Government to invest annually some 4 to 5 percent of GNP in housing - almost double the rate of total public investment - and would involve a considerable subsidy. The Mission believes that a more realistic goal for the Government at this time would be to allocate public funds equal to about 0.2 percent of GNP by 1980. These funds could provide inexpensive home improvements for existing dwellings and the low-cost construction of new dwellings. Standards could be tailored to the income level of the population so that there would be full cost recovery. Designs could attempt to take advantage of the obvious capability of lower income groups to construct their own housing, and emphasis could be put on sites and services projects and the upgrading of existing dwellings. The process of extending minimum urban services to the poorest areas in what is known as squatter upgrading should serve to significantly improve the living conditions of Manila's poor if it is made on a comprehensive, area-by-area basis 2/ and accompanied by measures to regularize land tenure.

3.64 If housing investment of this type and magnitude is to occur, however, the costs of construction materials and land will need to be stabilized. Attention will also have to be given to legislation related to the provision of housing if low-income groups are to receive more benefits than they have in the past.

3.65 An indicative program of sites and services housing and squatter upgrading has been roughly sketched for Metropolitan Manila by the World

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1/ Nearly 80 percent of those relocated to Sapang Palay were reported to have returned by 1973, and 45 percent of those in Carmona to have abandoned their allocated lots. The main reason for the failure of the resettlement schemes seems to have been the distance of residential sites from employment opportunities. As a result, with the time and money costs of transportation high in relation to their low incomes, heads of families found it necessary to stay in Manila during weekdays and were forced to maintain two households. Many appear to have given up that system and have relocated their families to more central locations. In addition, these specific projects appear to have been poorly sited and planned, and there were features - such as inadequate basic services - which reduced their desirability.

2/ Sites and services programs involve the provision of plots of land, basic infrastructure, and credit for building materials that enable the recipient to construct his own dwelling unit. Squatter upgrading programs usually involve the simultaneous rather than phased provision of water supply, sewerage, surface water drainage, roads, and footpaths.

Bank's Transportation and Urban Projects Department. Because it was intended that the program should be self-financing, the target population was taken as those between the 15th and 70th income percentile. The group below the fifteenth percentile was assumed to largely lack an effective demand for permanent housing, while the top 30 percent could be provided for by the private market. The target population was divided into: a) those in existing squatter dwellings, which would be upgraded, and b) the incremental population which would require new housing. For each group three different packages were used to reflect the range of income levels and, hence, their ability to pay for housing. The unit cost (in 1974 prices) for one new unit ranged from US\$1,070 to US\$1,675 and for upgrading from US\$470 to US\$600 per unit. <sup>1/</sup> By 1980 the program could be providing new dwellings of a site and services nature to about 75,000 people and upgraded housing to about 400,000 people annually. The annual costs of this program would, by 1980, reach about US\$33 million (1975 prices). Over the 10-year period 1976-85, the program would cost about US\$350 million and improve the housing conditions of almost 3.5 million people. If extended by about a third to cover other urban areas, the overall program would be approximately the equivalent of 0.2 percent of GNP by 1980. This would be a substantial improvement over the past provision of public housing, yet it would be modest in relationship to the private housing market.

3.66 Self-financing is the key element of this program. Loans would be extended to the homeowner at 12 percent for 20 years to cover the full cost of the housing investment. Financing could be provided by the National Housing Authority (NHA), which would also implement the construction and upgrading components of the program. In this case, the NHA would need considerable financing to bridge the gap between annual construction costs and annual loan repayments. If the plan for Manila were extended to other urban areas, the bridging finance required in 1980 would be about US\$45 million. NHA financing could be provided from a number of sources: equity contributions by the national government, local market borrowing, and foreign assistance. If shared equally among these sources, the burden would be manageable. Although these figures are crude, they do indicate that the Government could make a sizable impact on the housing plight of lower income groups without putting undue strain on the national budget.

3.67 The projections given above imply that housing as a share of GNP would increase from about 2.3 percent in 1974 to about 2.8 percent in 1980 and, if continued at these rates, to 3.0 percent of GNP by 1985. The private market would still account for the bulk of housing construction, although there would be a considerable increase in public expenditures in housing - from less than P 5 million at present to about P 300 million by 1980 in 1974 constant prices (Table 3.10).

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<sup>1/</sup> These costs are based on estimates in the Tondo/Dagat-Dagatan Urban Project proposed to the World Bank for financing.

Table 3.10: Housing Forecast

Year (In millions of units)	Housing Stock (In millions of units)	Investment (In millions of constant 1974 pesos)			Share in GNP		
		Public	Private	Total	Public	Private	Total
		1960	4,791	n.a.	n.a.	n.a.	n.a.
1970	5,573	1	1,720	1,721	n.a.	2.2	2.2
1980	6,630	300	3,780	4,080	0.2	2.6	2.8
1985	7,570	635	5,820	6,455	0.3	2.7	3.0

Source: Mission estimates.

3.68 Owing to deficiencies in housing data, the number of dwellings that this investment would create can be only roughly estimated. If the average unit price of private housing remains at about the same level in real terms as is estimated for 1970, this investment would provide about 830,000 new units and 160,000 upgraded units during 1976-80. Allowing for some replacement of existing units, the housing stock at the end of the decade would be about 6.6 million units compared to 5.6 million in 1970. On a per capita basis this would mean an increase in the number of persons per dwelling unit from 6.6 in 1960 to 7.5 in 1980; however, if construction continues at this pace, by 1985 this ratio should not deteriorate further but remain at about the 1980 level.

3.69 Water Supply: The Development Academy of the Philippines found that, while the proportion of dwelling units with adequate water supply increased from 43 percent in 1956 to 51 percent in 1970, the absolute number of dwelling units without adequate water increased by almost 40 percent (Table 3.11). <sup>1/</sup> In addition, the lower-income families within urban areas frequently have less adequate access to water and pay significantly higher proportions of their incomes for it than do upper-income households.

<sup>1/</sup> Development Academy of the Philippines, Measuring the Quality of Life: Philippine Social Indicators, (Manila, 1975).

Table 3.11: Dwellings with Adequate Water <sup>/a</sup>

Year	Number of Units With Adequate Service		Number of Units With Inadequate Service	
	(In thousands)	(In percent)	(In thousands)	(In percent)
1956	1,631	42.8	2,181	57.2
1967	2,688	51.3	2,439	48.7
1970 <sup>/b</sup>	3,112	50.7	3,027	49.3

<sup>/a</sup> Adequate service is defined by BCS as piped water for urban units and piped water or drilled and closed wells for rural units.

<sup>/b</sup> Number of households with adequate and inadequate service.

Source: BCS, Philippines Statistical Survey of Households, May 1956; BCS, Survey on Housing, May 1967; Census of the Population, 1970.

3.70 The Government has embarked on an ambitious water supply program to remedy the past neglect of this sector in investment expenditure. Water supply requirements to be met by the Metropolitan Waterworks and Sewerage System (MWSS) are expected to increase from the present demand of about 395 million gallons daily (mgd) to 830 mgd by 1985. To meet this demand, the MWSS has embarked on a long-range Metro Manila Waterworks Project to be undertaken in two phases. The first phase aims at increasing the total water supply to the Metropolitan Manila area by an average of about 120 mgd, which the Asian Development Bank estimates will meet demand up to 1982. The implementation of this project would substantially increase the level of investment by MWSS; expenditures could increase from a level of about P 30 million in 1975 to an average of P 270 million annually during 1976-80.

3.71 An ambitious development program for provincial waterworks systems has also been proposed. Approximately 300 communities of 30,000 population and more are now in need of safe and reliable water supply systems. These communities represent approximately 50 percent of the total Philippine population outside the Manila Metropolitan Area; many are areas of rapid population increase, where traditional water sources such as shallow wells, springs, and streams have become inadequate.

3.72 In 1973, the Government initiated a major program to provide potable water to the provinces. <sup>1/</sup> The Local Water Utilities Administration (LWUA)

<sup>1/</sup> See Presidential Decree 198, the "Provincial Water Utility Act of 1973."

was created in that year to provide standards and regulations related to the design, construction, operation, and fiscal practices of local utilities as well as technical assistance and training programs. It was also given the power to monitor and evaluate local water utilities, to undertake systems integration, and to provide loans for developing local water utilities. Staff have been appointed and foreign consultants obtained to provide technical assistance in institution building and engineering assistance. There is no doubt, however, that it will take several years before LWUA can provide the technical assistance needed without relying on outside consulting services.

3.73 Using funds provided by the governments of the United States and Denmark, a series of feasibility studies has been initiated and construction of a number of municipal water supply systems has begun. During 1975-79, LWUA plans to improve and expand the waterworks systems in 16 major areas, including Bacolod, San Pablo, Davao, Cagayan de Oro, Tacloban, Baguio, Batangas, and Mandaue. Information is still needed on the facilities available outside the urban centers as well as in the rural areas of the Philippines. Studies will have to be undertaken to provide that information, to investigate the possibilities of cost recovery from the potential beneficiaries of the systems, to review the financial aspects, and to identify projects for possible financing by lending agencies.

3.74 Sewerage and Drainage: The improved provision of water supply in the MMA and in other urban areas will have to be accompanied by the adequate collection and disposal of waste water through sewage and drainage facilities if stagnant water is not to increase the already formidable health hazards. The provision of solid waste disposal facilities is equally important. At present, solid waste collection and disposal is left entirely for the individual community to undertake. The only sewerage development program proposed at the present time -- the review of an earlier study of the situation -- is concentrated entirely within the MMA. Since open dumping is the prevailing method of disposal, the inspection and spraying of dumping sites is a critical first step in inhibiting pollution; draining the poblacion in each city may be the beginning of a solution to the problem of waste water disposal.

3.75 Flood Control: As a result of intense and prolonged rainfall during the monsoon and typhoon seasons, the Philippines frequently experiences serious flooding over large areas, both urban and agricultural. In the Manila area alone, more than 20 kilometers of drainage channels, known as esteros, which were originally natural drainage ways for storm water disposal, have disappeared. In the delta area of the Pampanga River System, riparian property owners have caused the silting up of river beds and banks in order to claim such silted area under the doctrine of ownership by natural accretion. There is extensive squatting on existing floodways brought about by population growth, the low incomes of the mass of the people, and by haphazard construction of embankments and bridges without adequate waterways, which causes backwaters to inundate the upstream areas. Largely as a result of the considerable damage done by the 1972 floods,

flood control has now been upgraded into a significant infrastructure expenditure. Expenditures on flood control increased from an average of P 6 million a year in FY67-72 to P 280 million in FY75. Judging from the creditable achievement of the last three years in this sector, it should be possible for the Government to maintain its momentum in this area.

3.76 One of the main objectives of the future Government program is a solution to the flood problems in the MMA. The program would include the construction of the Mangahan Floodway to divert the excess flow of the Marikina River into Laguna de Bay; the construction of river banks on both sides of the Pasig River; pumping stations to drain flooded areas which cannot be drained by gravity; deepening and widening natural drainage streams; and renovating and improving existing drainage facilities. Other major flood control work is also planned or proposed for the the Central Luzon, Mindanao, and Bicol regions.

3.77 Urban Transport Services: The major urban transportation problems of the Philippines are concentrated in Metropolitan Manila, where chronic congestion has become the normal condition. Other cities of the Philippines do not have transport problems of the dimension and magnitude confronted by Metropolitan Manila which would require outside assistance. Their major task for the future is to assure a development pattern which will avoid the problems created by over-concentration and dispersion. These growing cities have unique opportunities to obviate the need for transport by avoiding long distance commuting between residence and employment. Therefore, this section focuses on transportation facilities in Metropolitan Manila.

3.78 Manila's transportation problems result largely from excessive crowding of population and activity into a small land area <sup>1/</sup> and from the disorderly arrangement of land uses that are placing increasingly greater demands on transportation requirements. The high density of urban buildings and the concentration of employment in downtown Manila have created a volume of passenger and freight traffic that has become increasingly difficult to accommodate effectively. The lines of automobiles, jeepneys, buses, taxis and other vehicles inching their way through Manila's numerous intersections are obvious manifestations of a continuing and growing imbalance between transport demand and available capacity.

3.79 The situation has been exacerbated by the fact that population growth and transport demand have been accompanied by a large growth in private passenger vehicles. With only about 10 percent of the total population, Metropolitan Manila now has over 40 percent of the total registered

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<sup>1/</sup> The Manila Metropolitan Area comprises 870 square kilometers out of the total land area of 300,000 square kilometers.

motor vehicles in the country. In 1975, the nation as a whole had one motor vehicle for every 60 inhabitants, while Manila had one for every 12 inhabitants. The available data show that a large portion of the total registered vehicles in Metropolitan Manila were cars, which comprised about 69 percent in 1975, followed by trucks, which accounted for 26 percent. The number of buses accounted for a mere one percent and jeepneys for 4.6 percent. Between 1971 and 1975, the number of registered motor vehicles in Metropolitan Manila increased 36 percent, from 242,200 to 325,500. Trucks registered the largest growth, amounting to 46.6 percent, while cars grew 34 percent, jeepneys 12 percent, and buses 7 percent. Clearly, the growth rate of buses and jeepneys has been substantially less than that of private cars as well as that of the population.

Table 3.12: Growth and Number Registered Motor Vehicles in Metropolitan Manila, 1971-75 /a

Motor Vehicle	1971		1975		Percentage Growth 1971-75
	Number	Percent	Number	Percent	
Cars /b	167,300	69.3	224,100	68.5	34.0
Trucks	58,000	24.0	85,000	26.0	46.6
Jeepneys	13,400	5.6	15,000	4.6	11.9
Buses	2,700	1.1	2,900	0.9	7.4
Total	<u>241,400</u>	<u>100.0</u>	<u>327,000</u>	<u>100.0</u>	<u>35.5</u>

/a The table does not include motorcycles which registered the largest increase - 70 percent - from 1971 to 1975 (from 20,806 to 35,400).

/b Includes automobiles and jeeps for private use.

Source: The Land Transport Commission and the Board of Transport.

3.80 The transport system in Metropolitan Manila is almost entirely road-based, with rail commuter traffic comprising less than one percent of daily passenger trips. The major network consists of four semicircumferential roads, all of which are around the Central Business District (CBD) and none of which is complete, plus nine radial roads, most of which are complete, extending from the CBD to outlying areas. Most of these roads have either four or six lanes.

3.81 Otherwise, Manila's road system consists of narrow and winding roads running through densely settled areas. Most of these roads have been built to standards that are inadequate for today's traffic. Typical

features are narrow rights-of-way and lane widths, poor drainage, and, for the most part, an antiquated grid pattern. Laid out long before the automobile age and designed principally for convenient real estate planning and access to property, these obsolete rights-of-way are now crowded on both sides with commercial activities and dwellings. Most important, the concentration of traffic on narrow streets with many crossings makes it impossible to realize the speed and service potentials of the motor vehicle. Moreover, due to poor drainage and maintenance, road conditions are generally poor with numerous potholes and cracked surfaces. There are only a few grade-separated intersections on major corridors and about 65 intersections have traffic signals, many of which are poorly placed and are frequently out of operation.

3.82 Metropolitan Manila surface transport is further complicated by the Pasig River, which divides the city into north and south, and is spanned by nine bridges of different capacities. Numerous esteros, waterways, and creeks also stand as natural barriers, producing discontinuities in the road system and constraining traffic flows.

3.83 The major transport works undertaken in Metropolitan Manila since the 1960s include the construction of circumferential road C-4 and the two intercity expressways emanating from C-4 to the north and south (Map 3.3). The construction cost of C-4 cannot readily be estimated, as the road was constructed in stages and by sections over several years with federal, local, and provincial funds. Except for C-4 and the northern and southern expressways, which were built primarily to give better access to other economic centers in the country, there was only a minor upgrading of a few radial roads inside C-4 until the early 1970s. At present, some of the missing links, notably C-1 and C-2, are being completed, but road construction in the urban center moves slowly.

3.84 In 1974 it was estimated that about 4.3 million inhabitants of Metropolitan Manila made 7.8 million trips in a typical work day, a rate of 1.8 trips per inhabitant. Jeepneys and buses, the major forms of mass transportation, account for three-quarters of the total trips. About half the total trips are by jeepney, by far the most dominant mode; buses account for 25 percent, and the remaining 25 percent is distributed among cars, taxis, and others.

3.85 Jeepneys and buses in Metropolitan Manila provide a variety and frequency of services seldom found in other cities and do so at no direct capital or recurrent cost to the Government. The system has been largely developed through private investment and operated with the vitality of private entrepreneurship. These two modes carry a one-directional hourly flow of 15,000 - 20,000 persons on the main roads during peak hours. In contrast, only about 1,500 - 2,000 passengers are moved by cars, although private cars are a numerically predominant mode of vehicular traffic, often comprising 50 percent or more. On the Guadalupe Bridge, where 92,000 daily vehicular traffic was recorded in a 1971 survey, private cars accounted



116°

120°

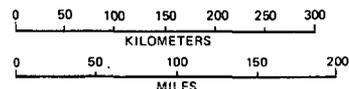
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CLASSIFICATION OF PROVINCES  
BY GEOGRAPHICAL REGIONS

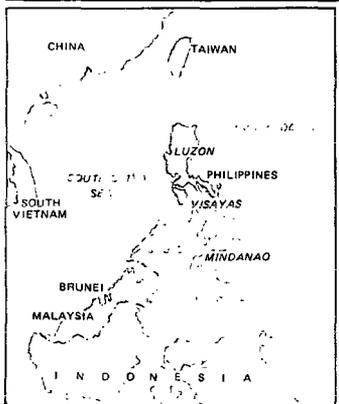
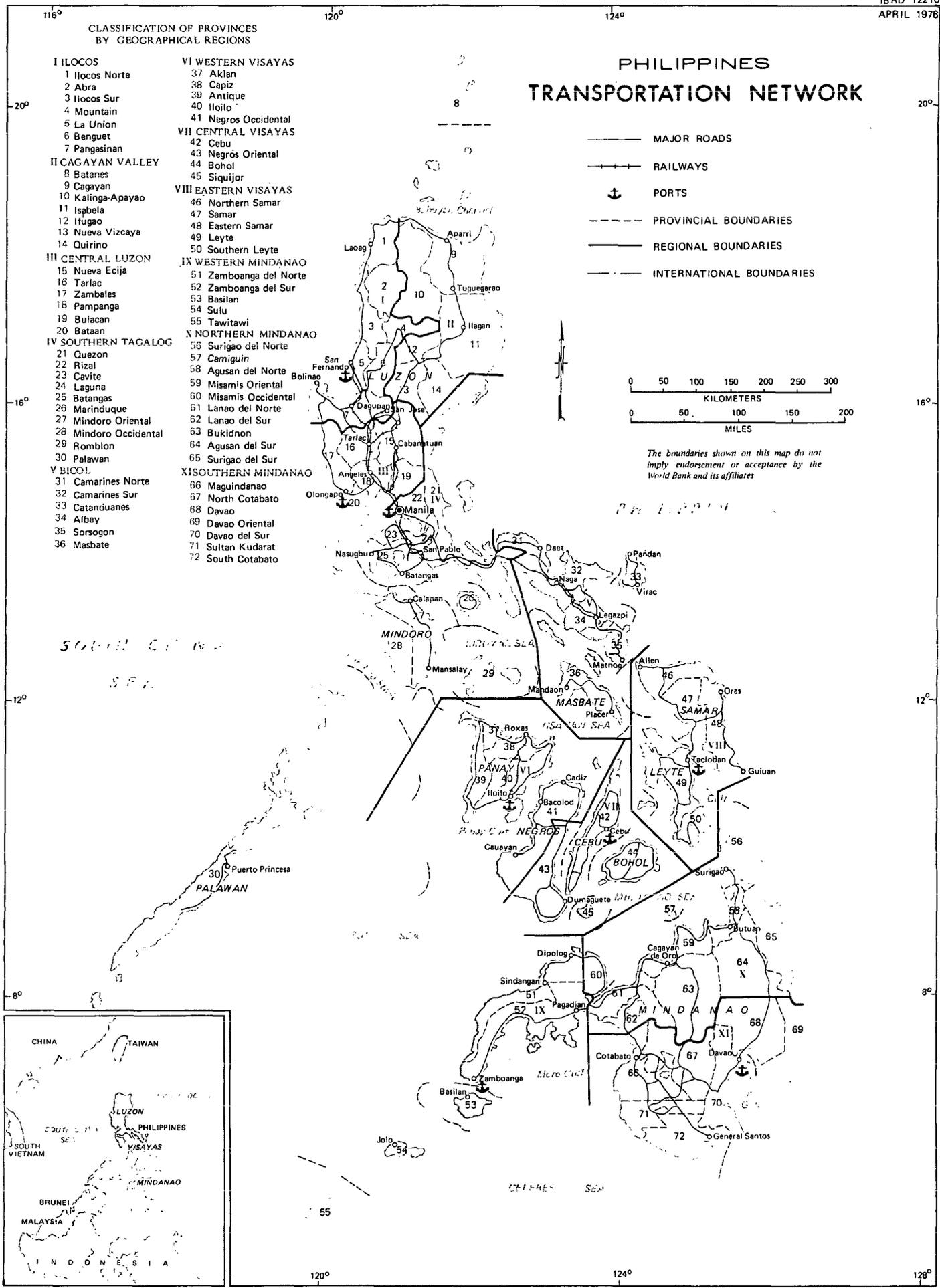
- |                            |                             |
|----------------------------|-----------------------------|
| <b>I ILOCOS</b>            | <b>VI WESTERN VISAYAS</b>   |
| 1 Ilocos Norte             | 37 Aklan                    |
| 2 Abra                     | 38 Capiz                    |
| 3 Ilocos Sur               | 39 Antique                  |
| 4 Mountain                 | 40 Iloilo                   |
| 5 La Union                 | 41 Negros Occidental        |
| 6 Benguet                  | <b>VII CENTRAL VISAYAS</b>  |
| 7 Pangasinan               | 42 Cebu                     |
| <b>II CAGAYAN VALLEY</b>   | 43 Negros Oriental          |
| 8 Batanes                  | 44 Bohol                    |
| 9 Cagayan                  | 45 Siquijor                 |
| 10 Kalinga-Apayao          | <b>VIII EASTERN VISAYAS</b> |
| 11 Isabela                 | 46 Northern Samar           |
| 12 Hugao                   | 47 Samar                    |
| 13 Nueva Vizcaya           | 48 Eastern Samar            |
| 14 Quirino                 | 49 Leyte                    |
| <b>III CENTRAL LUZON</b>   | 50 Southern Leyte           |
| 15 Nueva Ecija             | <b>IX WESTERN MINDANAO</b>  |
| 16 Tarlac                  | 51 Zamboanga del Norte      |
| 17 Zambales                | 52 Zamboanga del Sur        |
| 18 Pampanga                | 53 Basilan                  |
| 19 Bulacan                 | 54 Sulu                     |
| 20 Bataan                  | 55 Tawitawi                 |
| <b>IV SOUTHERN TAGALOG</b> | <b>X NORTHERN MINDANAO</b>  |
| 21 Quezon                  | 56 Surigao del Norte        |
| 22 Rizal                   | 57 Camiguin                 |
| 23 Cavite                  | 58 Agusan del Norte         |
| 24 Laguna                  | 59 Misamis Oriental         |
| 25 Batangas                | 60 Misamis Occidental       |
| 26 Marinduque              | 61 Lanao del Norte          |
| 27 Mindoro Oriental        | 62 Lanao del Sur            |
| 28 Mindoro Occidental      | 63 Bukidnon                 |
| 29 Romblon                 | 64 Agusan del Sur           |
| 30 Palawan                 | 65 Surigao del Sur          |
| <b>V BICOL</b>             | <b>XI SOUTHERN MINDANAO</b> |
| 31 Camarines Norte         | 66 Maguindanao              |
| 32 Camarines Sur           | 67 North Cotabato           |
| 33 Catanduanes             | 68 Davao                    |
| 34 Albay                   | 69 Davao Oriental           |
| 35 Sorsogon                | 70 Davao del Sur            |
| 36 Masbate                 | 71 Sultan Kudarat           |
|                            | 72 South Cotabato           |

PHILIPPINES  
TRANSPORTATION NETWORK

- MAJOR ROADS
- RAILWAYS
- PORTS
- PROVINCIAL BOUNDARIES
- REGIONAL BOUNDARIES
- INTERNATIONAL BOUNDARIES



The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates



20°

20°

16°

16°

12°

12°

8°

8°

120°

124°

128°



for 64-70 percent of total vehicular movements and buses only 4.5 percent; buses, however, carried almost as many passengers as private cars. 1/

3.86 Despite the importance of public transport, service has not kept pace with the increased travel demands generated by the emerging distribution of metropolitan employment and residential locations and the antiquated system of roads has been strained for many years. Minor additions to the network have offered only temporary relief; the strains are increasing rapidly in what is already a highly motorized city. It is estimated 2/ that the volume of daily trips will rise to 14 million by 1987, or almost double the present level. When this daily figure is converted to directional movements during peak hours, the capacity constraints of the road and mass transport facilities will be overwhelming. Peak hourly movements might reach as high as three times present levels.

3.87 In recognition of the urgent need to relieve existing congestion, the first major transport study 3/ in Metropolitan Manila was initiated in 1971 and completed in 1973 by a team of Japanese experts working with the Department of Public Works, Transportation and Communications as counterpart agency. This study recommended an intermodal transport plan and an investment program based on the projected land uses and employment and residential densities. 4/ The plan contained a network of six circumferential roads, ten radial roads, six elevated expressways, north-south commuter rail lines, and five subway lines. From this schematic plan have evolved initial transport investment proposals estimated to cost upwards of P 7.9 billion (US\$1.2 billion. 5/ To implement the complete system proposed by the study would cost at least P 17.3 billion (US\$2.6 billion), an amount far beyond that proposed for any other sector in the Metropolitan Manila area.

3.88 The transport recommendations which emerged from this study were a mixture of long-standing proposals and new elements. The basic pattern of radial and circumferential surface roads remained essentially the same as those first proposed in the mid-1950s. The study apparently treated

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1/ This analysis assumed a vehicle occupancy ratio of 3 for private cars and 40 for buses as found in Government of Japan, Overseas Technical Cooperation Agency, Urban Transport Study in Manila Metropolitan Area (n.p., Government of Japan, 1973).

2/ Estimates are based on data supplied by the Department of Public Works and Telecommunications.

3/ Government of Japan, Overseas Technical Cooperation Agency, Urban Transport Study in Manila Metropolitan Area.

4/ These projections were related neither to past and existing development patterns nor to the present travel movements in Metropolitan Manila. They were based on assumptions which are highly questionable.

5/ At the exchange rate of US\$1.00 = P 7.00.

these as given elements and did not attempt to analyze their justifications or to determine whether some other pattern might be preferable. The new elements, principally the proposed subway system and the elevated expressways, were superimposed on the given system to provide the additional capacity purported to be needed by the favored land development pattern. The study does not appear to provide an adequate basis for assessing either the social and economic benefits and costs of these proposals or their physical and financial feasibility. By ignoring the constraints on available resources for transport purposes, the study failed to establish even the scale of a possible investment program, much less the priorities of its various elements.

3.89 The capacity of the existing transport system can be greatly expanded through more effective traffic management, geometric improvements at key intersections, and regulatory procedures that can be implemented quickly with relatively little or no public funds. They include:

- (i) More efficient traffic signals use and a better use of existing facilities through improved measures of traffic control such as bans on parking and turning in the central area, one-way and reversible flows, and bus and jeepney lanes. These improvements would greatly increase effective road capacity and facilitate vehicular movement. Other improvements include clear markings, striping, traffic signs, and better regulation of pedestrian crossings at specified intersections by appropriate signals. Better driver education and enforcement of the traffic codes should not be overlooked;
- (ii) Improved geometric designs and signalization at selected intersections where major traffic bottlenecks occur to balance the performance of the street junctions with that of the links in the network;
- (iii) Abandoning the present policy of restricted entries for buses and jeepneys in favor of encouraging new capacity, within the limits of profitable competition, and new routes commensurate with population growth and trip generation. Currently, there is a shortage of 480 buses to accommodate the present level of traffic. <sup>1/</sup> For the next five years, projected population increases for Metropolitan Manila would require an additional demand for a 5 percent annual fleet expansion. This means a requirement of about 150 new buses and 750 new jeepneys per year during the next

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<sup>1/</sup> Estimates based on data supplied by the Project Planning and Development Office of the Department of Public Works and Telecommunications.

five years. If private bus and jeepney operators are provided with easier entry, credit facilities, and financial concessions accorded to the Metropolitan Transit Corporation, such as exemptions from Board of Transport fees and import duties and foreign exchange restrictions on imported spare parts, they will be encouraged to invest in fleet expansion and rehabilitation to provide a higher level of service.

3.90 The improvement of traffic management and expanded bus and jeepney operations would make a major contribution to the accommodation of growing traffic volumes. However, a minimum program of road expansion is also necessary to supplement the improvement measures discussed above. Jeepneys and buses on certain streets in Manila (e.g., Avenida Rizal and Taft Avenue), carry substantially more daily traffic than similarly congested streets in Western countries (Canada and Germany) which are building light rapid transit systems at substantial public costs. Of course, fiscal constraints are more acute in Metropolitan Manila. Nevertheless, an estimated P 131 million (US\$22.3 million <sup>1/</sup>) will be required to construct three grade-separated interchanges on C-4 (EDSA) with Japanese assistance and complete circumferential roads C-2 and C-3. In addition, highest priority should be given to minor intersection improvements throughout the metropolitan area where major bottlenecks exist. The World Bank has under consideration partial financing of R-10 (5.5 kilometers) which will run along the Tondo Foreshore, and completion of C-2 and C-3. Given the difficulty associated with acquisition of rights-of-way in the city, the time required for detailed engineering, and limited financial resources, it will not be feasible to implement more than this minimum program in the next five years.

3.91 Any hope of coping with existing and future problems lies in a twofold approach. On the one hand, a concerted effort should be made to increase the capacity of the existing facilities and build a viable public transport system through effective management and regulatory procedures as discussed above. However, it is equally important that investment decisions and programs to reduce congestion be accompanied by a plan of action to deal with the underlying factors that generate growing volumes of traffic. Experience elsewhere suggests that excessive population density in a rapidly expanding urban area where housing is separated from employment centers will result in severe congestion no matter how large the supply of transit facilities (Tokyo and Madrid) or how efficient the street systems (large cities in the United States and Caracas).

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<sup>1/</sup> The exchange rate of US\$1.00 = P 7 is used as cost estimates were made prior to the July 1975 devaluation of the peso. The breakdown of the cost is as follows: P 70.9 million local cost and US\$3.62 million foreign exchange cost for the construction of three grade-separated interchanges, and P 60 million for the total cost of R-10, C-2 and C-3.

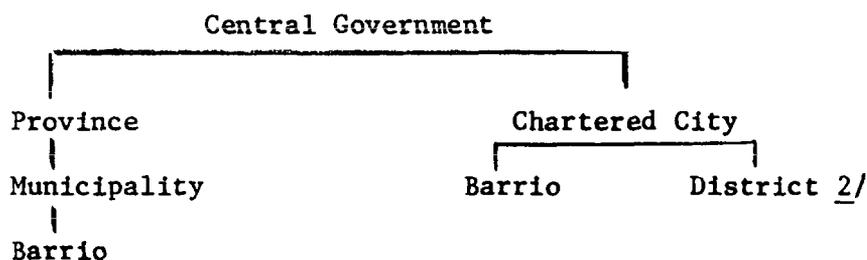
3.92 Given the difficulty, if not impossibility, of obtaining sufficient funds to finance the needed transport infrastructure in Metropolitan Manila as well as secondary cities in the coming years, a substantial effort appears to be needed to combine transport with other urban programs. Plans are needed for spatial arrangements designed to minimize transport requirements and to provide transport to assist in the creation of combined new population-industrial centers outside the concentrated areas. The location, design and redesign of streets and other transport infrastructure can help bring about new uses of land, create new sites for housing, shopping, and industry and enhance the appearance of the city. The Philippines must formulate an effective spatial strategy for Metropolitan Manila as well as for secondary cities where more possibilities exist to influence the demand for movement. Once such strategies are formulated, a host of fiscal and regulatory policy measures and implementing mechanisms must be instituted to carry out the programs. This will take a relatively long period of time. A start should be made now to assure a rational transport framework for the future.

TECHNICAL NOTE I

The System of Local Government in the Philippines

1. For administrative purposes, the Philippines is divided into 72 provinces, 61 chartered cities 1/ and approximately 1,440 municipalities and municipal districts. The latter include some 34,000 barrios or barangays. The chartered city, unlike the municipality, is administratively independent from the province in which it is located and is linked directly to the national government (Figure 1). Each province has jurisdiction over an average of 20 municipalities, and each municipality is composed of the poblacion (the town proper) and about 20 or more barrios surrounding the town. In matters of local administration, services and other matters, the poblacion completely dominates the municipality.

Figure 1



Units of Local Government

2. Provinces: The office of a provincial governor was established under the Spanish and is probably one of the oldest political institutions in the Philippines. 3/ Under Spanish colonial rule the provincial governor was appointed from Madrid to act as an agent for the governor-general. With the American colonial administration the provincial governor became an elective position, 4/ and a provincial board was created which established a form of Filipino government with limited powers at the local level. Until 1975, positions in local government--such as the provincial governor, provincial board, the municipal mayor, and the municipal council--were elected offices. In February 1975 a referendum was passed which gave the President the authority to appoint all local officials after their terms expired in December 1975.

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1/ As of 1973.

2/ Unlike the barrio, the district is purely an administrative unit with no government or budget.

3/ J.M. Argueo, Philippine Government in Action (Manila: University Publishing Co., 1954), p. 618.

4/ Suffrage was limited, however, to males who were 23 years or older; owned property valued at P 500 or more; could read, write, and speak English or Spanish; and who had held local office prior to August 13, 1898. Ibid., p. 595.

3. The provincial governments have responsibility for the collection of taxes, the construction of highways, bridges, and public buildings, and the supervision of the municipal governments. Administratively, the provinces have a governor, vice-governor, provincial board, treasurer, assessor, district auditor, register of deeds, Court of First Instance, superintendent of schools, district engineer, and health officer. Except for the provincial board, however, most of these officials are not under the executive authority of the governor but are representatives of departments and bureaus of the national government.

4. Municipalities: The municipal government is much smaller than the provincial. It has only a mayor, vice-mayor, council, treasurer, secretary, justice of the peace, and police force. Before the development of the barangays as functioning governmental units, the municipality was considered the core of local government in the Philippines. With control over the local police force, local markets, public morality and public works, the municipal government came into closer personal contact with the Filipino people than any other level of government. The provincial government has traditionally been considered the intermediary between the national government and the municipalities and has had "supervisory authority" over the municipality just as the municipality has had over the barangays. In the latter case, more direct control over local affairs appears to have taken place, for each municipal councilor has been traditionally responsible for the supervision of a barangay. Recently, attempts have been made to give the barangays, through their captains, more influence in the municipal councils.

5. Chartered Cities: Cities have usually been created from municipalities which were relatively heavily populated and had comparatively high incomes, although there are no fixed standards for granting city charters. Makati, for instance, recently requested independence from Rizal Province and city status, but was denied. The new Constitution (January 1973) states that only "highly urbanized" cities will be allowed to become independent of their provinces. The new local government code establishes detailed criteria for defining highly urbanized cities and for creating, abolishing, merging, or altering boundaries.

6. Cities are governed by their charters, while provinces and municipalities are governed by the provincial and municipal codes as amended by several acts and decrees: the Revised Administrative Code (1917), the Local Autonomy Act (1959), and the Decentralization Act (1967). These acts have increased the functions and powers, especially taxing powers, of all local government units, including cities. Because of the highly centralized government structure, however, national officials, particularly the president, exercise considerable power at all levels.

7. The provisions regarding city departments or offices are generally the same in all city charters. They cover the city mayor; vice-mayor; 1/

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1/ The Mayor and Vice-Mayor are both elected at large by qualified voters of the city for a term of four years.

municipal board or city council; 1/ and different city departments, 2/ including those of finance, engineering and public works, law, health, police, fire, and assessments. The main difference among cities relates to the number of departments. For example, only Manila has a Department of Public Service specifically established in the charter. Other offices and agencies rendering services in the cities are extensions of national government bureaus and offices (e.g., the city auditor and the city superintendent of schools). 3/

8. Barrios: Initially, the barangays or barrios 4/ were settlements of 30-100 families located primarily along the coast and rivers. They are believed to have been independent, similar to the ancient Greek city-states. 5/ Under Spanish colonial rule, the barangays were confederated and placed under a revenue official, the cabeza de barangay. The colonial administration gradually became centered in towns or pueblos and the barangays subsequently declined in importance. Under the American colonial administration, the barangays began to emerge as a recognized--though still nominal--form of local government. The Revised Administrative Code (1917) provided for the organization of barrio councils headed by a barrio lieutenant. The members of the council were appointed by the municipal council but had virtually no power. In 1955, the code was amended to provide for an elected barrio council consisting of a barrio lieutenant, one or more vice-lieutenants and three councilmen. The council was given the powers of assembly, representation in the municipal level of government, and authority to pass resolutions affecting the expenditure of barrio funds. 6/

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1/ Councilors are elected either at large or by the district.

2/ City department heads are appointed by either the city mayor or by national officials.

3/ See National Tax Research Center, Delivery and Financing of Services in Metro Manila (Manila, 1974), pp. 26-30.

4/ A barrio or barangay is a group of dwellings that may constitute a hamlet, village, or suburb. Although there is some disagreement over the precise geographical definition of a barangay and a barrio, the terms will be used interchangeably for the purposes of this report.

5/ ILO, Sharing in Development, p. 514.

6/ ILO, Sharing in Development, pp. 514-515.

9. Four years later, in 1959, the Barrio Autonomy Act was passed, which recognized the barrio as a legal entity and expanded its power to include limited taxation for the development of the barrio and the enactment of local ordinances. In 1963, this act was revised and barrio assemblies were organized which could elect a barrio captain and six councilmen for a four-year term. With the development of elected councils and limited local autonomy, the potential for strengthening the barangays was increased. In 1973, the Barangay or Citizens Assemblies were created under Presidential Decree 86 with the idea of further increasing local participation in the affairs of government. 1/ A Barangay-Secretariat was established under the Department of Local Government and Community Development (DLGCD) in February 1973 to handle matters concerning the barangays. 2/

#### Powers of Local Governments

10. A distinctive feature of the Philippine Government's administrative structure is the local governments' lack of power in the area of taxation and financing. Local governments are unduly dependent on national financial aid, though the larger units, particularly the cities, are less so. 3/ The lack of financial independence has been one of the main stumbling blocks to more effective involvement in development on the part of local governments. Local units undertake only a few functions, while the national government, through its field agencies, administers most of the governmental services. The bulk of the resources that local governments do expend come from the national government. Although the objective of the Decentralization Act of 1967 was to promote the autonomy of local government units by providing them with increased powers and resources, local government revenues and expenditures as a percentage of combined national and local government revenues and expenditures have been declining since 1967. From 1967-74, local government revenues declined from 17 to 11 percent of combined government revenues, and expenditures declined from 20 to 15 percent of combined expenditures. 4/

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1/ F.E. Marcos, Notes on the New Society of the Philippines (n.p., 1973), p. 72.

2/ The responsibilities of the Barangay-Secretariat include settling barangay disputes; holding local referendums; overseeing the rice distribution system in August and September when supplies are low; organizing barangay medical councils; and implementing the rationing programs for DLGCD.

3/ For a discussion of the barrios' access to resources, see Chapter 4.

4/ R.M. Bird, D. Shimori, and R.S. Smith, "Taxes and Tax Reform in the Philippines," restricted circulation draft of the International Monetary Fund (Washington, 1974), pp. 248-250.

11. It does not appear that the major reforms in local government taxation which were introduced in 1973 <sup>1/</sup> have provided local governments with significantly more autonomy. Presidential Decree 752, however, authorizes local governments to borrow from public financial institutions for priority development projects such as power plants, public markets, waterworks, irrigation, communication, and housing, as well as for budgetary needs. This represents an important step in the direction of increased financial responsibility for local governments. Moreover, it provides a mechanism whereby the national government can obtain external resources and lend them to local governments. The Mission believes that foreign donors should consider supporting projects undertaken by local governments using this mechanism. Of course, care will be needed to ensure that the flow of resources to local governments does not outstrip their capacity to use them prudently and to repay them. This will mean closer attention to proper accounting procedures among local governments than has been the case in the past.

12. The shortage of trained personnel in local and municipal government, their lack of financial resources, and their limited expenditure powers have been important constraints to development. One of the more important programs designed to help overcome these difficulties is the Provincial Development Assistance Project (PDAP), which was begun in the late 1960s. This project is supported by the USAID and is now being implemented in cooperation with the DLGCD. The program has been focusing on infrastructure (primarily roads and small irrigation systems), development planning, fiscal management, and tax administration. At the end of 1974, it covered 23 out of a total of 72 provinces. The PDAP program is being extended to five more provinces each year and to the municipal level.

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<sup>1/</sup> These reforms are discussed in Chapter 10.

TECHNICAL NOTE II

Definitions and Populations of Urban Areas <sup>1/</sup>

1. The degree of urbanization of a nation is usually defined as the proportion of the population resident in urban places. The definition of what is urban in the Philippines, however, has changed over time. In the 1948 census, the urban population included all persons living in poblaciones, or central districts, of chartered cities and provincial capitals, plus the population living in all poblaciones in all municipalities and municipal districts. This census definition embraced only a small portion of the population of certain cities, but it included the entire population in poblaciones, many of which were nearly as rural in character as the barrios. In 1948 more than half of these poblaciones had fewer than 2,500 inhabitants.
2. The definition of urban areas was expanded in 1956 to include the entire areas of chartered cities and municipalities, including the provincial capitals and Metropolitan Manila. Metropolitan Manila included Manila City and its suburbs, i.e., the cities of Quezon, Pasay, and Caloocan, and the municipalities of San Juan, Mandalyuon, Makati, and Paranaque.
3. To overcome the limitations of the earlier definitions, which still classified as urban many populations living in quite rural conditions, the following criteria were established in 1963:
  - (i) All municipal jurisdictions (whether or not designated chartered cities or provincial capitals) were urban that had a density of at least 1,000 persons per square kilometer, but the whole of Quezon, Baguio, and Cebu cities were included regardless of the minimum density rule.
  - (ii) For all other cities and municipalities with a density of at least 500 persons per square kilometer, only the poblacion (regardless of population size) plus any barrio having at least 2,500 inhabitants and any barrio contiguous to the poblacion with at least 1,000 inhabitants were regarded as urban.
  - (iii) For all other cities and municipalities with a population of at least 20,000 persons, only the poblacion (regardless of population size) and all barrios contiguous to the poblacion and having at least 2,500 inhabitants were urban.

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<sup>1/</sup> Much of the information for this technical note is taken from Tito A. Mijares and Francisco V. Nazaret, The Growth of Urban Population in the Philippines and its Perspectives, BCS Technical Paper No. 5 (Manila: Bureau of the Census and Statistics, n.d.).

- (iv) All other poblaciones having a population of at least 2,500 inhabitants were urban.

4. According to the above criteria, 1,599 places were classified as urban in 1960. Of these, 38 percent had populations of less than 2,500. Doubts were raised as to the suitability of minimum population and density criteria when so many places classified as urban were still small and primarily rural and the density ratio was not employed for the barrios inasmuch as barrio boundaries were not known.

5. In 1970 the census definition of urban areas was again changed to include criteria related to the functions of urban centers, particularly their economic and social activities. It established the following criteria:

- (i) In their entirety, all cities and municipalities that had a population density of at least 1,000 persons per square kilometer;
- (ii) Poblaciones or central districts of municipalities and cities that had a population density of at least 500 persons per square kilometer;
- (iii) Poblaciones or central districts not included in (i) and (ii) - regardless of population size - that had the following:
  - (a) a street pattern with either a parallel or right angle orientation;
  - (b) at least six establishments (commercial, manufacturing, recreational, and/or personal services);
  - (c) at least three of the following:
    - (1) a town hall or chapel where religious services were held at least once a month;
    - (2) a public park, plaza, or cemetery;
    - (3) a market place or building where trading activities were carried on at least once a week;
    - (4) a public building such as a school, hospital, or health center.

- (iv) Barrios having at least 1,000 inhabitants which met the conditions set forth in (iii) above and in which the occupation of the inhabitants was predominantly nonfarming/fishing.

6. The essential difference between the various definitions of urban areas is that the criteria of density, minimum size, and administrative center were used in the earlier two censuses, while in 1970, the density rule was combined with urban characteristics. There were 2,406 areas classified as urban in 1970. 1/ If the 1960 definition were applied to the 1970 population, 2,349 areas would be included. The new definition included 246 more poblaciones and city districts than the old definition, although 189 more barrios were included under the old definition. This is because according to the new definition, "urban" poblaciones and city districts included not only persons residing in a city, municipality or municipal district with a population density of not less than 500, but also those living in places with urban characteristics irrespective of population size.

#### Definitions of Metropolitan Manila

7. The definitions that have been used over time to delimit the MMA have also varied greatly. This has occurred in part because different national agencies, such as those dealing with transportation, water supply, sewerage and drainage, have geared their definitions of the metropolitan area to their particular needs and the purpose of their studies. 2/ As a result, there are at least 8 definitions of Metropolitan Manila which are in use (Table II.1 and Map 3.2). In terms of population, land area, and number of overlapping jurisdictions, these definitions are quite different. The one which is used most frequently in this report is that defined in 1970 by the Bureau of Census and Statistics, which is the most rigorously defined of the concepts used in Manila. It includes 5 chartered cities (Manila, Quezon, Caloocan, Pasay and Cavite) and 23 municipalities, 3/ selected according to the following criteria:

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- 1/ Among these places, 1,164 had populations of less than 2,500.
  - 2/ See, for example, Manila Bay Metropolitan Region Strategic Plan, Various Definitions of Metropolitan Manila Area, Planning and Project Development Office, Department of Public Works, Transportation, and Communications (Manila, April 6, 1973), p. 1.
  - 3/ Makati, Mandaluyong, Navotas, San Juan, Malabon, Pasig, Marikina, Paranaque, Pateros, Cainta, Las Pinas, Muntinglupa, Taguig, Taytay, Bacoor, Kawit, Noveleta, Rosario, Meycauayan, Valenzuela, Binan, San Pedro and Santa Rosa.

- (a) the city or municipality must be contiguous to "Manila and suburbs" or adjoining an intermediate city or municipality of qualifying population density (i.e. greater than 1,000 persons per square kilometer), and must show evidence of "strong integration," economically and socially, with Manila and suburbs;
- (b) the city or municipality must be "urban in its entirety," in accordance with the BCS definition of urban areas; and
- (c) at least 75 percent of the labor force of the city or municipality must be engaged in nonagricultural occupations.

Table 3.I Definitions of Metropolitan Manila <sup>a/</sup>

Definition	Total Population 1970 (In thousands)	Number of Local Governments	Area (km <sup>2</sup> )	Population Density	Description
(1) Manila City <sup>b/</sup>	1,331	1	38	34,765	
(2) Manila and Suburbs	3,168	8	343	9,236	Definition (1) plus Quezon City, Pasay City, Caloocan City, and the municipalities of Makati, Mandaluyong, Paranaque, and San Juan in Rizal.
(3) Manila Metropolitan Area (MMA) as defined by the Metropolitan Mayors' Coordination Council (MMCC)	3,821	14	545	7,008	Definition (2) plus the municipalities of Pasig, Navotas, Las Pinas, Marikina and Malabon in Rizal and Valenzuela in Bulacan
(4) MMA as defined in MMA Transportation Study	3,996	19	699	5,717	Definition (3) plus the municipalities of Pateros, and Taguig in Rizal and Meycauayan, Marilao, and Obando in Bulacan.
(5) MMA as defined by Metropolitan Waterworks and Sewerage System (MWSS)	4,019	20	1,016	3,956	Definition (3) Plus the municipalities of Pateros Taguig, Taytay, Cainta, San Mateo and Montalban in Rizal
(6) MMA as defined by the Board of Investments (BOI)	4,340	26	828	5,242	Definition (3) plus Cavite City and the municipalities of Pateros, Taguig, Taytay, Cainta and Muntinglupa in Rizal; Binan and San Pedro in Laguna; Bacoor, Noveleta and Kawit in Cavite and Meycauayan in Bulacan
(7) MMA as defined in 1970 by the Bureau of Census and Statistics (BCS) and as used in this report	4,404	28	871	5,056	Definition (6) plus Rosario in Cavite and Sta. Rosa in Laguna
(8) MMA as defined by the Manila Bay Metropolitan Region Strategic Plan (MBMRSP)	4,786	40	2,328	2,056	Definition (6) plus Angono, Antipolo, Binangonan, San Mateo and Montalban in Rizal; Cabuyao Calamba in Laguna; Carmona and Imus in Cavite; and Obando, Marilao and San Jose in Bulacan
(9) Manila Bay Metropolitan Region as defined by (MBMRSP)	8,625	188	18,051	478	Definition (1) plus all the cities (11) and municipalities (176) in the provinces of Bataan, Batangas, Cavite, Laguna, Bulacan, Zambales, Rizal, and Pampanga

<sup>a/</sup> A Metro Manila Commission was recently created which includes the cities and municipalities listed in Definition (3) plus the municipalities of Pateros, Taguig, and Muntinlupa. See Map 3.2 in main text.

<sup>b/</sup> This is not, strictly speaking, a definition of Metropolitan Manila; however, it is the starting point from which all other definitions are derived.

Chapter 4

PROFILE OF THE RURAL SECTOR

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Chapter 4

PROFILE OF THE RURAL SECTOR

A. Characteristics of the Rural Population

Population Growth

4.01 The proportion of the population in rural areas of the Philippines has declined from about 78 percent in the late 1940s to about 71 percent in 1975. (Table 4.1). During this period, the rural population increased at an average rate of 2.7 percent a year, from 15 million in 1948 to 30 million in 1975. As in other developing countries, the natural rate of population growth in the Philippines is higher in rural than in urban areas; in 1970, for example, the rate of natural increase among the rural population was about 3.2 percent. Since the rural population has been growing at about 2.7 percent a year, this would indicate an annual rural-urban migration rate of about 0.5 percent. The Mission estimates that the growth rate of the rural population will decline to about 1.6 percent by 1985, reflecting a decline in the natural rate of increase to about 2.7 percent and an increase in the rural-urban migration rate to about 1.1 percent a year.<sup>1/</sup>

Income Distribution

4.02 During 1961-71, rural incomes probably increased by about 4.5 percent a year and by 1971 the average family income in rural areas was about P 4,400 (US\$680), or about 75 percent of the national average. Since 1956, however, there has been a deterioration in the distribution of incomes among the rural population as measured by the Gini coefficient, which increased by 21 percent between 1957 and 1971. (Table 4.2) The share of reported income going to the 40 percent of families with the lowest incomes fell sharply, from 18 percent in 1957 to only 13 percent in 1971, while the share of the top 20 percent of families with the highest incomes increased from 46 percent to 51 percent. These figures suggest that the incomes of the families in the lowest 40 percentile were growing very slowly - by less than one percent a year in real terms. However, in view of the problem of understatement of income, <sup>2/</sup> it is not clear that these were the actual trends.

4.03 A somewhat more balanced picture can be obtained from an analysis of changes in the distribution of family expenditures. In terms of expenditures, there was only a slight deterioration in the share of expenditures for the lowest 40 percent over the period 1961 to 1971; thus, consumption among the lowest 40 percent of the families probably increased by more than two percent per annum in real terms. The Mission's view is that levels of living probably improved somewhat for the lowest income groups in the rural areas, but not as fast as for groups higher in the income distribution scale.

<sup>1/</sup> See Chapter 7 for a discussion of population growth.

<sup>2/</sup> See Chapter 3, page 9, footnote 3.

Table 4.1. Distribution of Population between Urban and Rural Areas, 1948-74  
(In thousands)

	Total Population	Total Urban	Rural Population			
			Total Rural	Farming	Fishing and Forestry	Other Rural
1948	19,234	4,298	14,936	11,436	850	2,650
1949	19,790	4,468	15,322	11,678	875	2,769
1950	20,362	4,644	15,718	11,922	902	2,894
1951	20,950	4,828	16,122	12,168	930	3,024
1952	21,555	5,018	16,537	12,419	958	3,160
1953	22,179	5,217	16,962	12,674	986	3,302
1954	22,820	5,423	17,397	12,932	1,015	3,450
1955	23,479	5,637	17,842	13,192	1,045	3,605
1956	24,158	5,860	18,298	13,454	1,076	3,768
1957	24,855	6,091	18,764	13,718	1,108	3,938
1958	25,574	6,332	19,242	13,985	1,141	4,116
1959	26,313	6,585	19,728	14,253	1,175	4,300
1960	27,088	6,861	20,227	14,522	1,210	4,495
1961	27,920	7,134	20,786	14,871	1,220	4,695
1962	28,777	7,418	21,359	15,224	1,230	4,905
1963	29,660	7,713	21,947	15,587	1,235	5,125
1964	30,570	8,020	22,550	15,955	1,240	5,355
1965	31,510	8,339	23,171	16,326	1,250	5,595
1966	32,476	8,671	23,805	16,648	1,307	5,850
1967	33,473	9,016	24,457	16,977	1,367	6,113
1968	34,501	9,375	25,126	17,310	1,429	6,387
1969	35,560	9,749	25,811	17,645	1,494	6,672
1970	36,684	10,140	26,544	18,009	1,565	6,970
1971	37,901	10,546	27,355	18,440	1,635	7,280
1972	38,991	10,967	28,024	18,709	1,710	7,605
1973	40,122	11,406	28,716	18,985	1,787	7,944
1974	41,297	11,862	29,435	19,270	1,867	8,298
1975	42,495	12,335	30,160	19,560	1,950	8,650

Note: "Total Urban" is urban population as reported by BCS reduced by 16 percent to eliminate that proportion of population classified as urban but engaged in agriculture (as revealed by BCS labor force surveys). "Rural Total" is difference between total population and total urban. Benchmark years are 1948, 1960, and 1970; other years are by interpolation or extrapolation, except 1971-74 national totals from the medium projection of the National Census and Statistics Office.

Sources: National Economic and Development Authority (NEDA), Statistical Yearbook 1975 (Manila, 1975), p. 40; Bureau of Census and Statistics (BCS), The Growth of the Urban Population of the Philippines and its Perspective (Manila, 1973), p. 23; Mercedes B. Concepcion, "110 Millions by the Year 2001," Philippine Sociological Review 18 (July-October 1970), p.216; Ernesto M. Pernia, "The Philippine Urban Structure", Research Note No. 25 (University of the Philippines Population Institute, Table 3; World Bank, Manila Urban Sector Survey (Development Economics Department, restricted circulation Memorandum, 1974), Ch. 2, p. 7; National Census and Statistics Office (NCSO), Age and Sex Population Projections for the Philippines (Manila, 1974), p. 34.

Table 4.2: Indicators of Income Consumption and Expenditure in Rural Areas, 1956, 1961, and 1965 and 1971

Category	1957		1961		1965		1971	
	Total	Rural	Total	Rural	Total	Rural	Total	Rural
Quintile of families (percentage of total family income)	<u>Percentage Distribution of Income</u>							
Lowest 20 percent	4.5	7.0	4.2	5.9	3.5	5.0	3.7	4.4
Second 20 percent	8.1	11.1	7.9	11.8	8.0	9.5	8.2	8.9
Third 20 percent	12.4	14.7	12.1	13.5	12.8	15.3	13.2	13.9
Fourth 20 percent	19.8	21.1	19.3	21.9	20.2	23.0	21.0	21.8
Top 20 percent	55.1	46.1	56.4	46.9	55.4	47.2	53.9	51.0
Top 10 percent	39.4	30.1	41.0	31.1	40.0	30.0	36.9	34.4
	<u>Percentage Distribution of Household Consumption Expenditures</u>							
Lowest 20 percent	5.05	n.a.	5.98	7.52	5.65	6.79	5.92	6.92
Second 20 percent	9.03	n.a.	10.32	12.65	10.25	12.23	10.18	12.08
Third 20 percent	13.02	n.a.	14.68	16.93	14.57	16.87	14.76	13.66
Fourth 20 percent	20.03	n.a.	21.03	22.97	21.10	23.20	21.98	22.45
Top 20 percent	52.88	n.a.	47.98	39.94	48.43	40.91	47.16	43.00
Top 10 percent	35.42	n.a.	31.66	24.30	32.49	24.29	30.81	26.71
Top 5 percent	23.38	n.a.	21.00	15.29	21.43	15.06	19.37	16.74
Gini Coefficient	0.48	0.38	0.50	0.40	0.51	0.42	0.49	0.46

Source: BCS, family income and expenditure surveys for various years.

While the income and expenditure data indicate the number of families in the lowest 40 percentile which can be found in the rural areas, they do not establish satisfactorily the extent to which conditions of rural poverty actually exist. Using the concept of a "minimum needs" budget as set out in Chapter 7 <sup>1/</sup> and adjusting this budget for cost of living differences between urban and rural areas, the Mission estimates that in 1971 about one-half of all families in the rural areas had incomes below that required to provide adequate nutrition and other essentials of life. Using the same concept, the Mission estimates that over 80 percent of the total number of families in the Philippines which fall below the minimum needs budget are located in the rural areas.

4.04 Although it is not possible to determine from existing income and expenditure data on the Philippines a precise link between poverty, income, and access to services, it is possible to establish some of the characteristics of those in the bottom 40 percent of the national income profile. Approximately 90 percent of the lowest 40 percent, or 14 million people, reside in rural areas (Table 4.3). About half of all people in rural areas are in this group, whereas only 15 percent of those in urban areas are included. Most of these people are engaged in farming and a substantial minority have important secondary earnings from nonagricultural sources. Very few families are either totally dependent on agriculture as a source of income or, alternatively, receive no income at all from agriculture. For very poor rural families (those reporting incomes of P 1,000 or less), who accounted for 22 percent of the total in 1971, fishing activities are a more important source of income than either agricultural or nonagricultural wages. In terms of geographical location, the rural population in the bottom 40 percent is concentrated in the Eastern Visayas, Southwest Mindanao, and Bicol.

4.05 The income and expenditure surveys do not provide data about the relationship between income levels and type of farming activities. However, in 1971-72, there were about one million rice farmers harvesting an average of 0.88 hectares of rice per farm. Even assuming yields on these farms were as high as the national average for HYV rice farms under irrigation, these farms would have only provided an average gross income of about P 1,000 (US\$150) per farm at 1972 prices. After allowing for a substantial amount of income from other crops (with the possible exception of sugar) and nonfarm

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<sup>1/</sup> In Chapter 7, P 650 per capita is given as the average threshold income for the Philippines, that is, the minimum amount needed to provide an adequate diet and other essential needs. This income level, however, is not adequate for comparing minimum needs in urban and rural areas where living costs differ significantly. Different threshold incomes were estimated, therefore, for Metropolitan Manila, other urban areas, and rural areas. This was done by using the Philippine-wide estimate of P 650 as a base and applying it to the cost of living factors implicitly derived by Lucinda Abrera, "Philippine Poverty Thresholds," in Development Academy of the Philippines, Measuring Philippine Welfare: Social Indicators Project (1975), chap. 5.

sources, it would seem that a majority of these farm families would still have gross incomes that would place them among the poorest in rural areas. Lack of current data about the corn and coconut farms precludes any further breakdown, but it is believed that most of the other 400,000 self-employed farm families (Table 4.3) probably operate corn and coconut farms, with roughly equal numbers of each. At the same time, it should be noted that many small rice (and some corn) farms grow sugar as a second crop, which gives a high gross income per hectare. Sugar growing is probably an important source of supplemental income for many small farmers who are able to take advantage of their proximity to sugar centrals. This is perhaps the main explanation for the fact that in 1960, at least, sugar was grown on a large number of farms not classified as sugar farms.

Table 4.3 Rural Families Classified by Level and Main Source of Income, 1971

Families	Families in Lower 40 Percent		Families in Upper 60 Percent		Total Families	
	Thou- sands	Percent	Thou- sand	Percent	Thou- sands	Percent
Rural	<u>2,439</u>	<u>90.0</u>	<u>2,332</u>	<u>60.5</u>	<u>4,771</u>	<u>72.6</u>
Farming	1,756	64.8	1,208	31.2	2,964	45.1
Self-employed	1,409	52.0	852	22.1	2,261	34.4
Wage labor	347	12.8	356	9.1	703	10.7
Forestry and fishing	165	6.1	117	3.0	282	4.3
Other occupations	388	14.3	900	23.4	1,288	19.6
Self-employed	190	7.0	231	5.9	421	6.4
Wage labor	198	7.3	669	17.5	867	13.2
Other sources	130	4.8	107	2.9	237	3.6
Agricultural rents	54	2.0	31	0.9	85	1.3
Other	76	2.8	76	2.0	152	2.3
Total Urban and Rural families	<u>2,710</u>	<u>100.0</u>	<u>3,862</u>	<u>100.0</u>	<u>6,572</u>	<u>100.0</u>

Note: The data presented here and in Table 4.4 were adjusted in two ways. First, all urban households reporting their main earnings from agriculture, forestry, and fishing were shifted into the rural category. Second, to allow for the fact that the surveys underestimate the national population, the number of families in each group was increased using the following ratios: for 1961, 1.0879; for 1965, 1.0403; and for 1971, 1.0355.

Source: Based on BCS, Survey of Households Bulletin, 34 (1971) and 22 (1965), and on Philippine Statistical Survey of Households Bulletin, 14 (1961).

Employment

4.06 Production in the rural sector is dominated by agriculture, forestry, and fishing; other economic activities including mining, small-scale manufacturing (mainly for local markets) and a range of service industries. Farming is, of course, the main rural activity, and in 1975 almost 20 million people depended directly on it for their main source of income. The majority of the population in agriculture are self-employed. As Table 4.4 indicates, there were almost 3 million families depending primarily on farming for their livelihood in 1971, and of these, 2.3 million were self-employed.

Table 4.4 Number of Rural Families Classified by Main Source of Income

Families	1961		1965		1971	
	Thou- sands	Percent	Thou- sands	Percent	Thou- sands	Percent
Rural	<u>3,550</u>	<u>73.7</u>	<u>4,000</u>	<u>74.6</u>	<u>4,771</u>	<u>72.6</u>
Farming	2,500	51.9	2,663	49.1	2,964	45.1
Self-employed	2,056	42.7	2,118	39.5	2,261	34.4
Wage labor	444	9.2	515	9.6	703	10.7
Forestry and fishing	217	4.5	215	4.0	282	4.3
Other occupations	664	13.8	998	18.6	1,288	19.6
Self-employed	221	4.6	391	7.3	421	6.4
Wage labor	443	9.2	607	11.3	867	13.2
Other sources	169	3.5	154	2.9	237	3.6
Agricultural rents	49	1.0	85	1.6	85	1.3
Other	120	2.5	69	1.3	152	2.3
Total urban and rural families	<u>4,815</u>	<u>100.0</u>	<u>5,363</u>	<u>100.0</u>	<u>6,572</u>	<u>100.0</u>

Source: See Table 4.3.

4.07 Data indicating the size of the rural population primarily dependent on agricultural wages as a source of income appear to be contradictory. According to the labor force survey conducted by the Bureau of Census and Statistics (BCS), wage and salary employment in agriculture has remained relatively stable over the past one and one-half decades. In 1961, for example, there were about 920,000 laborers, in 1971 about 840,000, and in 1974 about 1 million.<sup>1/</sup> Data from the Family Income Expenditure surveys

<sup>1/</sup> Wage employment in sugarcane farming, currently estimated at about 400,000 workers, accounts for a major part of this group.

(Table 4.4), on the other hand, suggest that the number of families primarily dependent on agricultural wages rose from about 440,000 in 1961 to 700,000 in 1971. This increase of about 60 percent is at variance with the labor force data unless, of course, the average number of laborers per family had declined to about 1.5 by 1971. At this stage we cannot say whether there has been a significant increase in the number of "landless" laborers employed in agriculture since there are no data about the extent to which these families also operate farms. However, the problem does not appear to be as acute as in some other countries such as India and Indonesia.

4.08 What is surprising, perhaps, is the growing importance of non-agricultural economic activities in rural areas. Between 1961 and 1971, the number of families engaged in nonagricultural activities grew by about 5.6 percent a year, while the number of families dependent on agriculture grew at only 1.7 percent. It is estimated that agricultural employment (excluding fishing and forestry), which has historically grown at about 2.0 percent, will expand by about 1.7 percent a year for the next decade. This would mean that about 7.5 million people, or 38 percent of the total labor force, would be employed in agriculture by 1985. With the farm population growing at about 1.4 percent, this suggests that a total population of about 22.5 million may depend primarily on farming for a livelihood in 1985. The Mission also believes that nonfarm employment will increase by about 4.5 percent a year, which would imply a total nonfarm population of about 15.0 million people in 1985. Thus, the proportion of the total rural population depending primarily on incomes from nonfarm employment would rise from about 35 percent in 1975 to 40 percent in 1985.

#### Agriculture and the Structure of Farming

4.09 Farming activities in the Philippines are dominated by the cultivation of rice, corn, and coconuts; in 1960, these farms accounted for almost 80 percent of all farms, 86 percent of the farm population, and 77 percent of the physical farm area. Their relative importance has not changed significantly since then, and at present about 16 million people probably depend primarily on the cultivation of these crops for their main source of income. Moreover, as discussed above, it is on these farms that the majority of the low-income households in rural areas are to be found. Other farming activities, including sugar, abaca, and livestock production, account for the remaining farm population. The nonfarm population directly dependent on fishing and forestry amounts to another 2 million people.

4.10 The 1960 census provides information on the characteristics of farming in the Philippines. Since then, there have been important structural changes because of the effects of rapid population growth and a decreasing potential for expanding the area of land under cultivation. Because comprehensive data on farm characteristics are not yet available from the 1970 census, this report has attempted to reconstruct possible changes since 1960 from a variety of sources. Although some of the specific details reported below may be modified when more accurate information becomes available, the Mission believes the broad outline of trends over the past decade

is probably accurate. One further word of caution is needed. When discussing farming in the Philippines, it is customary to talk about rice farms, corn farms, coconut farms, and so on. While the report adheres to this convention, it should be noted that more than one kind of crop is cultivated on many of these farms, and that quite a few rice, sugar, or coconut farms would probably be more aptly described as mixed farming enterprises. As an illustration, there were only 18,000 so-called "sugar" farms in the Philippines in 1960, but sugar was grown on 53,000 farms. <sup>1/</sup>

4.11 From the standpoint of the contribution to value added and to employment, the cultivation of rice has been the single most important economic activity in the Philippines. According to the 1960 census, there were 1.46 million farms cultivating rice, which accounted for 68 percent of all farms in the Philippines and which covered a total area of 2.7 million hectares of paddy. Of the farms cultivating rice, 1.04 million, or 71 percent, were exclusively rice farms; these rice farms also accounted for about 80 percent of the total rice area and 84 percent of total rice production in 1960. The rest of the rice output came from coconut, corn, and other farms. The degree of specialization in rice cultivation was especially noticeable among the lowland rice farms. Located mainly in the major river basins of the Philippines, these farms accounted for 86 percent of the total lowland production. Upland farming, in contrast, was more diversified; one-third of upland rice production in 1960 was accounted for by farms other than rice farms.

4.12 Another important characteristic of Philippine agriculture has been the dominance of small farms in most cropping activities. In 1960, 74 percent of all farms were less than 4 hectares in size and 41 percent were under 2 hectares. Very small farms of less than one hectare included many which engaged in such speciality items as poultry, hogs, and fruit. On

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<sup>1/</sup> According to the 1960 census of agriculture, a farm consisted of one or more parcels of land irrespective of ownership, which could be located in different barrios or even in different municipalities. The farms were enumerated in the districts where the farm operators resided. When a parcel of land with one owner was divided among and operated separately by several tenants, the land actually cultivated by each tenant was enumerated as one farm. On the other hand, separate farms operated by different members of a household were reported together as one farm. A crop farm is typed according to the particular crop occupying 50 percent or more the cultivated area of the farm. Between two temporary crops usually covering 50 percent or more of the tilled area, priority was given to the one that contributed most to total farm production and the value of output. See Bureau of Census and Statistics, Census of the Philippines, 1960: Agriculture (Manila, May 1965), Vol. II.

farms of 1 to 4 hectares, the three major crops - rice, corn, and coconuts - accounted for 65-70 percent of the total value of output. However, farms below 4 hectares in area accounted for only 35 percent of the total farm area in 1960, and those under 2 hectares for only 12 percent. Although less than 1 percent of the farms were more than 24 hectares in size, they accounted for 16 percent of the area in 1960 (Table 4.5).

4.13 There have been some important changes in terms of farm size distribution since 1960, and, to a considerable extent, these changes reflect the effects of growing population pressures on the limited amount of arable land available. Perhaps the nature of the change is best illustrated in rice farming. The Bureau of Agricultural Economics estimates that in 1972 there were 1.69 million rice farms cultivating about 2.63 million hectares. <sup>1/</sup> This estimate suggests that the number of rice farms increased at a little more than 4 percent a year during 1960-72, but the area cultivated grew by only 1.7 percent a year. Average farm size must have declined by about 2.4 percent a year, indicating that many of the farms in existence in 1960 have been subdivided into smaller units. The Mission suspects that it is not just coincidence that the decline in the average cultivated area per rice farm is about the same as the growth rate of the farm population during this period (about 2.2 percent). However, the decline in the average area cultivated per farm has been almost exactly offset by an annual increase of about 2.7 percent in average rice yields per hectare since 1960.

4.14 The dominant role of small farmers in rice growing is most dramatically illustrated by recent data on farm size distribution. In 1960 about 77 percent of all rice farms were less than 4 hectares in size, but by 1972, according to data from the Bureau of Agricultural Economics, 94 percent of all rice farms were less than 4 hectares in size and almost 70 percent were less than 2 hectares (Table 4.6). Moreover, the area of rice being cultivated on rice farms larger than 7 hectares in size was only about 3 percent of the total cultivated rice area. In other words, large rice farms were not a significant feature of the rice industry by 1972. Their virtual disappearance, especially in densely populated regions like Central Luzon, appears to have been the result of the subdivision of farm land in the face of a rapidly expanding farm population, although some of the larger farms may have switched to more profitable sugar growing. This process of subdivision has potentially important implications for farm incomes and for the design of programs to raise land productivity.

4.15 There is not much information available about the current structure of corn farming, but there were probably about 500,000 corn farms in 1972. In the more densely populated regions which are major corn growing areas, such as the Visayas and Southern Tagalog, the process of farm subdivision described for rice has probably also occurred

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<sup>1/</sup> No data was available for nonrice farms growing rice, but the total area harvested in 1971/72 was about 3,250,000 hectares, suggesting that these farms cultivated about 600,000 hectares.

Table 4.5 Distribution of Farms by Major Crop, Size, and Tenancy, 1960

Category	Rice		Corn		Coconut		Others		Total	
	Number <u>a/</u>	Area <u>b/</u>	Number a/	Area b/	Number a/	Area b/	Number a/	Area b/	Number a/	Area b/
<b>Hectares</b>										
Less than 2.0 hectares	426.0	463.0	206.8	200.7	138.9	147.7	120.2	108.6	891.9	920.0
2.0 - 3.9 "	382.0	963.0	104.4	255.4	140.2	358.8	84.8	220.3	711.4	1,797.5
4.0 - 6.9 "	122.6	609.5	33.0	166.3	71.2	371.7	41.4	220.1	268.2	1,367.6
7.0 - 9.9 "	72.6	454.9	21.7	135.4	49.0	318.5	30.5	198.4	173.8	1,107.2
10.0 - 23.9 "	35.6	436.6	12.1	147.9	36.0	470.8	23.6	299.5	107.3	1,354.8
24.0 hectares and above	3.1	185.1	0.8	43.6	4.9	271.1	4.8	725.6	13.6	1,255.4
Total	1,041.9	3,112.1	378.8	949.3	233.1	1,938.6	354.8	1,772.5	2,166.2	7,772.5
<b>Tenancy</b>										
Owner	385.2	1,399.6	136.6	481.7	266.6	1,222.7	179.3	1,029.3	967.7	4,133.3
Partowner	164.6	528.2	47.8	144.6	55.9	268.7	42.5	198.5	310.9	1,140.0
Tenant	479.1	1,089.3	191.7	303.2	115.4	388.6	78.3	219.1	864.5	2,000.0
Other	13.1	95.0	2.7	19.8	2.3	58.6	5.1	325.6	23.1	499.0
Total	1,041.9	3,112.1	378.8	949.3	440.2	1,938.6	305.2	1,772.5	2,166.2	7,772.5
<b>Percentage Composition</b>										
<b>Hectares</b>										
Less than 2.0 hectares	40.9	14.9	54.6	21.1	31.6	7.6	39.4	6.1	41.2	11.8
2.0 - 3.9	36.7	30.9	27.6	26.9	31.8	18.5	27.8	12.4	32.8	23.1
4.0 - 6.9 "	11.7	19.6	8.7	17.5	16.2	19.2	13.5	12.4	12.4	17.6
7.0 - 9.9 "	7.0	14.6	5.7	14.3	11.1	16.4	10.0	11.2	8.0	14.3
10.0 - 23.9 "	3.4	14.0	3.2	15.6	8.2	24.3	7.7	16.9	5.0	17.4
24.0 hectares and above	0.3	6.0	0.2	4.6	1.1	14.0	1.6	41.0	0.6	15.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Tenancy</b>										
Owner	37.0	44.9	36.1	50.8	60.6	63.1	58.7	58.1	44.7	53.2
Partowner	15.8	17.0	12.6	15.2	12.7	13.9	14.0	11.2	14.3	14.7
Tenant	46.0	35.0	50.6	31.9	26.2	20.0	25.6	12.4	39.9	25.7
Other	1.3	3.1	0.7	2.1	0.5	3.0	1.7	18.3	1.1	6.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a/ In thousands.

b/ In thousands of hectares.

Source: BCS, Census of the Philippines, 1960: Agriculture (Manila, May 1965), vol. 2.

for corn. However, in Mindanao, where there has been expansion in the corn area cultivated, the average size of corn farms has probably not changed as much. In the case of coconuts, the area planted has doubled, expanding from 1.1 million hectares in 1960 to 2.2 million hectares in 1974. Some of this expansion has undoubtedly taken place on coconut farms which existed in 1960, but a large number of new farms have also been established, especially in Mindanao. By 1972 there were probably about 520,000 coconut farms, with a dependent population of perhaps 3 million people.

4.16 In contrast to the smallholder-dominated rice, corn, and coconut sectors, the sugar industry is dominated by large estates. In 1960, for example, farms larger than 100 hectares accounted for 50 percent of the total sugar area cultivated and 56 percent of the industry's output. Yet only about 1 percent of the farms were in this category. On the other hand, 78 percent of all farms growing sugar were less than 4 hectares in size, but these farms accounted for only 19 percent of the cultivated area and 15 percent of the output. As these data suggest, yields on the large sugar farms were almost 40 percent higher than those on the small farms in 1960, contrary to rice farms, where yields were higher on the smaller farms. The only recent data about the size distribution of sugar farms are for crop year 1972/73. The available information suggests some dramatic changes since 1960, with a substantial increase in the number of sugar farms of 10.0 to 99.9 hectares in size. In 1960 this group accounted for about 8 percent of the sugar farms and 19 percent of the cultivated area; by 1973, they accounted for about 28 percent of the farms, and probably for most of the 260,000 hectare growth in the cultivated area that has occurred since 1960. At the same time, there has been a sharp drop in the relative importance of sugar farms of less than 5 hectares in size. This increase in medium-sized sugar farms may have stemmed from the conversion of medium-sized rice farms (and perhaps corn farms) in the 1960s, when the Philippine quota in the United States market increased and the relative profitability of sugar cultivation grew as a result of the 1960-62 exchange rate adjustments.

4.17 Another important characteristic of Philippine agriculture is the pervasiveness of farm tenancy. In 1960, for example, about 865,000 farms, or 40 percent of all farms in the Philippines, were operated by tenants. This was one of the highest farm tenancy rates in Asia. These farms accounted for only 26 percent of the total farm area, the average size of tenanted farms being relatively low. The incidence of tenancy is highest among rice and corn farms, and these accounted for about 77 percent of all tenant farms in 1960 (Table 4.5). In terms of regional distribution, the highest incidence of tenancy was found in Central Luzon and Southern Tagalog, which are both important rice growing areas. Despite the apparently rapid subdivision of rice farms as a result of the burgeoning rural population, this process did not lead to a higher rate of tenancy in rice farming areas. By 1972 the number of tenant-operated rice and corn farms had increased to about one million. This suggests that about 45 percent of all rice and corn farms were operated by tenants in 1972, which is about

Table 4.6 Size Distribution and Tenure of Farms Cultivating Rice, 1960 and 1972

Category	All Farms Growing Rice, 1960			Farms With Rice as a Major Crop					
	Area Planted			1960			1972		
	Number <u>a/</u>	With Rice <u>b/</u>	Average Area <u>c/</u>	Number <u>a/</u>	With Rice <u>b/</u>	Average Area <u>c/</u>	Number <u>a/</u>	With Rice <u>b/</u>	Average Area <u>c/</u>
<u>Hectares</u>									
0 - 1.9 hectares	526.7	496.8	0.94	425.9	397.7	0.93	1,161.8	1,024.4	0.88
2.0 - 3.9 hectares	524.0	966.6	1.84	382.0	800.5	2.10	422.0	1,019.4	2.42
4.0 - 6.9 hectares	201.6	519.4	2.58	122.6	415.1	3.39	92.1	436.8	4.74
7.0 - 9.9 hectares	130.3	350.8	2.69	72.6	279.7	3.85	10.1	78.8	7.80
10.0 - 23.9 hectares	75.9	270.0	3.56	35.3	216.3	6.13	4.2	53.8	12.81
24.0 hectares and above	9.9	126.8	12.86	3.5	100.5	29.05	0.4	19.5	48.75
Total	1,468.4	2,730.4	1.86	1,041.9	2,209.9	2.12	1,690.6	2,632.7	1.56
<u>Tenancy</u>									
Owner	614.4	1,077.7	1.75	385.2	772.9	2.01	665.1	988.8	1.49
Part-owner	240.1	463.4	1.93	164.6	359.8	2.19	299.1	490.9	1.64
Tenant	596.9	1,123.8	1.88	479.1	1,023.7	2.14	726.4	1,143.3	1.57
Other	17.0	65.5	3.86	13.0	53.4	4.11	n.a.	n.a.	n.a.
Total	1,468.4	2,730.4	1.86	1,041.9	2,209.9	2.12	1,690.6	2,632.7	1.56

a/ In thousands of farms.

b/ In thousands of hectares, based on Mission calculations and 1960 agricultural census.

c/ In hectares.

Source: 1960 data from BCS; 1972 data from the Bureau of Agricultural Economics (BAECON).

the same rate of tenancy as in 1960. Because of the dominant position of the large sugar estates, about half of the sugar production in 1960 came from owner-operated farms. Tenant-operated sugar farms (as distinct from tenant-operated farms growing sugar) accounted for almost 70 percent of the sugar farms in 1960 but probably accounted for only about 20 percent of the cultivated area and output. There are no current data about the extent of tenancy in the sugar industry, but the number of tenants is probably small in comparison to rice, corn, and coconut farms.

#### Rural Industries and Services

4.18 Data from the BCS labor force surveys, which provide the best indication of the employment activities of the population, suggest that the population engaged in nonfarm employment depends on a variety of industrial, commercial, and service occupations for a livelihood. Industrial activity is the most important in terms of employment, accounting for about 40 percent of the rural labor force not engaged in agriculture, forestry, and fishing in 1973. The next most important source of employment is commerce (about 26 percent in 1973), and then government (about 13 percent). The remaining 21 percent of the labor force in 1973 was employed in a variety of occupations, including transportation, domestic, personal, and other services. The important point that these data reveal is that the nonfarm rural population is primarily engaged in service-type occupations.

4.19 The rural population engaged in industry and services is closely linked with, and, in fact, arises in response to, the needs of the farm households. There are probably few backward or forward linkages among these local activities. They typically produce for final household demand, utilizing raw materials and inputs of nonlocal origin. Producer goods production is not typically found among these activities, since a larger-than-local market is usually required to support such production. Of course, this type of production may exist in some locations, but agricultural activity among the rural population is essentially dependent on the level of agricultural incomes in the area, rather than on the demand from a nonlocal market. Moreover, the Mission suspects that the average income of the nonfarm families is closely linked to that of the farm families in each region.

4.20 The relatively rapid growth of the population engaged in service occupations stems partly from the strong demand for services compared to the relatively weak demand for industrial consumer goods among rural households. This pattern of demand is the guiding force in what is an increasingly important structural transformation occurring in rural areas in the Philippines. <sup>1/</sup> The quick growth of the population employed in services has clearly eased the pressures of migration in major urban areas. As the

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<sup>1/</sup> There is relatively little information available about the occupational mobility of the rural population. One study is by C.M.G. Cuento, "Occupational Mobility in the Rural Setting," Journal of Agricultural Economics and Development, Vol. II, No. 2 (July 1972), pp. 352-376.

previous analysis indicated, rapid expansion of the rural nonfarm population will probably continue; an increasingly important policy issue for the future will be the employment prospects for this group.

4.21 Even though employment in service occupations in rural areas has grown fairly rapidly in the past decade, the rural population generally does not enjoy the same level of access to such services as education, health, and family planning as the urban population. Elementary education, which is free, is supported by the national government and is virtually universal in rural as well as in urban areas. Secondary schools, which are provided by the private sector or by provincial, city, and municipal governments, are found chiefly in the larger cities and provincial capitals. In some rural areas the citizens have established "barrio high schools," but these schools are often of poor quality because of inadequate finances. The nationwide secondary enrollment ratio of 50 percent probably represents enrollment ratios of about 70 percent in urban areas and 40 percent in rural areas.

4.22 Aside from childhood malnutrition, the chief diseases found in the rural areas are pneumonia, tuberculosis, and gastrointestinal diseases. In some rural areas, notably the Eastern Visayas and Mindanao, malaria and schistosomiasis are also prevalent. The prevalence of these diseases is aggravated by the lack of a clean water supply and sanitary waste disposal facilities. The seriousness of these diseases is magnified by low resistance due to chronic undernutrition. With private medical practice concentrated in urban areas, the Department of Health has set up a network of Rural Health Units (RHUs) to meet the health needs of the rural population. Although the coverage of the network is adequate, many RHUs are in unsatisfactory physical condition, lacking, for example, a full-time staff, electricity, and a clean water supply. Other factors inhibiting rural access to health care are the lack of transportation and cultural values. These latter two factors help explain why family planning was practiced by 28 percent of urban women but only 13 percent of rural women in 1973.

4.23 There is no systematic nutritional evidence available which is disaggregated on an urban/rural basis, and regional data do not show significant correlation between nutrition levels and the degree of urbanization. However, undernutrition has been found to be widespread both in the Tondo area of Manila and in the heavily rural provinces of Ilocos Norte, Romblon, and Leyte. Thus, there appears to be little basis for a judgement that there is an urban/rural difference in the incidence of malnutrition. In terms of the national levels, despite an adequate average intake of calories, about 40 percent of the population suffer from inadequate nutrition in caloric terms. This would mean that about 12 million people in rural areas, many of whom are infants and children, are malnourished.

#### Patterns of Rural Expenditures

4.24 The pattern of demand in rural areas has contributed to the rapid increase in nonfarm employment in those areas during the past decade. Since

future patterns of rural production and employment will be strongly influenced by the consumption preferences of rural households, an understanding of these preferences is important for the subsequent discussion of rural development strategies. Total household expenditures in rural areas probably increased by about 5 percent a year in real terms during 1961-71, and rural households may have accounted for almost 60 percent of total private consumption expenditures in the Philippines in 1971.<sup>1/</sup> Since the rural population was growing at about 2.7 percent a year in that period, per capita expenditures were probably rising at close to 1.5 percent a year.

4.25 As Table 4.7 indicates, food, particularly cereals, is by far the most important item in the rural household budget, accounting for about 61 percent of total expenditures. Alcohol, tobacco, clothing, and consumer durables account for another 14 percent; housing and utilities for 10 percent; and other services for most of the remaining 15 percent. There appears to be a strong demand among rural households for meat and dairy products, miscellaneous food preparations (presumably such items as dry goods), housing, medical services, education, transportation, and other services. These items all have expenditure elasticities greater than unity. <sup>2/</sup>

4.26 One significant feature regarding the rural expenditure pattern is the strong demand and relatively large outlays for many services (e.g., transportation and medical care. There is every reason to expect that this pattern of expenditures will continue in the future and, consequently, the past rapid growth in nonfarm employment among the rural population can also be expected to continue.

4.27 Another noteworthy trend is the decline in the share of the budget allocated to clothing and the relatively stable share devoted to consumer durables. Only about 8 percent of total rural outlays are allocated for these items, but this amount accounts for more than half of total domestic expenditures on these products. The very slow growth in demand in rural areas for these items during the past decade may explain in part the sluggish growth of those industries during the 1960s. The reasons for the slow growth in demand are not clear. In the case of consumer durables, the lack of electricity in most rural areas has probably limited the demand for appliances; the present rural electrification program could provide a stimulus to the demand for these products in the years ahead.

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<sup>1/</sup> BCS, Survey of Households Bulletin, 34 (1971) and Philippine Statistical Survey of Households Bulletin, 14 (1961).

<sup>2/</sup> That is, a one percent increase in total expenditure results in an increase of more than one percent for these items. This is possible because outlays on other items increase by less than one percent (e.g., alcohol and tobacco, utilities, and numerous food items).

Table 4.7 Distribution of Expenditures and Expenditure Elasticities for Rural Families

Expenditure Item	Percentage Distribution of Family Expenditures a/			Estimates of Expenditure Elasticities		
	1961	1965	1971	I b/	II c/	III d/
Food	61.3	62.8	61.5	1.02	.96	.54
Alcohol and tobacco	6.8	5.9	5.9	.70	.85	.84
Clothing	7.6	7.0	6.3	.61	1.14	1.44
Consumer durables	2.2	1.9	2.1	.91	1.20	1.28
Housing	5.6	5.0	6.8	1.39	1.01	
Utilities	4.1	3.7	3.6	.73	.73	2.58
Transport	1.6	1.8	2.0	1.44	1.35	
Medical care	1.6	1.7	1.7	1.13	1.14	1.71
Education	2.2	2.7	3.1	1.68	1.81	.70
Other services	6.1	6.7	6.3	1.06	1.30	
Taxes and gifts	0.9	0.8	0.7	.47	n.a.	
Total	100.0	100.0	100.0			

a/ Data from BCS, Family Income and Expenditure Surveys.

b/ Mission calculation of aggregate expenditure elasticity using ratio of percentage change during 1961-71 on specific items to that of total expenditure, at 1965 constant prices, after first adjusting survey expenditure data to correct for underestimation of population and expenditures.

c/ Unpublished per capita expenditure elasticities estimated by A. Kelly, Duke University, and J. Williamson, University of Wisconsin, from BCS, Family Income and Expenditure Survey, 1965. Elasticities are derived from a log-linear expenditure function for all commodity groups except alcohol and tobacco and education, which were from linear expenditure functions.

d/ Data from Edita A. Tan and Gwendolyn R. Tecson, "Patterns of Consumption in the Philippines," Institute of Economic Development and Research, University of the Philippines, Discussion Paper No. 74-9, July 15, 1974. Estimates used a double log expenditure function.

## B. Policies Affecting Rural Development

4.28 An important question which needs to be considered is the potential impact of the Government's present rural development strategy <sup>1/</sup> on the distribution of incomes in the rural sector. As suggested in Chapter 2, average output per laborer in agriculture will probably grow more slowly than the national average. Changes in the relative position of average farm incomes will depend on the behavior of agriculture's terms of trade and on the Government's fiscal policies, particularly on the taxation of agricultural commodities. The future direction of the internal terms of trade is difficult to project; however, the task of increasing food production in line with domestic demand will not be easy; to the extent that there are shortfalls, the terms of trade could be expected to continue moving in favor of agriculture and, in particular, the food sector. This could partly offset the projected relative decline in output per laborer in agriculture. The outcome will also be influenced by the likely impact of continued rapid growth in nonfarm employment in rural areas, as well as by the success of the public programs to expand services to the rural population.

4.29 Within the rural sector itself, there appear to be opposing forces at work that will influence the distribution of growth benefits. On the one hand, the intensification process that is needed to successfully increase agricultural production will probably benefit only a limited number of farmers. On the other, some asset redistribution is occurring within the rural sector as a result of the Government's program of agrarian reform which plans to convert all rice and corn tenant-farmers into leaseholders or amortizing owners. This program will have a significant impact on the incomes of many individual tenant farmers, but the amount of the income transfer from landlords to tenants is, at present productivity levels, very small in relation to total rural income; thus, the impact of the program on distribution within the rural sector will be negligible for some years to come. In the longer term, the redistribution effect could be quite significant if the land reform is rigorously implemented and is supported by major efforts to increase production on small farms. More effective taxation of agricultural land could also have a significant redistributive impact; however, as discussed below, the present heavy reliance on agricultural export taxation will need to be gradually reduced by more effective taxation on agricultural land or incomes.

4.30 On balance, the Mission believes that, for the rest of the 1970s and perhaps for a period in the 1980s, it is unlikely that there will be any improvement in the distribution of incomes in the rural sector. The Mission does not suggest that the situation will necessarily deteriorate any further, but without stronger policy measures than are presently being contemplated, the currently uneven distribution of incomes both within rural areas and between rural and urban areas will probably persist.

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<sup>1/</sup> See Chapter 5.

Agrarian Reform <sup>1/</sup>

4.31 Because of the history of peasant unrest in the Philippines and the high incidence of tenancy, especially in Central Luzon, there has been a long-standing Government commitment to land reform programs. Prior to 1972, the Government's efforts focused primarily on rent reductions and the conversion of sharecroppers to leaseholders. Little progress was made in the implementation of the reforms, primarily because of landlord opposition, insufficient financing, and poor administration. In 1972, the entire country was declared a land reform area <sup>2/</sup> and tenants on rice and corn land were deemed owners of the land they cultivated. An ambitious program, <sup>3/</sup> the reform will potentially cover about 956,000 tenants, 431,000 landlords, and about 1.5 million hectares.

4.32 The rationale for land reform has been based on two major pre-mises: (a) that it would help raise productivity by providing the incentive of ownership to former tenants, and (b) that the program would have an important beneficial impact on the distribution of incomes in rural areas. The implications of a change in tenure status for farm productivity are not clear, but there is some evidence to suggest that, by itself, a change in tenure status may have little, if any, effect on output. For example, surveys conducted in Central Luzon indicate that there is little or no difference in productivity between a tenanted and an owner-cultivated farm. <sup>4/</sup> The real constraint on productivity is the supply of supporting services and access to irrigation. Significant changes in yields will depend on improving the access of farmer tenants to these production inputs. Recognizing that a change from tenant to owner status would mean the loss of landlord support (e.g., in terms of supplying credit, seeds, and other inputs), the Government has been making a vigorous effort to provide the necessary services through a newly organized cooperative movement and programs of supervised credit - Masagana 99 (for rice farmers) and Masaganang Maisan (for corn farmers). The Government decreed that a prerequisite for transferring land titles to tenants was membership in a recognized farmers' cooperative, which would provide the reform beneficiaries with marketing facilities, credit, and

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<sup>1/</sup> A more complete discussion of agrarian reform is given in Appendix I of this report.

<sup>2/</sup> While the entire country was declared a land reform area in Presidential Decree 2, the 1963 Agrarian Reform Code remains the basic land reform law. The 1963 Code technically applies to all crops except tree crops such as coconuts and sugar. Tree crops are covered by Republic Act 1199 (1954), which was amended in 1959.

<sup>3/</sup> In Taiwan, which is often cited as an example of a successful land reform, the program covered an area (144,000 hectares) which is only one-tenth the size of the land reform area in the Philippines, with about one-fifth the number of tenants (195,000) and about one-quarter the number of landlords (106,000). The entire program was carried out over a five-year period, from 1949 to 1954.

<sup>4/</sup> See the study by Mahar Mangahas, Virginia A. Miralao, and Romana P. de los Reyes, Tenants, Lessees, Owners: Welfare Implications of Tenure Changes, (Manila: Institute of Philippine Culture, 1974).

other production inputs. Attempts to revive the cooperative movement appear to be making progress, but much more needs to be done to ensure that the tenant farmers receive the necessary supporting services.

4.33 While a change in tenure status per se would probably not affect farm productivity, it could have a significant impact on the incomes of individual tenants. Assuming that there is no difference in productivity and that incomes are affected only by changes in annual payments for the land, the income of a sharecropper who had become an amortizing owner could be increased by as much as 80 percent in terms of present value over a 30-year period. In other words, an amortizing owner's income in real terms could be double that of a sharecropper's after 15 years.

4.34 Implementation of the present land reform could benefit between 6-7 million people, or almost one-quarter of the entire rural population. Existing data also suggests that as many as two-thirds of all tenant family incomes fall into the bottom 40 percent of the national income distribution scale. The above calculations of potential increases in tenant income from land reform make a strong case for pressing forward with the present program. However, these calculations do not take production into account. There is very little detailed information available on the agricultural conditions of tenanted rice and corn farms - that is, the extent to which they are **covered by supporting services, their average yields, and the amount of area irrigated** (though the last is estimated to be about 40 percent of the 1.5 million hectares under the program). If the productivity of the farms could be raised through improved supporting services, the long-term impact of the reform would be even more significant.

#### Terms of Trade Between Urban and Rural Areas

4.35 It is important for rural development that the overall relationship between input and output prices within agriculture, and the terms of trade between agriculture and other sectors of the economy, should be such as to stimulate growth in production. The Government has, from time to time, pursued specific policies with respect to individual agricultural commodities, <sup>1/</sup> but it has not adopted any overall policy with respect to agricultural prices and the terms of trade.

4.36 Nevertheless, there have been rather distinctive movements in the prices of agricultural products relative to those of other sectors (Table 4.8). Prior to 1960, there was a tendency towards a slight improvement in the terms of trade for the nonagricultural sector (or urban sector, as it will be loosely referred to below). Since about 1960, this trend has been reversed in a rather dramatic way. Owing partly to shortfalls of food supply as a consequence of the relative stagnation in agriculture, and partly to a rapid increase in demand resulting from rapid urban population growth, the urban sector's terms of trade have steadily worsened. During 1960-74, the terms of trade for the food-producing sector in agriculture improved by a massive 70 percent, or at an average rate of 3.7 percent a

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<sup>1/</sup> These are discussed in Chapter 5.

Table 4.8 Terms of Trade of the Agricultural and Food Sectors  
(1965 = 100.0)

Year	Agricultural Terms of Trade			Food Terms of Trade		
	Agricultural Prices	Non-Agricultural Prices	Terms of Trade	Food Prices	Nonfood Prices	Terms of Trade
1950	78.7	68.2	1.157	72.4	86.5	.837
1951	76.7	69.1	1.110	81.8	88.5	.924
1952	72.3	68.8	1.051	78.5	85.5	.918
1953	68.2	68.3	.999	72.8	83.7	.870
1954	64.3	67.2	.957	70.0	82.3	.851
1955	67.2	65.7	1.023	69.4	81.1	.856
1956	67.9	67.2	1.010	69.9	83.5	.837
1957	69.8	70.0	.997	74.2	84.7	.876
1958	69.3	72.5	.956	76.2	85.7	.890
1959	70.8	73.6	.962	70.5	87.2	.808
1960	73.9	77.4	.955	75.2	89.0	.845
1961	75.3	80.4	.937	80.5	90.5	.890
1962	82.2	85.6	.960	79.5	93.1	.854
1963	90.7	92.2	.984	88.7	95.4	.930
1964	96.0	95.9	1.001	97.6	97.7	.999
1965	100.0	100.0	1.000	100.0	100.0	1.000
1966	106.4	105.9	1.005	111.0	103.5	1.072
1967	116.4	110.6	1.052	113.2	106.4	1.064
1968	126.8	114.8	1.105	113.2	108.6	1.042
1969	140.3	119.1	1.178	114.5	110.9	1.032
1970	161.7	135.7	1.192	138.2	127.1	1.087
1971	199.0	150.3	1.324	175.7	142.3	1.235
1972	222.7	163.3	1.364	203.0	151.1	1.343
1973	250.3	188.1	1.331	228.5	168.2	1.359
1974	344.4	245.4	1.403	322.4	227.8	1.415

Note: The agricultural price index is the implicit price deflator for net domestic value added by agriculture, forestry, and fishing. The price index for the nonagricultural products is the implicit price deflator for net domestic value added by all sectors except agriculture, forestry, and fishing. The food price index is the wholesale price index of locally-produced food for home consumption in Manila. The nonfood price index is the weighted average of consumer price indices for areas outside Manila for clothing, housing, and miscellaneous items, weighted as they enter the combined consumer price index. (Prior to 1957, corresponding items from the Manila consumer price index are used).

Sources: Agricultural sector terms of trade are based on national accounts data which were supplied by the National Economic and Development Authority (NEDA). Food sector terms of trade are based on data supplied by the Central Bank of the Philippines.

year. <sup>1/</sup> That is to say, since the early 1970s, the urban sector has had to pay more for the goods that it has acquired from the agricultural sector. The resultant redistribution of income from urban to rural areas has been important in preventing the disparity between urban and rural incomes from becoming even larger.

4.37 However, this has been a somewhat regressive form of redistribution; the burden has probably fallen most heavily on the lower income groups in urban areas, since they account for a large share of total urban outlays on food and they typically devote a much larger proportion of their budget to purchasing food than do higher income groups. Since the average income of the lower income households in urban areas is not very different from that of many farm families, the redistribution has tended to be from one low income group to another. The equivalent of about 0.5 percent of GNP is currently being transferred to the food-producing sector as a result of this improvement in the terms of trade.

4.38 While it may not be necessary or practical for the Government to adopt an overall policy with respect to the terms of trade between the rural and urban sectors, close attention to some particular aspects will probably be needed. The Government has tried to control increases in the prices of basic foods in order to stabilize the cost of living in urban areas; at the same time, it has recognized that a gradual increase in food prices is necessary to provide production incentives to farmers and to adjust to world market conditions. The recent periods of food shortages, however, have made it difficult for the Government to control price increases and limited public resources have ruled out the possibility of providing subsidies for food production on anything more than an intermittent basis.

4.39 As long as chronic food shortages persist in the Philippines, there will be a tendency for prices of food to rise more rapidly than prices of other products. This problem is probably best dealt with by placing the main emphasis on expanding food production. It is, therefore, essential that the prices received by farmers provide them with sufficient incentives for farmers to adopt the improved technologies and farming practices that will be needed to raise output. This will require closer attention to the interrelationships between product and input prices and to the impact of commodity taxation than has been the case to date. The Mission believes that a unit should be established within one of the Government's departments to undertake a comprehensive analysis of agricultural price policies. The establishment of agrobusiness desks in the office of the Secretary of Agriculture, on which members of the private sector are represented, may help provide the Government with the information necessary to implement effective agriculture price policies.

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<sup>1/</sup> For the agricultural sector as a whole (that is, including nonfood production), the improvement has been almost equally dramatic, with the terms of trade improving by about 2.8 percent a year since 1960.

### Impact of Fiscal Policies on the Rural Sector

4.40 Fiscal policies offer one means of influencing the distribution of growth benefits between urban and rural areas and within the rural sector itself, although the Government has not as yet had any consistent approach to fiscal policy in relation to its rural development strategies. In fact, there is very little information available about the past redistributive impact of Government taxation and expenditure policies as they have affected the rural sector.<sup>1/</sup> The incidence of taxation in the Philippines as a whole is relatively low and regressive. This is probably true for rural areas as much as it is for urban areas; unfortunately, there are no data available about the extent of direct and indirect taxation of rural incomes and wealth. Perhaps the most important forms of taxation of rural incomes have been the taxes on exports of agricultural, forestry, and mineral products that have been in effect since 1970. In FY74, for example, these amounted to almost P1.1 billion, or about 4 percent of the net value added for these sectors.

4.41 Because of the absence of a national system of land taxation and low effective income tax rates, the export tax represents the only significant means of taxing agriculture. This tax has, in the short run, contributed to a more equitable application of the tax system by taxing hitherto untaxed or undertaxed incomes. However, its impact has been uneven, as it is imposed on only a few agricultural activities, particularly sugar and coconut production. While the export tax seems to fall primarily on the return earned by sugar exporters and producers, who are frequently in the upper income groups, the export tax on coconut products, the most important smallholder export crop in the Philippines, has distinct regressive features. In view of the stiff competition of copra with other oils and fats in international markets, it is safe to assume that the tax has been borne mainly by the domestic economy and, given the structure of coconut production, primarily by the smallholders growing coconut. This may hamper the Government's efforts to revitalize this long neglected agricultural subsector.

4.42 One area of fiscal policy that may have a potentially important impact on distribution is the effective taxation of agricultural land. Even if the agrarian reform program is fully implemented, the distribution of agricultural land holdings will continue to be heavily skewed in favor of a relatively small number of owners. Like many other less-developed countries, the Philippines does not have an effective system of taxation of agricultural land; there has been widespread evasion through nominal transfers of land holdings to relatives, by misclassifications of land potential, and by lax collection procedures. A more effective system of agricultural land taxation would offer one means of obtaining a reasonable contribution from the richer members of the rural community without destroying incentives related to agricultural output.

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<sup>1/</sup> See Chapter 10 for a discussion of these issues.

4.43 Another important aspect of fiscal policy as it affects the rural sector is the complex of issues falling under the general heading of cost recovery. In the past, charges have not been imposed to an adequate degree on those benefiting from publicly-financed investment projects or services. Since the amount and quality of many public services provided in rural areas has been low, revenue losses have not been too great and the beneficiary have not received excessive subsidies. However, this situation is likely to change dramatically in the future. For example, to achieve rice self-sufficiency, the Government has an ambitious program to expand irrigation services among farmers; it will be important to ensure that adequate charges are imposed for the irrigation water that is supplied. Moreover, since farmers with irrigation facilities are likely to be one group in the rural community whose incomes could rise relatively rapidly, the Mission believes that it will be even more important to ensure that they pay a reasonable share of the costs of providing this service. The Government is aware of this issue and, in recent years, the charges for irrigation water have been increased with the objective of recovering part of the investment cost; the Government has also been attempting to improve the collection record.<sup>1/</sup>

#### C. Administration and Institutional Development in Rural Areas

4.44 The national government will continue to carry the major responsibility for promoting rural development programs, but local communities could also play a greater role in their implementation. Unfortunately, until recently, the system of public administration in the Philippines did little if anything to foster local initiative. All too often, higher levels of Government were insufficiently informed about local needs, in part the result of over-centralization. The Government is cognizant of this problem and has been attempting to decentralize some of its authority. Administrative reforms should aim at enlarging local responsibility for formulating and administering projects and programs, and at increasing the amount of financial and technical assistance available at the local level to undertake development projects. With the increased emphasis being placed on training local officials and with the gradual expansion of their financial powers, the need for a clearer statement of local government's responsibility will become more urgent. The agency providing technical assistance to local officials is the Department of Local Government and Community Development (DLGCD), which was created in 1972.

4.45 The reorganization and decentralization of the national government which began in 1972 has encountered some resistance from vested interest groups in the Government who are reluctant to relinquish control over resources and some areas of decision-making. In addition, there is the danger that the devolution of fiscal authority may proceed more rapidly than the training of local officials, or that conflicts will arise as the result of overlapping jurisdiction and responsibilities among agencies and levels

<sup>1/</sup> See Chapter 5 for a more detailed discussion of water charges.

of government. All of these problems will need close attention in the future, but they are an inevitable part of any real attempt by the Government to broaden the base of participation.

#### The Role of Provincial and Municipal Government <sup>1/</sup>

4.46 While the national government has indicated an interest in expanding the role of local authorities in development, there do not appear to be any guidelines on precisely what this role should be in the immediate future; even less clear is what their role should be in the more distant future. The situation is further complicated by the presently uneven levels of responsibilities exercised by local governments. In the near future, one area of responsibility that could be given to local authorities is the building and maintenance of local roads. Another area in which there is scope for expanding the services provided by local governments is fishing. Providing such services could be a legitimate activity for local governments. In the case of services such as education, health, and nutrition, the primary responsibility for the time being should probably remain with the national government.

#### Expanding Local Participation: The Role of the Barangays

4.47 More than 99 percent of the almost 34,000 barangays that existed in the Philippines in 1972 were located in rural area; <sup>2/</sup> on the average, they have a population of about 700 to 800 people. It is clear that programs to increase participation by the rural population in the development process, and to improve their incomes and access to services, must necessarily involve the barangays; the history of barangay participation in self-help projects indicates that there is scope for expanding the participation of the barangays in development. ys

4.48 Barrio Access to Resources: Since 1963 the barrios have had the power to tax stores, signboards, cockfights, and to impose a small percent tax on property within the barrio. To date, the barrios have exercised these powers to only a very limited extent. A Government survey of 215 barrios conducted in 1970 indicates that less than 10 percent of the barrio councils attempted to collect revenues. The main reasons given were that the residents of the barrio were too poor or the councils were unaware that they had the power to collect taxes. <sup>3/</sup>

<sup>1/</sup> See Chapter 3, Technical Note I for a more complete discussion of local government.

<sup>2/</sup> A barangay or barrio is a group of dwellings that may constitute a hamlet, village, suburb, or even an urban district. Although there is some disagreement over the precise geographical definition of a barangay and a barrio, the terms will be used interchangeably for the purposes of this report.

<sup>3/</sup> ILO, Sharing in Development, p. 515.

4.49 The second potential source of revenues for the barrios also stemmed from the 1963 Revised Barrio Charter, which entitles barrios to 10 percent of all taxes levied by the provincial and municipal governments on real property located within the barrio. This property tax has also been a meagre source of funds for barrios for at least two reasons. First, a large amount of the land in rural areas does not belong to the residents of the barrios; and second, effective real estate taxes have traditionally been very low, especially in rural areas, so that in many cases the 10 percent share has not been very significant. 1/ More recently, the barrios have been authorized to receive annual contributions provided for in Presidential Decree 144 from each province, city, and municipality in amounts not to exceed P 500 per barrio. However, these allocations are at the discretion of the upper levels of local government; there is nothing automatic or definite about the allocations and, hence, the barrios cannot really plan for their use.

4.50 The traditional source of funds--until 1972 when the DLGCD was created--was the Presidential Arm on Community Development (PACD). Although the PACD allocations were primarily distributed at election time, the program did provide direct support for almost 50,000 self-help projects for the barrios through its grant-in-aid program. As a result of this program, the barrios have shown that, given financial and administrative support, they can organize and carry out small-scale developmental projects. In 1971-72, aside from the PACD projects, the barrios undertook a wide range of additional self-help projects, financing some 85 percent through the provision of voluntary labor, locally available materials, project sites, and cash. 2/

4.51 In January 1972, the PACD was dissolved and the Bureau of Community Development was formed under the DLGCD. The Bureau of Community Development provided funds for projects primarily through grants-in-aid and interest-free loans. Grants-in-aid (in the form of processed material) are provided for self-help projects under the direction of the barrio councils. The barrio is required to supply 50 percent or more of the project costs in the form of manpower, material, and project sites. The Bureau of Community Development provides interest-free loans for such projects as communal irrigation, cottage industries, fisheries, and livestock projects. In-service training and seminars are also carried out by the Bureau to support the self-help projects. In 1973-74 the DLGCD provided about P 5 million for 829 grant-in-aid projects and P 4 million for 2,373 RICDF 3/ projects; the barrios provided P 22 million, or 85 percent, of the total cost for about 157,000 purely self-help projects in the form of materials and labor.

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1/ In 1971, for example, the actual collection of real property taxes was only 55 percent of the collectable amount, and the assessed value of provincial agricultural land was only 39 percent of the "fair market value" in 1967.

2/ ILO, Sharing in Development, pp. 517-518 ;

3/ Rural Improvement and Community Development Funds, released to DLGCD from the Office of the President.

4.52 There are no data available about the total amount of financial resources allocated to the barrios, but it is almost certainly a relatively small amount and irregular in supply. Ways could be found to expand the amount of financial resources and technical expertise available to the barrios for development projects such as local roads, water supply, public buildings, and communal irrigation. However, before there is any significant expansion of barrio participation in rural development programs, a careful assessment is needed of the role of the barrios in relation to the cooperative and farmer organization movements that the Government is vigorously promoting. Since almost all members of the latter groups are barrio residents, there can be very substantial areas of overlapping responsibilities between the barrio representatives and those of the other organizations. This may become an increasingly important area of conflict in the future, and a clearer definition of roles is required.

#### Cooperative Development and Farmer Organizations

4.53 In recent years, the Government has been placing greater emphasis on the rural cooperative movement and on developing farmer organizations. These efforts have included: the requirement that tenant farmers in the agrarian reform program be members of a cooperative; the use of seldas (small joint liability groups) for supervised credit programs; and the organization of various other pilot projects in different parts of the country. As a result of these programs, some kind of farmer organization has now been established in almost every province, municipality, and barrio within the country. Some are profit-making, while others are not; some are registered with Government agencies, while others are independent of the Government. All of these organizations, however, exhibit a similarity of purpose, which is to promote social and economic development for small farmers, and all of them reflect the serious efforts being made by the Government to involve the farmer more closely in the country's political system and economic development.

4.54 Organizations and Membership: At the present time, a large number of different cooperative and farmer organizations exist. 1/ The most important of these in terms of geographical coverage and size of membership

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1/ Although the following is not an exhaustive list, farmer organizations include: FACOMAS, Samahang Nayons, Farmer Barrio Cooperatives, compact farms, seldas, Irrigator Groups, Gen. Ricarte Agricultural Cooperative, Nueva Ecija Integrated Livestock Cooperative Program, Federation of Free Farmers, Filipino Agrarian Reform Movement, Federation of Land Reform Farmers' Association and Philippine Federation of Farmers Association. For a detailed discussion, see Mark A. Van Stenwyk, A Study of Philippine Farmer Organizations, (Manila: USAID, February, 1975).

is the Samahang Nasyon movement, which began in 1973. Some of the farmer organizations have been in operation for many years. With the suppression of the Huk movement in the early 1950s, numerous attempts were made by both the Government and private institutions to establish farmer organizations which would provide supporting services to the rural areas. In 1953, the Government set up the Agricultural Credit and Cooperative Financing Administration (the Agricultural Credit Administration after 1963), which was followed by the rapid expansion of cooperatives throughout the country. During the first three years, 400 Farmers' Cooperative Marketing Associations (FACOMAS) were established. After an initial period of success, the FACOMAS ran into serious difficulties. Management was weak and sometimes dishonest, and Government supervision was inadequate. Delinquencies on loans rose to two-thirds, and four-fifths of the cooperatives lost money.

4.55 Since the agrarian reform program was revitalized in 1972, the cooperative movement has been receiving much greater attention. The Government decreed that a prerequisite for transferring titles to former rice and corn tenants was membership in a recognized farmers' cooperative. To implement this phase of the program, the newly-formed DLGCD began organizing the Samahang Nayons, or Barrio Associations, which have provisional status as cooperatives. Upon the formation of a Samahang Nasyon, the members have two years within which to qualify for registration as part of a full-fledged cooperative at the provincial level. During this time, the members are required to take 65 weeks of educational courses in cooperative principles, agricultural practices, and management. The Samahang Nayons conform roughly to the geographic limits of a barrio and must have a minimum of 25 members. They have a registered corporate status with the right to own or dispose of property and to enter into contracts.

4.56 The formation of Samahang Nayons began in August 1973 and by December 1974, about 16,000 had been organized with a membership of 707,000 or 44 percent of the target membership of 1.6 million. Despite the requirement that recipients of Certificates of Land Transfer <sup>1/</sup> be members of a cooperative, there are indications that less than 40 percent of the tenants affected by the reform have complied. It is too soon to evaluate the effectiveness of the Samahang Nayons, and the organization of a nation-wide cooperative system is clearly in its infant stage. As of March 1975, only one cooperative bank had been registered in the whole country, and it has been encountering stiff opposition from the established rural banks in the area.

4.57 In terms of private institutions, the largest farmer-based organization has been the Federation of Free Farmers (FFF), which was created in 1953 by a group of Catholic laymen. The FFF had only minimal success in expanding its organization during the 1950s and early 1960s, but membership began to increase during the latter half of the 1960s. In 1974, the FFF had organizations in 60 provinces with a membership of about 200,000.

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<sup>1/</sup> See Appendix I.

The main function of the FFF is the provision of legal services to farmers and the development of local leadership through education and training.

4.58 Almost all farmer organizations receive some extension assistance from external sources. The nature and degree of this support varies and often is not adequate to meet the specific needs of the organization. To cite an example, Farmers' Barrio Cooperatives located in the province of Nueva Ecija were receiving technical extension assistance from Department of Agrarian Reform technicians. While these technicians were well schooled in land reform policies, they lacked education and experience having to do with the technical aspects of agriculture and, consequently, their extension services in the area proved ineffective.

4.59 Because of the often distant and at times undependable nature of the Government's extension service, farmer organizations are finding it more and more advantageous to organize their own. Samahang Nayons, Farmers' Barrio Cooperatives, and many compact farms have plans for such internal extension support. While members and committees within some of these organizations have already been designated to perform this role, much time and energy in the form of education and training will be needed before these intra-organizational extension agents become functional. Thus, an important issue which needs to be considered is where priorities should be placed in providing the nation's farmers with more effective extension services.

4.60 Functions Performed by Organizations: For the most part, the various farmer organizations provide one or both of the following services: the supply and distribution of production inputs, and processing and marketing members' products. While some organizations, such as the Farmers' Barrio Cooperatives have developed elaborate cooperative structures to procure and funnel agricultural production inputs to farmer members, other organizations, like seldas, maintain only a loosely knit distribution channel, relying heavily on outside sources (either rural banks or private dealers) for input procurement. This has, on occasion, caused a conflict of interest where members of a selda or compact farm who are also members of a Farmers' Barrio Cooperative or Samahang Nayon have been required by a credit source (e.g., a rural bank) to purchase production inputs from another source as a precondition for credit assistance. To avoid such conflicts, credit institutions such as rural banks should not only coordinate more closely with Seldas but should also become more closely associated with the production needs and services of larger organizations such as Samahang Nayons which may exist in a given area. Where effective and complementary systems for input supply and distribution have been established between various farmer organizations occupying the same or overlapping areas, greater economic benefits and stronger organizational structures have resulted.

4.61 The degree to which a farmer organization may become involved with marketing activities varies. Farmers' Barrio Cooperatives in Nueva Ecija, for example, process and market portions of members' produce through their

jointly federated Area Marketing Cooperative. This system is similar to the federated grain processing and marketing facilities being developed by Samahang Nayons in limited target areas within the country. Smaller farmer organizations, such as seldas and compact farms, generally serve only as assembly or collection points for marketing. Actual marketing may be done either through other larger organizational structures, such as Farmers' Barrio Cooperatives or Samahang Nayons, when they are present, or through private marketing channels.

4.62 Unnecessary conflicts and duplication of services do exist among farmer organizations to a degree which could be considered detrimental to their functional capabilities. While there may not be an immediate solution to the problem of coordinating the activities of farmer organizations, the need for some kind of regulatory system in the future seems clear. In considering such a measure, however, attention will have to be given to regional differences which could have an important bearing on the type of local organization that is likely to be most effective. The apparent lack of cooperation between government agencies responsible for rural and agricultural development only serves to exacerbate the spirit of competition which appears to dominate much of the organizations' activities. In fact, to some degree, the duplication of services between organizations is the result of competition rather than the source of it.

4.63 Access to Financial Resources: Many farmer organizations require their members to make financial investments in the form of membership fees and/or annual dues to their respective organizations. In some cases, the members are also required to purchase shares of stock or contribute to special funds. The Samahang Nayons, for example, have a small entrance fee and the members are expected to contribute one cavan per hectare towards the Barrio Guarantee Fund which guarantees amortization payments for members affected by Presidential Decree 27. They must also contribute 5 percent of the value of each production loan received from an institutional source; this 5 percent contribution is then credited to their individual accounts in the Barrio Savings Fund and is used for investment purposes in the barrio. Members in areas serviced by more than one farmer organization complain that their combined obligations to these various groups often become excessive. If allowed to go unchecked, these problems could undermine the very purpose for which the respective organizations were originally created.

4.64 Increasing evidence suggests that farmers who are members of particular farmer organizations are less likely to be dependent on private, noninstitutional credit sources than are farmers who are not members of such organizations. However, conflicts can emerge when credit sources such as rural banks require farmers to market their produce either through their own channels or other designated outlets, such as the National Grains Authority, or private buyers. Again, this may weaken an organization which seeks to offer its members economy of scale marketing advantages. Efforts should, therefore, be made to design better systems for improved coordination between credit institutions and farmer organizations engaged in agricultural marketing in order to insure greater economic returns for the farmer member while, at the same time, minimizing unnecessary duplication of effort and unwarranted competition in service.

### Role of the National Government

4.65 Although efforts are being made to decentralize development planning and implementation, the national government and its line agencies will undoubtedly continue to play a dominant role in the economic development of rural areas. No attempt is made here to provide a comprehensive overview of the many-faceted role the national government is expected to have in the future. The full extent of its involvement becomes apparent from the discussion of individual programs in the subsequent chapters. In brief, however, it should continue to have primary responsibility for public investment in rural areas and for major public services such as education, health, and family planning.

4.66 In addition to programs being administered by individual agencies, the Government has been formulating a growing number of programs that call for combined efforts by more than one agency. Since there is no one agency responsible for coordinating all rural development programs, there is a tendency for these activities to be fragmented and dispersed. The lack of coordination is at times complicated by insufficient knowledge about the location and characteristics of specific rural groups, or about the development potential of key areas. However, efforts are being made to promote more planning and coordination at the regional level with the recently established Regional Development Councils (RDCs).

4.67 One of the important objectives of the reorganization plan that was implemented in 1972 (Presidential Decree 1) was to decentralize the national government's administration. The country was divided into 11 administrative regions with an RDC for each region. Each department of the national government was then asked to reorganize by appointing a director to oversee the department's operations in the region. It is still too early to tell whether this attempt to strengthen planning and administration at the regional level will be more successful than the previous efforts. However, if efforts to expand local participation in development are to succeed, a less centralized national government bureaucracy will be a necessary adjunct. The reason for this is that the national government is likely to control most of the public sector resources allocated for development programs even at the local level. If all decisions about the disposition of these resources have to be referred to Manila, the move to increase local participation will probably be severely circumscribed. Regional representatives of the national government will have to be given a greater voice in the allocation of resources within their regions if the spirit of increased local autonomy is to become a reality.

4.68 The RDCs consist of some of the regional directors of the national government departments and bureaus, the mayors of the chartered cities, and the provincial governors within each region. The chairman is chosen from among the elected representatives, with the National Economic and Development Authority (NEDA) director automatically named as deputy chairman. The council is solely a planning council, with technical planning support provided by

regional NEDA staff. The major task of the RDCs will be to coordinate and integrate all the planning and program implementation activities in their respective regions. This is supposed to be done in close collaboration with the regional offices of different national government implementing agencies and with the various provincial development councils of each region. But one of the weaknesses of the present RDCs is that not all the pertinent national government agencies are represented. For example, representatives of agencies dealing with fisheries, agricultural credit, forestry, agrarian reform, and tourism are not included in the RDCs. On the other hand, if all were included, the RDCs would comprise up to 50 people, which is far too unwieldy a group for effective coordination at the regional level. This situation is of course, symptomatic of the more general problem of excessive fragmentation of administration in the Philippines.

4.69 As a body, the RDCs have no financial resources available to implement any development plans that they may conceive. All budgetary appropriations for regional development must come through the line agencies of the national government or from the provinces or cities. Budgeting by the line agencies is not done on a regional basis, and since the regional directors generally have very little influence on departmental budgets, the regions must largely accept the resources (including manpower) available to them. In effect, the RDCs must plan by persuasion and their role is severely limited by the absence of regional budgets for the line agencies and by an effective mechanism to deal with conflicts in resource allocation at the regional level.

4.70 It appears that the RDCs will not become effective vehicles for regional development unless they are provided with more legal and budgetary authority than at present. These difficulties are recognized by the national government and there has been some discussion of the possibility of a presidential appointment of the RDC Chairman as a Regional Coordinator. Some consideration has also been given to establishing a system of regional budgets among the national government line agencies.



Chapter 5

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Chapter 5

STRATEGIES FOR RURAL DEVELOPMENT

5.01 The rapid growth of the population during the past two and one-half decades, combined with the gradual decline in the amount of new land available for cultivation, has created serious problems for the Philippines. Income distribution among the rural population has been deteriorating, and the average farm size and value added per laborer have been declining. Despite the overwhelmingly rural character of the Philippine economy, most efforts at modernization have been concentrated in urban areas. Government development policies, coupled with the influential role of a small but effective entrepreneurial class, have tended to emphasize capital-intensive and geographically concentrated industrialization at the expense of agricultural and rural improvement. Recently, the Government has recognized the limitations of this approach and has been giving priority to development in the countryside in an effort to correct the past urban bias and its tendency to increase income disparities between urban and rural areas. The Government has focused its efforts on the following objectives: self-sufficiency in food grain production, an improvement in income distribution and nutritional levels, employment opportunities, and increasing agricultural exports in order to improve the balance of payments.

5.02 Until about 1960, agricultural growth was based primarily on an increase in the physical area 1/ of land under cultivation, with relatively little change in technology and total factor productivity. 2/ The harvested area grew by about 4.4 percent a year in the 1950s, in large part as a result of a very rapid increase in the area devoted to food crops, particularly to rice and corn production. This expansion was concentrated on the readily accessible land of major river basins and lowlands.

5.03 By the end of the 1950s, most of the lowlands had been brought under cultivation, which caused a very different pattern of expansion to

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1/ For the purpose of this report, the following definitions will be used: (i) "physical area" refers to the maximum number of hectares which can be cultivated at any one time; (ii) "cropping intensity" is the percentage of the physical area cultivated within a 12 month period (i.e., a one hectare farm which is cultivated for only one season a year has a cropping intensity of 100 percent; a one hectare farm which has one hectare cultivated during the wet season and one-half hectare in the dry season has a cropping intensity of 150 percent); (iii) "cropped area" (or "planted area") is the physical area multiplied by the cropping intensity and covers a 12 month period; (iv) "harvested area" is the amount of the cropped area which is not lost during the growing season as a result of such factors as weather or disease.

2/ For a detailed analysis of the sources of past agricultural output growth, see C. Crisostomo and R. Barker, "Growth Rates of Philippine Agriculture; 1948-1969," The Philippine Economic Journal, First Semester, Vol. XI, No. 1 (1972), pp. 88-148.



occur in the 1960s. The overall rate of land expansion slowed down to 1.5 percent a year in the 1960s, 1/ and the ratio of harvested area to population declined steadily from 0.29 hectares in 1960 to about 0.24 hectares by the beginning of the 1970s. The rate of expansion onto previously un-cultivated land will probably continue to slow down in the future, but the harvested area is expected to maintain its growth rate as a result of the expansion of irrigation and the intensification of land use. It seems likely that the cropped area could grow by about 1.5 percent a year during the next 10 years. By 1985, the cropped area may be about 11 million hectares; even so, this would mean only about 0.20 hectares per person. (Table 5.1).

5.04 While estimates vary as to the amount of cultivable land remaining, it has become clear that increased production and farm incomes must come from widespread growth in yields per hectare and from the cultivation of higher value crops. 2/ The intensification of land use will depend primarily on an expansion of the irrigated area to permit multiple cropping and/or the introduction of new technology such as the high yielding variety seeds (HYVs). While multiple cropping will permit increases in the harvested area, the HYVs have the potential to substantially increase yields per hectare per crop. However, to achieve the best results from HYVs, there must be adequate water control, careful attention to the timing of operations (i.e., planting and harvesting) and improved farming practices including the control of weeds, pests, and disease, and applying the appropriate type and quantity of fertilizer. The introduction and continued use of such practices on a large scale will depend in turn on the development of an effective, well-managed extension program.

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1/ The harvested area of food crops rose by only 0.4 percent a year during the 1960s, but that of export crops grew by almost 5 percent a year, primarily as a result of increases in the area planted with coconuts in upland regions.

2/ An agricultural sector survey undertaken by the World Bank in 1972 concluded that as many as 2.5 million hectares could still be available for cultivation, including about one million hectares of cogon grasslands that are difficult to rehabilitate. See World Bank, Agricultural Sector Survey: Philippines, Report No. 39a-PH (May 2, 1973). More recent calculations by the International Labour Office (ILO) mission indicate higher figures. See ILO, Sharing in Development (Geneva, 1973) p. 457. Most of the remaining large tracts of cultivable land appear to be in the Cagayan Valley, in the Agusan Valley, and in other parts of Mindanao.

Table 5.1: Actual and Projected Harvested Area of Crops  
(In thousands of hectares)

Crop	<u>/a</u>			Mission Projection	
	1950	Actual 1960	1970	1980	1985
Food Crops	<u>3,604</u>	<u>6,160</u>	<u>6,397</u>	<u>7,350</u>	<u>7,650</u>
Rice	2,210	3,278	3,186	3,500	3,700
Corn	909	2,000	2,350	3,000	3,100
Others	485	882	855	850	850
Export and other crops	<u>1,475</u>	<u>1,621</u>	<u>2,590</u>	<u>3,200</u>	<u>3,400</u>
Coconuts	979	1,088	1,926	2,400	2,600
Sugarcane	143	242	384	530	550
Others	353	291	280	270	250
Total	<u>5,079</u>	<u>7,791</u>	<u>8,987</u>	<u>10,550</u>	<u>11,050</u>
Ratio of area harvested to Philippine popul- lation (hectares)	0.25	0.29	0.25	0.22	0.20

/a Based on three year averages of 1949-51, 1959-61, and 1969-71, respectively.

Source: Bureau of Agricultural Economics (BAECON) and Mission estimates.

#### A. Meeting Domestic Food Requirements

##### Increasing Cereal Production

5.05 The record of the Philippines in expanding food production to keep pace with the rapidly growing population during the past three decades has generally been good. Cereals provide most of the calories consumed by the population. In 1974, for example, cereals accounted for about 72 percent of the total; of the cereals consumed, rice provided a little more than half the calories. Domestic production provided most of the food consumed in 1974. It is estimated that demand for food will grow at about 4.0 percent a year during the next decade. (Table 5.2).

5.06 One of the Government's primary development objectives is to achieve self-sufficiency in rice and corn production. Total cereal production expanded by about 3.0 percent a year during the 1950s and 1960s (Table 5.3) but in the early 1970s, adverse weather and plant diseases,

Table 5.2. Actual and Projected Demand for Selected Food Items  
(In thousands of metric tons)

Item	Actual	Mission Projection		Average
	1973	1980	1985	Annual Increase (In percent)
Cereals	<u>5,242</u>	<u>6,624</u>	<u>7,831</u>	<u>3.4</u>
Rice <sup>b/</sup>	3,568 <sup>a/</sup>	4,509	5,329	3.4
Corn <sup>b/</sup>	1,262	1,573	1,842	3.2
Wheat	412	542	660	4.0
Meat and poultry	<u>563</u>	<u>843</u>	<u>1,123</u>	<u>5.9</u>
Pork	359	540	722	6.0
Beef	87	131	175	6.0
Poultry	117	172	226	5.7
Fish and other marine products	1,609	2,089	2,517	3.8
Dairy products	568	799	1,020	5.0
Sugar	738	958	1,155	3.8
Vegetable oil	169	233	293	4.7

<sup>a/</sup> Adjusted downward for a milling rate of 64 percent from the Food Balance Sheet figure of 3,681,000 metric tons, which is based on a milling rate of 66.2 percent.

<sup>b/</sup> Corn grits for human consumption only.

Source: The Philippine Food Balance Sheet, 1973 (Manila, 1975) and Mission estimates.

Table 5.3. Domestic Production and Imports of Cereals, Calendar Years 1953-75  
(In thousands of metric tons)

Year	Milled Rice			Shelled Corn			Wheat	All Cereals		
	Domestic Production	Net Imports	Import Dependence <sup>a/</sup>	Domestic Production	Net Imports	Import Dependence <sup>a/</sup>	Net Imports	Domestic Production	Net Imports	Import Dependence <sup>a/</sup>
1953	2,093	-5	...	745	...	...	171	2,838	166	5.5
1954	2,113	35	1.6	775	...	...	201	2,888	236	7.6
1955	2,143	105	4.7	830	...	...	257	2,981	362	10.8
1956	2,190	43	1.9	901	...	...	225	3,091	268	8.0
1957	2,167	78	3.5	874	11	...	300	3,041	389	11.3
1958	2,279	231	9.2	934	21	...	332	3,213	584	15.4
1959	2,457	-6	...	1,091	-77	-7.6	232	3,548	149	4.3
1960	2,463	-2	...	1,187	-14	-1.2	293	3,650	277	7.0
1961	2,570	188	6.9	1,238	-6	...	347	3,721	529	12.4
1962	2,627	...	...	1,269	...	...	365	3,896	365	8.6
1963	2,605	256	8.9	1,283	7	...	433	3,888	696	15.2
1964	2,613	299	10.3	1,303	7	...	414	3,916	720	15.5
1965	2,690	569	17.5	1,346	6	...	506	4,036	1,081	21.1
1966	2,747	108	3.8	1,407	2	...	495	4,154	605	12.7
1967	2,844	237	7.7	1,481	50	3.3	476	4,325	763	15.0
1968	3,289	-41	1.3	1,537	3	...	525	4,826	487	9.2
1969	3,264	...	...	1,870	29	1.5	505	5,134	534	9.4
1970	3,582	...	...	2,007	...	...	449	5,589	449	7.4
1971	3,496	370	9.6	2,002	83	4.0	485	5,518	936	14.5
1972	3,149	451	12.5	1,920	168	8.0	490	5,069	1,109	18.0
1973	2,870	310	9.7	1,830	100	5.2	504	4,700	914	19.4
1974	3,279 <sup>b/</sup>	168 <sup>b/</sup>	4.9	2,289	110 <sup>b/</sup>	4.8	525	5,568	278	4.8
1975	3,861 <sup>b/</sup>	152 <sup>b/</sup>	3.8	2,568	121 <sup>b/</sup>	4.5	557	6,429	830	12.9

<sup>a/</sup> Dependence is the ratio of imports to total supply.  
<sup>b/</sup> Estimated as of November 1, 1975

Data for 1953-69 are from the Food Balance Sheets of the Philippines as published in various issues of The Statistical Reporter. Data for 1970-72 are from the National Economic and Development Authority, The Philippine Food Balance Sheet, 1971, (Manila, 1973) and The Philippine Food Balance Sheet, 1972 (Manila, 1974). Data for rice and corn in 1973 are from Department of Agriculture, Bureau of Agriculture Economics, Commodity Profiles (Quezon City, 1974). Wheat imports for 1973 are from NEDA Foreign Trade Sector Study (Manila, 1975). Data for 1974 and 1975 are from the Department of Agriculture.

caused production to decline sharply. Imports of cereals increased in 1971-73, with the ratio of imports to total supply rising, as in the mid-1960s, to about 16 percent. In 1974/75, however, both rice and corn production increased and, because of very favorable weather conditions in the latter part of 1975, foodgrain production is expected to reach record levels in crop year 1975/76. As a result of the decline in production during the early 1970s, the Government intensified its efforts to achieve foodgrain self-sufficiency, primarily through supervised credit programs aimed at the small rice and corn farms. These programs and others are examined below.

5.07 Rice: Until the 1960s, increases in rice production were achieved primarily by an expansion of the physical area, which rose from an average of about 2.0 million hectares in the late 1940s to about 3.3 million in 1960. This expansion into new areas, which was strongly promoted by the Government, kept pace with population growth. Since 1960, the harvested area of rice has levelled off to an average of about 3.2 million hectares. National paddy yields, on the other hand, were virtually stagnant until the mid-1960s when they increased from their historic level of about 1.2 metric tons per hectare to about 1.6 metric tons per hectare. This rising trend in yields was due in large part to the spread of HYVs in the irrigated areas. After 1970, with about 60 percent of the irrigated area planted with HYVs, yields tended to level off at a national average of 1.6 metric tons per hectare. The difficulties in realizing significant yield increases have led to a more cautious assessment of the prospects for attaining sustained self-sufficiency in rice.

5.08 In the wake of the disastrous floods and typhoon damage to the main rice crop in 1972/73, the Government launched a program of supervised credit known as "Masagana 99". 1/ In the hope of improving the level of institutional credit, inputs, and technical advice provided to the many small farmers who dominate the industry, this program enjoyed considerable success in the first year; in 1973/74, the Masagana program covered about 36 percent of the total lowland rice area. However, during the second year of the program, 1974/75, a number of difficulties emerged, including inadequate numbers of well-trained production technicians and a low loan repayment rate. In addition, the high farm gate price of fertilizer relative to the price of rice discouraged farmers from applying sufficient levels of fertilizer. 2/ Officials are well aware of the present weaknesses of the program and are taking steps to correct them. Despite these difficulties, supervised credit programs such as Masagana 99

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1/ "Masagana" is a Tagalog word meaning "abundant"; "99" refers to the target yield of 99 cavans (4.4 metric tons) per hectare. See the section on agricultural credit for a more detailed discussion of the program.

2/ See the section on price policies for rice and fertilizer.

have an important role to play in providing much needed supporting services to small farmers. 1/

5.09 It appears possible to meet domestic demand and eliminate imports by 1985 if total rice production expands by about 4.0 percent a year. Because the possibilities of expanding cultivation onto new arable land are severely limited, however, efforts to raise production will have to be concentrated on increasing the irrigated area and on improving yields. The potential for further increases in yields is readily apparent. Average yields in the Philippines continue to be among the lowest in Asia (Table 5.4). The primary reasons for this include an inadequate extension service, a lack of inputs and credit, and inefficient irrigation systems. Although about 40 percent of the harvested area in the Philippines is presently irrigated, since 1970 yields on irrigated areas have averaged only about 2.0 metric tons per hectare. 2/

Table 5.4: Average Annual Yields of Paddy Rice in Selected Countries  
(In kilograms per hectare)

Area	1961-65	1966-70	1971-73
Philippines	1,257	1,510	1,532
Asia	2,048	2,172	2,322
Burma	1,641	1,642	1,695
China (People's Republic of)	2,780	2,928	3,145
Indonesia	1,761	1,910	2,300
Korea (Republic of)	4,111	4,311	4,681
Thailand	1,775	1,818	1,898

Source: Food and Agriculture Organization (FAO), Production Yearbooks 1972 and 1973 (Rome, FAO).

5.10 The potential for raising yields is greatest on irrigated areas planted with HYVs. (Table 5.5). With better water control, improved extension efforts, and adequate supplies of inputs at prices acceptable to farmers, average yields on irrigated areas planted with HYVs could be

1/ The need for a supervised credit program is made more urgent by the disappearance of landlords as a source of production credit due to the agrarian reform.

2/ If the average yields on irrigated areas had been 4.0 metric tons per hectare instead of 2.0 metric tons in 1974/75, the Philippines would have had about a 50 percent increase in rice production in that crop year.

Table 5.5. Actual and Projected Paddy Production, Yields, and Area Harvested

Item	Actual				Projected			
	<sup>a/</sup> 1968-69		<sup>a/</sup> 1971-72		1979-80		1984-85	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
<u>Area harvested (in thousands of hectares)</u>	<u>3,250</u>	<u>100.0</u>	<u>3,146</u>	<u>100.0</u>	<u>3,600</u>	<u>100.0</u>	<u>3,700</u>	<u>100.0</u>
Area with HYVs	1,140	35.1	1,604	51.0	2,700	75.0	3,100	83.8
Irrigated	731	22.5	912	29.0	1,600	44.4	2,000	54.1
Rainfed	409	12.6	692	22.0	1,100	30.6	1,100	29.7
Area without HYVs	2,110	64.9	1,542	49.0	900	25.0	600	16.2
Irrigated	650	20.0	434	13.8	100	2.8	-	-
Rainfed	1,017	31.3	714	22.7	500	13.9	400	10.8
Upland	443	13.6	394	12.5	300	8.3	200	5.4
<u>Yield (in kilograms of paddy per hectare)</u>	<u>1,460</u>	<u>100.0</u>	<u>1,596</u>	<u>100.0</u>	<u>2,007</u>	<u>100.0</u>	<u>2,385</u>	<u>100.0</u>
On HYV Areas								
Irrigated	1,711	117.2	2,046	128.2	2,600	129.5	3,000	125.8
Rainfed	1,298	88.9	1,455	91.2	1,600	79.7	1,750	73.4
On Areas without HYV								
Irrigated	1,701	116.5	1,743	109.2	2,200	109.6	-	-
Rainfed	1,278	87.5	1,392	87.2	1,600	79.7	1,750	73.4
Upland	880	60.3	923	57.8	950	47.3	1,000	41.4
<u>Production (in thousands of metric tons of paddy)</u>	<u>4,746</u>	<u>100.0</u>	<u>5,023</u>	<u>100.0</u>	<u>7,225</u>	<u>100.0</u>	<u>8,825</u>	<u>100.0</u>
Area with HYVs	1,950	41.1	2,893	57.6	5,920	82.0	7,925	89.8
Irrigated	1,419	29.9	1,743	34.7	4,160	57.6	6,000	68.0
Rainfed	531	11.2	1,150	22.9	1,760	24.4	1,925	21.8
Area without HYVs	2,796	58.9	2,130	42.4	1,305	18.0	900	10.2
Irrigated	1,106	23.3	753	15.0	220	3.0	-	-
Rainfed	1,300	27.4	1,015	20.2	800	11.1	700	7.9
Upland	390	8.2	362	7.2	285	3.9	200	2.3

<sup>a/</sup> Based on a three-year average.

Source: Actual data from BAECON; projections by Mission.

increased from the present level of about 2.0 metric tons per hectare to about 2.6 metric tons in 1980 and 3.0 metric tons in 1985 (or a growth rate of about 3 percent a year). The potential for increasing yields on irrigated areas planted with traditional varieties, while less than that for the irrigated HYV areas, could also be substantial. Assuming the same level of improved services, average yields for irrigated areas planted with traditional varieties could be increased from their present level of about 1.7 metric tons per hectare to about 2.2 metric tons in 1980. The extension service should also be increasing its efforts to expand the proportion of the irrigated area planted with HYVs to 100 percent by 1980.

5.11 For lowland rainfed areas, the possibility of achieving significant increases in yields is substantially reduced because of the dependence on weather, the reluctance of farmers to use inputs in such a high risk situation, and technical limitations on optimizing the use of available water. However, with an improved extension service applied to the lowland rainfed areas, it should be possible to increase the growth rate of yields from the historical level of a little more than 1 percent a year to about 2 percent a year by 1980. For upland areas, the potential for increasing yields is much more limited.

5.12 High priority is already being given by the Government to expanding and improving the irrigation systems. As discussed below, it seems likely that the total irrigated harvested area could be expanded by about 650,000 hectares to reach a total of 2.0 million hectares by 1985. Thus, there would be almost a 50 percent increase in the irrigated area by 1985 compared to that in 1971/72. As a proportion of that total harvested area, however, the irrigated area would only rise from about 43 percent in 1971/72 to 53 percent in 1985; about 1.4 million hectares of lowland rice would still be grown under rainfed conditions in 1985. Moreover, attaining the full incremental increase in yields anticipated from the expansion and improvement of the irrigation systems usually does not take place until several years after the construction or rehabilitation has been completed.

5.13 The Government is also increasing its efforts to improve the extension service, but upgrading and expanding the training facilities and improving the quality of management will necessarily have to be a gradual process. Given these constraints, efforts to improve available organizational and managerial resources should probably be concentrated, for the next five years at least, on those areas where the potential to increase yields is greatest: first, on the irrigated HYV areas, and second, on the irrigated areas planted with traditional varieties. <sup>1/</sup> Nonirrigated areas would continue receiving the same level of services as in the past; it should, however, be possible to develop a program to improve the extension capability-based on the experience gained in the irrigated areas - so that

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<sup>1/</sup> Income distribution problems which might result from an initial concentration on the areas with the highest potential could be partly offset by a more aggressive water charge and land tax policy. See the section on irrigation and water management for a more detailed discussion.

Table 5.6. Actual and Projected Production and Consumption of Rice  
(In thousands of metric tons)

Crop Year	Paddy Production	Paddy to be Milled <sup>a/</sup>	Milled Rice Output <sup>b/</sup>	Net Imports	Domestic Consumption <sup>c/</sup>	Change In Commercial Stocks <sup>d/</sup>	Per Capita Consumption (in kilograms)
<u>Actual</u>							
1965	3,992	3,848	2,374	482	2,802	54	89.5
1966	4,073	3,926	2,423	327	2,767	-17	85.8
1967	4,094	3,947	2,435	215	2,575	-75	76.0
1968	4,561	4,397	2,713	119	2,596	236	75.9
1969	4,445	4,285	2,644	...	2,704	-87	76.7
1970	5,233	5,045	3,113	...	3,227	-115	87.7
1971	5,343	5,151	3,178	18	3,272	-76	86.4
1972	5,100	4,916	3,033	620	3,660	-7	93.9
1973	4,415	4,256	2,626	239	2,839	26	70.8
1974	5,594	5,393	3,327	317	3,527	117	85.4
<u>Projected</u>							
1980	7,225	6,965	4,458	...	4,509	-51	93.0
1985	8,825	8,507	5,444	...	5,329	115	96.9

a/ Assumed to be 96.4 percent of production

b/ Assumed to have a recovery rate of 61.7 percent for 1965-74 and 64 percent for 1980 and 1985.

c/ Includes changes in household stocks

d/ Stocks held for sale on the commercial market

Source: Data on paddy production and commercial stocks are from BAECON; imports are from National Grain Authority. Other data are Mission estimates.

the target area could eventually be broadened to include the rainfed areas. If these ambitious yield targets could be achieved, the Philippines would probably be able to meet, on a sustained basis, the demand for rice from domestic production by 1985 (Table 5.6).

5.14 Corn: Corn production has increased at an average rate of about 5.5 percent a year since the early 1960s. Most of the increase occurred in the latter part of the 1960s when output rose by almost 9 percent a year; since 1970 output expansion has slowed to about 5 percent a year. Increases in area cultivated and yields contributed equally to output growth until 1970, but yields have stagnated since that time. During the 1960s and early 1970s, the harvested area of corn increased by an average of about 3 percent a year <sup>1/</sup>. The physical areas of land cropped with corn grew from about 740,000 hectares in 1959/60 to about 1.1 million hectares in 1973/74. Since 1960 there has been a dramatic change in the regional distribution of corn production. More than 60 percent of the increase in output has come from Mindanao which also accounts for about 44 percent of the total harvested area and about 54 percent of total corn production.

5.15 Corn yields in the Philippines, like those for rice, are very low by international standards (Table 5.7). These low yields are due to such factors as the unavailability of disease resistant HYVs, the lack of drying facilities, inadequate seed control, the low level of fertilizer and pesticide use, and the resulting heavy losses from pests and diseases. Another problem is that corn farms are often located in inaccessible and/or geographically scattered areas, which makes extension work difficult. In some of these areas, weather conditions are unfavorable and, consequently, corn production losses during the growing season are often high.

Table 5.7: International Comparison of Average Annual Yields of Corn  
(In kilograms of shelled corn per hectare)

Area	1961-65	1966-70	1971-73
Philippines	660	798	824
Asia	1,652	1,990	1,833
China (People's Republic of)	2,479	2,688	2,798
India	992	1,066	1,039
Indonesia	997	952	1,012
Thailand	1,932	2,094	1,801

Source: FAO, Production Yearbooks, 1972 and 1973.

<sup>1/</sup> In many cases, three crops of corn a year are obtained. According to the 1960 census, the first corn crop accounts for about 40 percent of the harvested area, and the second and third crops each account for about 30 percent of the harvested area.

5.16 In the past two years, the Government has been developing a program of supervised credit for small corn farmers (named Masaganang Maisan) that is modelled on the Masagana 99 program. The first phase of the program, which began in March 1974, failed to have any significant impact on production. There were several reasons for this, including the dilution of effort over all regions, the use of traditional seeds, the poor quality of the available HYV seeds, the misuse of fertilizer, and inadequate storage and drying facilities. The Government has been undertaking measures to overcome these problems. For example, for the second year of the Masaganang Maisan program, the target area was reduced by 30 percent, to about 350,000 hectares (largely concentrated in Mindanao), and a significant increase in yields and production is expected during the next few years.

5.17 By 1980, total domestic demand for corn will probably be in the neighborhood of 2.8 million tons of shelled corn (Table 5.8). In considering the prospects for output expansion to meet this demand, a plausible assumption is that the rate at which new land is brought under corn cultivation during the second half of the 1970s will decrease to an average of perhaps 2 percent a year. The cultivated area should then stabilize in the 1980s, which would imply a harvested area of about 3.1 million hectares from 1979/80 onward. The rate at which yields rise is obviously a matter of conjecture at this stage since it depends largely on the successful development of new corn varieties and Government efforts to provide the necessary supporting services. However, an average increase in yields of 2 percent a year during 1975-80 and 4 percent in 1980-85 should be possible. <sup>1/</sup>

5.18 However, even if yields reach 1,174 kilograms per hectare by 1985, they would still only be about equal to present yields in Indonesia and India, and would only be 65 percent of those in Thailand (Table 5.7). Obviously, the potential exists for much more rapid increases in yields with the new varieties. With a more concerted effort, the Philippines could possibly have an exportable surplus of corn in the 1980s. If attractive export markets could be found, consideration might be given to a program of expanding small farm output specifically for export, which should help increase income opportunities.

#### Expanding the Output of Other Foods

5.19 Because of the relatively high elasticities of products such as meat, poultry, and fish, and the projected increases in the proportion of the total population living in urban centers, there will be a need for a more rapid rise in the marketable surplus of such products over the next decade. Although expanding output will place additional burdens on the institutions responsible for providing the supporting services, it should provide an excellent opportunity for increasing the incomes of many of the small farmers who may not benefit from the previously discussed program to expand rice production.

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<sup>1/</sup> Even with a 4 percent increase between 1980 and 1985, corn yields would only reach a level of about one-quarter of those which can be obtained under experimental conditions.

Table 5.8: Actual and Projected Supply and Consumption of Corn  
(In thousands of metric tons of shelled corn)

Year	Supply			Consumption			
	Production	Imports	Total	Food	Feed	Other	Total
<u>Actual</u>							
1969-70	2,008	...	2,008	1,600	300	108	2,008
1970-71	2,005	...	2,005	1,650	305	50	1,005
1971-72	2,013	...	2,013	1,700	290	23	2,013
1972-73	1,831	90	1,921	1,730	250	- 59	1,921
1973-74	2,289	91	2,380	1,800	300	280	2,380
<u>Projected</u>							
1979-80	2,850	...	2,850	2,174	450	226	2,850
1984-85	3,200	...	3,200	2,545	600	255	3,200

Source: Actual production and import data from the Bureau of Agricultural Economics and National Grain Authority, respectively. The estimates of actual consumption are Mission calculations based on NEDA's National Food Balance Sheets. The projections are Mission calculations as explained in the text.

5.20 Meat and Poultry: The per capita intake of meat and poultry products has not grown significantly over the past decade, and in recent years may even have decreased as a result of their relatively high prices. Although demand has in part shifted to cheaper fish products, the prices of these products have also increased substantially, so that the total consumption of meat, poultry, and fish has decreased since 1970. With the projected recovery in the growth of urban incomes in real terms, however, demand for meat and poultry products could grow at about 6 percent a year in the future. (Table 5.2) Most of the demand during the next decade will probably continue to be for pork, although the relative importance of beef and poultry will also increase.

5.21 To limit the extent to which this anticipated growth in demand for meat depends upon imports, the Government has been placing special emphasis on livestock development. Swine production, in particular, has been given priority. Government programs have concentrated on the improvement of extension services, animal health, artificial insemination services, and research activities. There has also been an increase in the supply of credit for livestock production which has been an important factor in helping farmers to expand production. Government support has also been given to foodgrain and fishmeal production. Although an accurate assessment of these programs is made difficult by conflicting data, in general the country appears to have been fairly successful in meeting the demand for hogs and poultry, while beef production has lagged behind requirements. As a result, there has been a combination of larger beef imports and higher domestic prices.

5.22 There appear to be good opportunities for promoting pork production among small farmers in order to diversify farm output and thereby to increase incomes; the raising of pigs is a well developed, traditional occupation in the rural areas. Although most individual enterprises are small (around 5 to 10 sows), there is considerable experience in pig handling and management. The present pig population, estimated at about 9.7 million, is spread over all the islands and a large proportion of them, some 80-90 percent, are raised and slaughtered in the backyard for home consumption or for sale in local markets. However, commercial piggeries have expanded very fast in the last few years, particularly in Central Luzon and South Cotabato. Consumption of pork is projected to be about 700,000 tons by 1985. This means that nearly 20 million hogs will need to be available for slaughter. To support this level of production, the national herd will have to be expanded by about 7 percent annually during the next decade.

5.23 About 3 million households raise poultry, but 1.2 million are non-farm units which raise birds primarily for home consumption or for sale in local markets. It is estimated that noncommercial units produce about 15 percent of the eggs and 60 percent of the poultry meat consumed in the country. There are a small number of totally integrated farms, with 30,000 to 100,000 broilers or layers, that produce about 10 percent of the total number of eggs and broilers. Most commercial farms, however, have flocks ranging from a few hundred to several thousand birds.

5.24 The trend in commercial poultry production in the Philippines, as elsewhere, is toward larger production units, contract production, and integration of services under centralized management. The motivating force is the feed industry. At present, an estimated 60 to 80 percent of the commercial broilers are produced under contract to feed milling firms or by the milling firms in their own broiler production units. Similar developments in other countries show that integrated firms can rapidly gain control of the poultry, meat, and egg market and independent growers generally have to secure contractual arrangements with a firm in order to market their output.

5.25 The beef industry also offers opportunities to improve incomes of small farmers, particularly in coconut areas where the land is used as pasture. At present more than 80 percent of the 5 million buffalo (or carabao) and 2.2 million beef cattle are found on Luzon and Mindanao. Carabaos are used by small farmers for draft in rice paddies, and are killed when they become too old for work or breeding purposes. The beef from these animals accounts for 60-70 percent of the total beef production. The beef cattle industry (not including carabaos) is characterized mainly by small-holding operations that are divided into four main production systems. One system is hill beef farming, which is an important traditional source of feeder cattle but which usually involves low quality natural pastures. Hill beef farming is practiced most often in Masbate, Mindoro, Northern Mindanao, and the Cagayan Valley and accounts for about 12 percent of the national beef herd.

5.26 Another system is feeder cattle, fattened in backyards by families as a sideline activity. This type of production, which is carried out mainly in Central Luzon and Southern Tagalog, is numerically the most important, accounting for more than 75 percent of cattle of all classes. This form of cattle management has considerable potential both for using under-utilized feed resources and providing additional income for small farmers. The third system is the small, but expanding, feedlot operation using by-products of the banana and sugar industries. Finally, the fourth system and the one with the greatest potential for raising beef output for many small farmers, is cattle grazing under coconut trees on improved pastures. Only about 0.8 million hectares of the coconut area is presently grazed and only 13 percent of the cattle population grazes on such land. The main cattle/coconut areas are in Northern and Eastern Mindanao.

5.27 The key to a viable cattle/coconut enterprise is the establishment and maintenance of high quality pasture which enhances coconut production and provides the basis for achieving high cattle productivity. With pasture improvement and the application of fertilizers, copra production could more than double on the average farm within 7 years and the cattle-carrying capacity of 2 animals per hectare could be achieved within two years. The Government's proposed development program for smallholder operations includes the establishment of strategic livestock markets supported by trading posts connected with the Greater Manila area (the country's largest meat consuming center); livestock extension services using the Samahang Nayan; and purebred bulls for lease to the farmers. The Bureau of Animal Husbandry, in collaboration with the Department of Local Government and Community Development, would be responsible for assisting small farmers in starting backyard cattle breeding and fattening projects.

5.28 Fish and Fishery Products: During the past decade, fisheries production has more than doubled and per capita consumption has increased by almost 50 percent. Retail prices of fish have risen faster since 1960 than any other component of the retail price index of foodstuffs in Manila, although they remain about half those of meat. Most of the recent increases in production have come from the traditional fisheries in the coastal waters, where only a small proportion of the catch enters commercial trade. To meet the demand over the next decade, which is expected to grow at about 4 percent a year (Table 5.2), efforts will be needed to expand commercial marine and inland fisheries production.

5.29 Only rough estimates of total employment in fisheries exist due to the fact that many small fishermen are engaged in other activities such as farming and logging. It is believed, however, that roughly 700,000 persons are employed in fisheries and that about 80 percent are small-scale, traditional fishermen. There are three main types of fisheries in the Philippines: marine fisheries, which include both commercial (marine) and municipal (coastal), and inland fisheries (fishpond operations).

5.30 Commercial fisheries production has been increasing at about 10 percent a year since the early 1950s and was estimated at about 465,000 tons in 1973, or almost 40 percent of the total fish production. The commercial

fishing fleet comprised an estimated 2,500 vessels in 1973, with about 47,000 licensed fishermen. The fleet's activities are restricted to water 12.6 miles beyond the coast or 7 fathoms deep. The fleet is operated by about 1,500 fishing vessel owners and is based primarily near the Greater Manila area and around the Visayan Sea. The Food and Agriculture Organization (FAO) estimates that the potential annual catch from territorial waters is about 1.65 million tons, or more than triple the amount of the present catch.

5.31 Coastal fishing is highly labor-intensive; it employs almost 575,000 persons, and currently accounts for about 640,000 tons of fish per year or 53 percent of the total production. These fishermen generally use nonmotorized, traditional craft which operate near the shore and only during good weather. Municipal fisheries operate at a low level of productivity and, although they supply about one-half of the total fish production, are largely subsistence operations with their catch consumed locally. Moreover, the FAO estimates that the annual municipal catch represents about 80 percent of the potential existing in the coastal waters. Thus, many small municipal fishermen who are limited to coastal fishing by poor equipment and a lack of capital to invest in larger, more durable boats, could also benefit from the large reservoir of untapped resources in marine waters.

5.32 The main problems involved in municipal fishing are the lack of modern equipment, credit at reasonable interest rates, and infrastructure and marketing facilities. About 80 percent of the traditional crafts used for municipal fishing are not motorized and productivity per unit effort for the gear used is low. The lack of adequate facilities for handling and distributing the fish adversely affects the quality of fresh fish for sale. Large boats need to be acquired that have greater catching efficiency and will allow the fishermen to bring the catch to more attractive markets. This would, however, require the availability of medium and long-term credit to finance the purchase of modern equipment. Also, there is a need for more public sector facilities such as municipal wharfs, piers, and shipways.

5.33 While production from inland fishponds currently accounts for only about 10 percent of total fish output, production has risen quite rapidly in recent years. Between 1965 and 1970, fishpond production increased by over 50 percent, with the extension of fishpond area and higher yields making about equal contributions. Production has been estimated at about 100,000 tons per year and has involved primarily milkfish (bangus) for domestic consumption. Annual average yields of 570 kilograms per hectare compare with 300 in Indonesia and 1,700 in the Republic of China. Research results show that average yields could reach about 1,500 kilograms per hectare per annum with improved pond design, appropriate fertilization, pest control, and intensive management of fish populations.

5.34 In 1971, the registered fishpond area was about 175,000 hectares. About one-half of the total fishpond area is leased from the Government under long-term arrangements (up to 25 years and renewable for another 25 years) and the remainder is privately owned. Freshwater pond cultivation is not yet common in the Philippines. The technical base and management

are not as well developed as for brackish water ponds. Shrimp cultivation is under consideration by several research stations, but its large-scale commercial development is not expected at least for another five years.

5.35 The Government has four on-going programs to increase fishery production and marketing: (1) the Fishpond Development Program, which includes stocking inland waters with milkfish, oysters, and carp; technical assistance to help improve yields; research in pond fertilization; pest and disease control; and the leasing of swampland; (2) the Commercial Fishing Development Program, which includes the development of deep water fishing, technical assistance to fishing boat operators, biological and oceanographic research, and the construction of fishing ports and harbors; (3) the Municipal Fishing Program, which provides extension services, credit, and marketing facilities to subsistence farmers; and (4) the Fish and Fishery Products Utilization Program, which includes research, extension services for processing and marketing, and the construction of ice plants and cold storage facilities.

5.36 Included in the Government's program is the development of "family-size" fishponds for long-term leasing to qualified participants in the land reform areas; the objective is to establish modern fishpond villages run on a cooperative basis with Government supervision and financial assistance. Greater attention, however, should be given to providing assistance for the majority of small municipal fishermen. While this would require a substantial investment by the Government, it would benefit a significant number of families with incomes that are now in the lowest 40 percent bracket of the national income distribution.

#### B. Prospects for Agricultural Exports

5.37 Agricultural export production is dominated by the coconut and sugar industries; a wide range of other crops such as abaca, tobacco, bananas and pineapples are produced on a much smaller scale. The sector is characterized by a variety of organizational forms, ranging from the dominant position of the plantations in sugar, banana, and pineapple production, to the smallholder-dominated coconut industry. Agricultural exports account for an overwhelming share of foreign exchange earnings but their share has been declining. They presently account for half of all export receipts, compared to about 85 percent in 1950 and 70 percent in 1960. This downward trend will probably continue, even though by 1985. agricultural exports could still account for one-third of total export earnings. In addition to their importance in the balance of payments, agricultural exports currently represent 11 percent of GNP and are the main source of income and employment for about 20 percent of the total farm population. Moreover, about 2.9 million hectares, or 30 percent of the total harvested area in the Philippines, is devoted to agricultural exports. Production for export markets has been growing at about 3.5 percent a year since the early 1960s; the increase in output has come almost entirely from an expansion of the cultivated area.

### The Coconut Industry

5.38 Production: The Philippines is the world's leading producer and exporter of copra. Coconut growing is one of the country's most important economic activities, yet it has always been one of the most neglected industries in many respects. Traditionally, coconut growing has always been a smallholder activity. The 1960 census showed that 65 percent of the 440,252 coconut farms were less than 4 hectares, and 98 percent of the total number were less than 20 hectares. According to the census, 25 percent of the farm operators were tenants, 56 percent were owners, and 18 percent were part-owners. 1/ It is estimated that there are now more than 500,000 exclusively coconut farms in the Philippines, although coconuts are grown on many other kinds of farms as well. Probably about 3 million people depend directly on coconut growing for their main source of income.

5.39 Coconut production was relatively stable throughout the 1950s at a little above 1 million tons of copra equivalents (Table 5.9), but has risen in recent years to about 1.8 million tons (the 1972-74 average), representing an increase of about 3 percent a year since 1960. This growth reflects a steady expansion in the area cultivated, from about 1.1 million hectares in 1960 to 2.2 million hectares in 1974. There has been no discernible trend in copra yields per hectare in the past two decades, which have averaged about 1,200 kilograms per hectare. While it is widely believed that copra yields in the Philippines are low, it should be pointed out that they compare favorably with yields obtained in other major coconut-producing countries such as Indonesia, Mozambique, and Sri Lanka. 2/ Six regions in the Philippines account for about 83 percent of the coconut production: Southern Tagalog, Bicol, Eastern Visayas, and Northern, Southern, and Western Mindanao. A most striking geographical change has been the emergence of Mindanao as the major coconut producing area, and the decline in the relative importance of Southern Tagalog and Bicol. Mindanao accounted for half of the total copra production in 1974 compared to 26 percent in 1960.

5.40 The Government is aware of the need for improving farm productivity. Indeed, a number of plans to revitalize the industry have been drawn up during the past decade. Until recently, however, Government programs have fallen far short of their original objectives, largely because of a lack of funds and staff. They have also been hampered by a proliferation of quasi-Government agencies and other organizations concerned in a various ways with the industry. In an effort to achieve a greater degree of coordination among these agencies, the Philippine Coconut Authority (PCA) was created in 1972, replacing several other organizations that previously had responsibility for developing the industry.

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1/ Estimates of tenancy on coconut farms is complicated by the fact that many of those classified as "tenants" are believed to be wage laborers employed as watchmen.

2/ World Bank, Agricultural Sector Survey: Philippines, Vol. IV, Annex 12, p. 3.

Table 5.9. Actual and Projected Trends in Cultivated Area, Yields, Production and Disposition of Coconuts

Year	Area Planted (In thousands of hectares)		Copra Production (In thousands of metric tons)	Yield of Bearing Area (In metric tons per hectare)	Disposition of Copra (In thousands of metric tons of copra)						
					Export Market				Domestic Market		
					Copra	Coconut	Desiccated	Total	Coconut	Other	Total
<u>Actual</u>											
1960	892	1,059	1,235	1,385	834	95	74	1,003	183	49	232
1961	993	1,200	1,198	1,206	705	119	72	896	194	108	302
1962	1,114	1,284	1,533	1,376	880	244	77	1,201	219	113	332
1963	1,222	1,392	1,752	1,433	956	343	86	1,385	241	126	367
1964	1,276	1,483	1,638	1,283	852	376	83	1,311	235	92	327
1965	1,235	1,605	1,593	1,290	859	389	89	1,337	232	24	256
1966	1,234	1,611	1,795	1,455	909	505	83	1,496	272	27	299
1967	1,261	1,821	1,508	1,196	763	379	74	1,216	261	31	292
1968	1,240	1,800	1,468	1,184	681	436	89	1,206	227	35	262
1969	1,367	1,846	1,260	922	554	345	63	961	272	27	299
1970	1,434	1,884	1,356	946	424	539	74	1,038	269	51	320
1971	1,555	2,049	1,756	1,129	711	654	92	1,456	262	38	300
1972	1,591	2,126	2,174	1,366	969	757	95	1,820	313	41	354
1973	1,633	2,133	1,871	1,146	728	691	95	1,514	319	38	357
1974	1,750	2,200	1,504	859	323	754	81	1,158	316	30	346
<u>Projected</u>											
1980 <sup>i</sup>	2,100	2,400	2,500	1,200	310	1,600	140	2,050	400	40	450
1985	2,500	2,600	3,000	1,200	140	2,150	160	2,450	500	50	550

a/ The data on bearing area for 1960-74 were computed by dividing the number of bearing trees (as reported by UCAP) by 150, which is the approximate planting density per hectare.

Source: 1960-74 data are from the United Coconut Association of the Philippines (UCAP); 1980 and 1985 are Mission projections.

5.41 The PCA recently formulated a program which deals with the production, marketing, and processing aspects of the industry. A key part of the program is the Coconut Seedling Nursery Project, which will provide free of charge to farmers each year some 300,000 coconut seedlings of improved varieties, developed locally and abroad. Medium-term emphasis is being placed on replanting high-yielding varieties from West Africa. Replanting, however, will not begin until 1981 because of the present limited supply and the time required to generate new planting material; authorities hope that about 60,000 hectares a year will be replanted during the 1980s. The Mission believes that such a medium-term replanting program should be implemented, but that the present Coconut Seedling Nursery Project could be accelerated by relying on locally developed, high-yielding varieties and by giving PCA more direct control over the supply of seedlings. Because of the limited supplies of planting material, the initial replanting should probably be concentrated in areas where there is a high proportion of overaged trees. 1/

5.42 Because the benefits of the long-term replanting program will take some time to emerge, increased efforts are being made to improve farm management practices, such as improving farmers' access to credit and increasing their participation in processing and marketing. The existing extension service for coconut farmers is being strengthened by the PCA and an integrated model farm program is being started in order to test the feasibility of developing cooperatively-managed farms. Money from the Coconut Investment Fund, established in 1971, will be used to assist in establishing more rural banks, credit unions, and cooperatives in coconut-growing areas, and to provide loans for coconut production and for farmer training. Since the fund, which is financed through a levy on copra, collects only about P 10 million a year, direct financial assistance from it will benefit only a small proportion of the estimated half-million coconut farms. If significant improvements in yields are to be obtained during the next 5-10 years (before the replanting program has an impact), a more ambitious development program to improve farm practices and intensify land use with intercropping and coordinated livestock development, backed by larger allocations of resources and extension staff, will probably be needed.

5.43 Because of the long gestation period for new plantings, production over the next decade will be determined largely by the changes in cultivated area that occurred during 1965-75. By 1980, the area of bearing trees will be about 2.1 million hectares. If yields remain at their historic level of about 1,200 kilograms per hectare, production would be about 2.5 million tons of copra equivalents - an average increase of about 4 percent a year (Table 5.9). Production by 1985 will obviously depend on future plantings, but it may be reasonable to assume that the rate of planting will slow down in the latter part of the 1970s because of the increasing difficulty

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1/ About 24 percent of all coconut trees in the Philippines, excluding Bicol and Eastern Visayas, were older than 60 years in 1970. World Bank, Agricultural Sector Survey: Philippines, Vol. IV, Annex 12, p. 6.

in finding new cultivable areas. The bearing area could be about 2.5 million hectares by 1985, in which case production would probably be about 3 million tons.

5.44 Processing and Export Marketing: Approximately 90 percent of the total coconut production in the Philippines is processed into copra. The remaining 10 percent is consumed either directly as food nuts or is used for the manufacture of desiccated coconut. About 20,000 middlemen are involved in marketing copra. End users, which number about 50, include copra exporters, oil miller/refiners, desiccators, soap and detergent makers, coir fibre manufacturers, and charcoal producers. The Philippines accounts for about two-thirds of the world's copra exports and about 70 percent of coconut oil exports. There are nine active copra exporters, of which three export about 95 percent of total copra production. Of the 19 active coconut oil exporters, the three largest farms account for about 60 percent of oil exports.

5.45 Important changes have been taking place in the manner in which copra is processed and disposed of in the Philippines. During the 1950s and early 1960s, about 40 percent of total copra production was absorbed by the domestic oilseed processing industry; the remaining 60 percent was exported as copra. Since 1965, there has been a steady increase in the share of copra that is crushed domestically into coconut oil; by 1974-75 it had reached 70 percent. As a result of private initiatives and Government efforts to expand the domestic coconut oil industry, this trend is expected to continue and additional crushing capacity, equivalent to about 450,000 tons of copra a year, is due to be installed in the next 2-3 years. By 1980, domestic production of oil will probably be about 2 million tons (of copra equivalents), and by 1985, assuming a further increase in crushing capacity, domestic oilseed production could be about 2.6 million tons (in copra equivalents), absorbing almost 90 percent of the projected production of copra.

5.46 Domestic consumption of coconut products, primarily in the form of coconut oil, has been growing at slightly more than 4.5 percent a year since the early 1960s (Table 5.9). Assuming this trend continues, domestic consumption of coconut oil would be about 400,000 tons (in copra equivalents) in 1980 and 500,000 tons in 1985. Total domestic consumption of coconut products would probably be about 550,000 tons by 1985. Exports of coconut products are expected to rise from 1.6 million tons (in copra equivalents) in 1975 to about 2.5 million in 1985. More than 80 percent of exports by the 1980s would be in the form of coconut oil if the present plans to expand the oilseed processing industry materialize.

5.47 The expected shift to exporting coconut oil will not be without difficulties. The traditional markets for coconut oil are being threatened by cheaper oils, such as palm oil and soybean oil, and by the petrochemical industry's development of less expensive synthetic detergents and laundry soaps. Another problem is the termination of the Laurel-Langley trade agreement in 1974, which ended the preferential treatment of Philippine

copra and coconut oil in the United States market. <sup>1/</sup> In terms of the world market, copra now enters most importing countries duty-free, but coconut oil exports face a large number of trade barriers. For example, members of the Common Market impose a duty on coconut oil to protect their domestic crushing and refining plants. By crushing almost its entire export crop, the Philippines will either have to increase its share of the oil market in Europe or develop new markets.

### The Sugar Industry

5.48 Production: In 1960, sugar was grown on 53,000 farms, of which only about 18,000 were exclusively sugar farms; the latter were cultivating more than 80 percent of the total area and accounted for almost 90 percent of total sugar production. Since the beginning of the 1960s, sugar production has expanded steadily at about 4 percent a year, reaching 2.45 million metric tons in 1973/74, of which 63 percent was exported to the United States. The growth in output began primarily in response to increased demand from the United States after it stopped importing sugar from Cuba in 1961 and because of the Laurel-Langley Agreement of 1965 which increased the United States' annual sugar quota for the Philippines from 980,000 tons to 1.3 - 1.5 million tons.

5.49 Practically all of the increase in sugar production has come from an expansion of the harvested area, which amounted to almost 470,000 hectares in 1974. During the 1960s, much of the expansion occurred in the Eastern Visayas and in Mindanao. At the same time, sugar yields were declining from an average of about 6.5 metric tons per hectare in the early 1960s to an average of 4.9 metric tons in the mid-1960s (Table 5.10). This decline in yields was due primarily to the expansion of sugarcane production onto rolling land and hillsides without adequate soil conservation measures, a deterioration in cane varieties, increased delays between harvesting and milling, and the failure to reduce the incidence of pests and diseases.

5.50 The potential for expanding sugar production is considerable, but much will depend on the future growth of export demand for Philippine sugar and on whether exports (and thus production) will be controlled by international marketing agreements. As the subsequent discussion of market prospects suggests, future production may increase by about 3.5 percent a year, which is somewhat less than the past rate. Continued growth in the area planted would almost certainly be at the expense of other crops, particularly rice and corn. The extent to which this occurs will depend on the relative profitability of the competing crops and on Government policies regarding the location of additional milling capacity. If the mills were located in rainfed lowland areas where there is little prospect of introducing irrigation, expanding sugar production could provide opportunities for increasing the incomes of many small rice and corn farmers. Of course,

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<sup>1/</sup> Copra imports from the Philippines were exempt from a 2 percent additional processing tax collected on all foreign copra imports to the United States. Consequently, the Philippines supplied almost the total United States' requirement of copra.

Table 5.10. Actual and Projected Trends in Cultivated Area Yields, Production, and Disposition of Sugar

Crop Year	Area Planted (In thousands of hectares)	Yield (In metric tons per hectare)		Ratio of Sugar to Cane (In percent)	Sugar Production (In thousands of metric tons)	Sugar Disposition (In thousands of metric tons)	
		Cane	Sugar			Export Market	Domestic Market
<u>Actual</u>							
1959-60	204	61.78	6.80	11.0	1,369	1,090	279
1960-61	n.a.	n.a.	n.a.	n.a.	1,317	1,071	246
1961-62	n.a.	n.a.	n.a.	n.a.	1,468	961	507
1962-63	n.a.	n.a.	n.a.	n.a.	1,555	1,027	528
1963-64	n.a.	n.a.	n.a.	n.a.	1,684	1,027	657
1964-65	343	46.76	4.54	9.7	1,558	1,094	464
1965-66	310	42.61	4.52	10.6	1,402	980	422
1966-67	286	53.38	5.45	10.2	1,560	974	586
1967-68	297	51.71	5.38	10.4	1,595	964	631
1968-69	321	51.34	4.78	9.7	1,597	980	617
1969-70	377	56.82	5.11	9.0	1,927	1,228	699
1970-71	473	49.93	4.34	8.7	2,056	1,345	711
1971-72	420	46.45	4.32	9.3	1,816	1,210	606
1972-73	435	52.17	5.19	9.9	2,258	1,474	784
1973-74	468	55.55	5.22	9.4	2,442	1,542	900
<u>Projected</u>							
1979-80	530	55.00	5.50	10.0	2,900	1,850	1,050
1984-85	550	60.00	6.30	10.5	3,400	2,150	1,250

Source: 1959 to 1974 are from the Philippine Sugar Institute; 1979-80 and 1984-85 are Mission projections.

consideration will also have to be given to the milling capacity in existing areas, particularly if there is substantial growth in yields over the long term.

5.51 Concerted efforts should be made to meet the growing demand for sugar by raising yields in existing areas. There are several steps that can be taken to raise sugar yields. Perhaps the most important step is to reduce the decline in sugar content that occurs between harvesting and milling. The recovery of sugar from cane in the 1970s was about 20 percent less than in the 1950s (Table 5.10). The rapid expansion of the cane area and the limited number of mills in the 1960s caused the once strict scheduling of harvest and delivery of cane to mills to deteriorate. It is conservatively estimated that the Philippines loses at least 10 percent of its sugar production through delayed milling. This means the loss of 250,000 metric tons of sugar, or about US\$100 million a year at current (free) world market prices.

5.52 In addition to reestablishing strict schedules for harvesting and delivery, other measures needed to raise yields include better management practices, closer attention to the problem of erosion where sugar has been planted on hillsides, and increased use of fertilizer. <sup>1/</sup> Most of the growth in output in the remainder of the 1970s will probably come from an increase in area cultivated, which may reach 530,000 hectares, and possibly some improvement in sugar yields. In the 1980s, however, the area planted may level off at perhaps 550,000 hectares, so that increased production will depend primarily on higher cane yields and continued improvements in the rate of sugar recovery. Cane yields will probably have to be raised about 15 percent from their present level, and the cultivated area would be about 20 percent higher than at present.

5.53 Processing and Export Marketing: In 1974, the Government assumed control over marketing the entire sugar crop. The Philippine Exchange Company (PHILEX) <sup>2/</sup> became the sole exporter of sugar in that year, and the Philippine National Bank already controlled the domestic marketing. Sugar milling capacity has doubled since the early 1960s and reached 160,000 tons per day in 1973/74, with a crushing season of 250 days. A total of 38 centrals were in operation in 1973/74; of these, 14 were new mills with a total daily capacity of 58,000 tons. The remaining 23 mills had a combined capacity of somewhat over 100,000 metric tons a day. There are plans to expand the milling capacity by 20,000 tons with the addition of five more mills. However,

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<sup>1/</sup> Through the efforts of the Philippine Sugar Institute (PHILSUGIN), which is a Government-sponsored corporation responsible for research and development planning in the sugar industry, farmers are already using improved varieties, fertilizers, and pesticides. PHILSUGIN carries out research on plant breeding, agronomy, pest control, fertilizer application, weed control, and sugar cane physiology.

<sup>2/</sup> PHILEX is a subsidiary of the National Investment Development Corporation (NIDC), which is owned by the Government's Philippine National Bank.

the actual expansion of the sugar milling capacity will depend on the growth of demand for sugar.

5.54 PHILEX determines the price received by the miller; in 1974 this was P 139 per picul, but in May 1975, following the decline in the international price, the price paid to the miller was reduced to P 106 per picul. Assuming the customary milling contract specifying 65 percent of sales to the grower and 35 percent of sales to the miller, the price received by the farmer would be P 1.14 per kilogram, which in real terms is almost the same as in the early 1970s before the sharp rise in sugar prices. PHILEX allocates 30 percent of the crop to domestic use and 70 percent to exports. Since 1974, export prices have been sufficiently high to enable PHILEX to generate large profits. The retail prices of domestic household sugar and industrial sugar are controlled, with the former below the latter and both substantially below export prices. Thus, the domestic consumer is subsidized, partly at the expense of the producer. Under this system the Government must obviously watch the international market and adjust producer and retail prices appropriately with great care.

5.55 Domestic consumption of sugar was about 20 kilograms per capita in 1973; during the past decade, per capita consumption has grown by about 7 percent a year. <sup>1/</sup> It seems unlikely that domestic consumption will continue to grow at the previous rate. Recent estimates of income elasticities for the Philippines suggest that, *ceteris paribus*, domestic consumption will grow by only about 4 percent a year in the decade ahead. By 1985, domestic consumption is projected to reach about 1.3 million tons, or 22 kilograms per person; at present levels of production this would leave about 1.2 million tons available for export.

5.56 The Philippines is currently the twelfth largest exporter of sugar in the world, and it is plausible to assume that overseas demand for Philippine sugar will expand in line with world demand. Since the latter is projected to grow at about 3 percent a year over the next decade, exports of sugar from the Philippines could approach 2.2 million tons by 1985 (Table 5.10). However, the precise outcome could be affected by the marketing strategies adopted by the Philippines. Until 1974, the United States was the sole export market for Philippine sugar. In 1974, both the Laurel-Langley Trade Agreement and the United States Sugar Act expired, which meant that Philippine sugar exports to the United States since July 1974 have been subject to full United States duty and, since December 1974, have lost their preferential treatment among importers in the United States.

5.57 Considering the supply potential and lower transport costs of Caribbean and Latin America sugar exporting countries, the Philippines may

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<sup>1/</sup> This is unusually high, but since domestic consumption is computed as a residual from available production and export figures, it represents not only actual sugar consumption but also changes in sugar stocks as well as possible illegal exports of sugar.

be at a competitive disadvantage and may find it difficult to maintain its previously preeminent position in the United States market. A major source of uncertainty is the extent to which the sugar trade with Cuba will be resumed now that the Organization of American States has agreed to remove the trade embargo against Cuba. A decline in United States imports of Philippine sugar would require a substantial change from the traditional pattern of sugar marketing. Under these circumstances, the Philippines would have to give attention to strengthening its position in the free market as well as in the centrally planned economies. The free market is the largest among the four major international markets for sugar and more than half of world trade is channelled through it; it is "free" only in the sense that prices are not administered. However, the supply of sugar to the market has been regulated during several periods in the past by multilateral agreements. Following the example of Australia, the Philippines may find it advantageous to use long-term contracts as a means of reducing the uncertainty in the sugar industry that could accompany a loss of its preferential position in the United States market.

### C. Supporting Services for Agriculture

5.58 Due to the limited potential for extending cultivation onto new land, the foregoing programs to increase production and raise productivity will require more intensive use of the existing areas, particularly in the major river basins. Increased land productivity will, in turn, depend primarily on the quality of agricultural supporting services, particularly those to small farmers. It will also require the continued expansion of rural infrastructure (including irrigation and a better network of farm-to-market roads), stronger financial services and increased allocations of credit, improved marketing facilities, and a more dependable supply of non-farm inputs. A more effective, but not necessarily larger, extension force will be needed, and there will have to be continued close attention to input and product prices to ensure that there is sufficient incentive for farmers to adopt more productive technologies.

#### Fertilizer Use

5.59 The application of fertilizer has increased considerably in the last decade, largely because of the introduction of HYVs. Traditionally, fertilizers have been used primarily for sugar and rice production. <sup>1/</sup> In 1964, these two crops absorbed 76 percent of the total amount of fertilizer; in 1973, their share dropped to 70 percent. The Government's supervised credit programs for rice and corn have been encouraging the use of fertilizer. Consequently, there was a 40 percent increase in the amount of nitrogen applied to rice in 1973. Anticipating a severe worldwide shortage of

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<sup>1/</sup> A survey of coconut farms in 1968 indicated that out of 1,230 farms, only 5 percent used fertilizer and those were mostly the large farms. Gil R. Rodriguez, Jr., Fertilizer Supply and Demand 1952-1980, M.B.A. thesis, Ateneo University (1974), p. 22.

fertilizer in 1975 and an enhanced demand as a result of the supervised credit programs, the Philippines imported 900,000 metric tons of fertilizer in 1974. This was more than twice the level of previous imports. The anticipated increase in demand, however, did not materialize; in fact, it seems likely that there was a sharp drop in the use of fertilizer in rice areas in 1974/75, although detailed data are not yet available. This decline was apparently due to a much less favorable fertilizer-rice price relationship.

5.60 Despite the Government's efforts to expand the use of fertilizer, the rate of application in the Philippines remains low. In 1973, the total amount of fertilizer nutrients consumed was about 400,000 metric tons. This low level of use stems primarily from inadequate supplies of institutional credit to finance fertilizer purchases and an uneven distribution network which does not adequately serve the more remote areas. If the rice production program discussed in the earlier part of the chapter is to be realized, demand for fertilizer will need to grow at about 15 percent a year during the next decade. Substantial improvements will be needed in the coverage of the fertilizer distribution networks, and the relationship between the farm gate prices for fertilizer and rice will need to be adjusted to provide sufficient incentive for farmers to adopt this form of modern technology.

5.61 The distribution of fertilizer in the Philippines is handled by private dealers. Each manufacturing company has its own distribution outlets with local or national coverage. There are presently about 2,700 fertilizer and chemical dealers in the country; almost one-half are located either in Central Luzon (25 percent) or Southern Tagalog (17 percent). The Fertilizer Industry Authority (FIA) was created in 1973 to improve and coordinate fertilizer supply and distribution. The FIA is empowered to regulate, control, and develop the fertilizer industry to ensure an adequate supply of fertilizer. It also has authority over all aspects of manufacturing and marketing, including price control, the allocation of fertilizer by crop, imports and exports.

5.62 Although there has been a gradual expansion in the production capacity of its fertilizer industry, the Philippines remains largely dependent on imports to meet domestic demand. Since the early 1960s, imports have been increasing at about 7 percent a year (Table 5.11). The value of manufactured fertilizer imports averaged about US\$12 million for the period 1970-73, but then jumped to US\$84 million in 1974, the result of substantial increases in both quantity and price. Domestic production has increased by about 15 percent a year since 1960. With the opening of a new plant in 1966, production more than doubled, and in 1974 the country was manufacturing a total of about 65,000 tons of nitrogen equivalents.

5.63 Fertilizer production is in the hands of three private companies. The total rated capacity of the three plants in nitrogen equivalents is 90,000 tons, but the plants are presently producing only 65,000 tons, or 72 percent of capacity. This relatively low rate of utilization is due to such problems as lack of feedstock, inefficient plant design, poor maintenance, power failures and competition from imports. The Government is actively examining the possibility of building an ammonia/urea complex which would have

Table 5.11. Estimates of Total Supply of Fertilizer Nutrients  
(In thousands of metric tons)

Year	Nitrogen			P <sub>2</sub> O <sub>5</sub>			K <sub>2</sub> O		
	Imports	Domestic Production	Total	Imports	Domestic Production	Total	Imports	Domestic Production	Total
1960	24	7	31	9	5	14	9	1	10
1961	33	10	43	9	6	15	14	4	18
1962	57	14	71	14	8	22	22	6	28
1963	14	14	28	3	8	11	7	5	12
1964	42	15	57	15	8	23	7	6	13
1965	33	16	49	16	8	24	16	5	21
1966	17	18	35	1	10	11	57	7	54
1967	45	39	84	4	13	17	10	12	22
1968	30	37	67	17	27	44	19	19	38
1969	40	54	94	7	25	32	29	17	46
1970	48	48	96	10	23	33	16	16	32
1971	76	52	128	3	25	28	27	17	44
1972	54	52	106	3	25	28	42	17	59

Source: Gil R. Rodriguez, Jr., Fertilizer Supply and Demand 1952-1980, M.B.A. thesis, Atens University, 1974, Fertilizer Industry Authority and International Potash Institute.

a production capacity of 900 - 1,000 tons per day of ammonia and 1,500 - 1,700 tons per day of urea. The total cost of the project would be about US\$300 million. The complex would probably be owned by the Government. Although no decision has been made, it is likely that the fuel oil would serve as feedstock.

5.64 Plans for the expansion of domestic fertilizer production in the next 10 years include two possible phosphate fertilizer plants, with a combined capacity of 150,000 tons a year, which would utilize the sulfuric acid that will be a by-product from the proposed copper smelters. Rock phosphate would be imported from Australia or the United States. The first copper smelter is due to become operational in 1978. It is expected to produce 33,550 tons per year of commercial grade sulfuric acid and 8,000 tons per year of crude arsenic acid. Depending on the availability of sulfuric acid, the Philippines could eventually be in a position to export part of its phosphoric acid to other countries in the region, such as Indonesia.

#### Price Policies for Rice and Fertilizer

5.65 While pursuing a policy of self-sufficiency in rice, the Government has at the same time been concerned about the retail price of rice in urban areas. In 1970, the Government imposed a price ceiling on the retail price of rice which in 1975 was P 1.90 per kilogram. To maintain the ceiling price in the face of much higher world market prices. From late 1973 to mid-1975, the Government supplied imported rice below cost, thereby depressing the domestic price structure for rice. The public cost of this subsidy was about US\$20 million in both FY74 and FY75.

5.66 The policy of maintaining an artificially low domestic price structure for rice may have been understandable in the 1973-75 period when the international price was high. However, the World Bank's commodity analysis concluded that the world market terms of trade will turn against primary agricultural commodities during the next ten years, and the price of rice is expected to fall by 20 percent from 1976 to 1985 in terms of 1973 constant dollars. Moreover, in years when there is surplus production, the Government's policy of maintaining a floor price for rice will place severe demands on its procurement capacity if the domestic price falls substantially below that set by the Government. In 1975/76, the Government is expected to encounter storage problems because of record production levels. In evaluating the overall cost of the present subsidy program, consideration should be given to the need for more storage capacity to provide the cushion necessary for periods when there are production shortfalls. In order not to discourage domestic rice production, the Government should carefully review its policy of subsidizing urban rice consumers, and should consider gradually reducing the subsidy if the real price of rice falls.

5.67 The other side of the agricultural incentive coin concerns the price of inputs. During the 1973-75 period, the world price of fertilizers and other chemical inputs rose even faster than the price of foodgrains. To maintain production incentives in the face of artificially low domestic grain

prices, the Government, through the FIA, adopted a two-tier price system for fertilizers, charging essentially the world market price for fertilizers used to grow export crops and a lower, subsidized price to producers of food grains. Despite this effort, the ratio of the price of fertilizer to the prices of both food grains and export crops increased substantially from the historic level, as indicated in the case of rice and sugar in Table 5.12. As a result, there is evidence that the use of fertilizers declined, and there are also indications that, as a result of the two-tier price system, a diversion of fertilizers from food crops to export crops took place, particularly in areas where both are grown side by side, such as rice and sugarcane in parts of Central Luzon. 1/

5.68 No analysis is available of the specific effect of relative input and output prices on incentives to use inputs in the Philippines, and hence on yields and production. However, the historical information indicates that farmers increased their use of fertilizers when price ratios were in the 1.0 to 1.5 range (Table 5.12). Making rough projections on the basis of the World Bank's commodity price forecasts through 1985, it appears that the ratios of the farm gate price of fertilizer to the prices of rice and sugar would be in the lower part of their historical range if all price controls were removed. While a more detailed analysis is obviously needed, these projections are at least indicative of the future price situation. The Government should gradually reduce the subsidy on consumption and inputs as world market prices for these commodities fall in real terms, so that domestic prices would correspond to world market prices by 1980. In any case, there is good reason to eliminate the two-tier price structure for fertilizers as soon as possible in order to reduce the incentive for diverting fertilizer from foodgrain to export crops and to encourage rice farmers to use their fertilizer supplies effectively.

5.69 To the extent that it is considered desirable to continue subsidizing the retail price of rice, an alternative to the present policy of buying rice abroad and selling it below cost to consumers would be for the Government to consider buying rice from domestic producers at the domestic world market price, and selling that rice below cost to consumers, and/or to subsidize domestic traders who perform the same function. The result would be to keep the subsidy element in the country rather than paying it to rice exporters abroad as is presently the case. This alternative policy would not depress the internal producer price and hence, would encourage domestic production and promote self-sufficiency. On the other hand, such subsidization would

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1/ In addition to real production problems, this diversion created data problems insofar as the official statistics on fertilizers use for food crops overstate the amount actually used, and understate the amount of fertilizer used for export crops.

Table 5.12: Relationship between Farm Prices of Fertilizer, Paddy, and Sugarcane, 1965-1975, at Current Prices

Year	Farm Price (In pesos per 100 kilograms)		Urea Fertilizer Price (In pesos per 100 kilograms)		Ratio of Urea Price to Price of:	
	Paddy	Sugarcane	To Rice Farmers	To Sugar Farmers	Paddy	Sugarcane
<u>Actual /a</u>						
1965	33.85	28.65	53.97	53.97	1.59	1.88
1966	37.50	32.83	52.91	52.91	1.41	1.61
1967	37.95	35.32	51.81	51.81	1.37	1.47
1968	35.30	37.57	48.50	48.50	1.37	1.29
1969	36.05	37.08	44.09	44.09	1.22	1.19
1970	39.73	46.75	61.90	61.90	1.56	1.32
1971	55.37	58.01	65.40	65.40	1.18	1.13
1972	59.66	66.55	67.70	67.70	1.13	1.02
1973						
May )			55.40	70.70	0.89	0.96
November )	79.00	73.28	55.40	96.20	0.70	1.31
1974						
April )			139.30	231.40	1.39	1.62
November )	100.00	142.78	223.40	334.80	2.23	2.34
1975						
May	100.00	108.42	181.40	281.40	1.81	2.60
<u>Projected /b</u>						
1980	200.00	210		230	1.15	1.10
1985	290.00	290		350	1.21	1.21

/a Source: World Bank, Agricultural Sector Survey: Philippines, Annex 15; Fertilizer Industry Authority.

/b Mission estimates based on World Bank Price Forecasts for Major Primary Commodities, July 1975.

have to be kept in line with prudent Government budget management which calls for strict constraints on the growth of current expenditures. 1/

#### Agricultural Extension and Research

5.70 The experience of countries like the Republic of China and Japan indicates that success in raising agricultural productivity depends in part on the rate of adoption of innovations among farmers. This, in turn, is influenced by the quality of the agricultural extension services and the role of farmer organizations. In the Philippines, the potential of the extension services and farmer organizations to promote more rapid adoption of innovations has not been adequately exploited. As discussed in the previous chapter, the Government has recently begun to give more attention to the role of farmer organizations, but much remains to be done; these programs are being adversely affected by the duplication of effort and overlapping responsibilities among Government agencies. The role of the extension services, their relationship with farmers and farmer organizations, and the interrelationships among the latter are areas that deserve close attention in the future. 2/

5.71 At present, the extension services, which are being carried out by a variety of public and private agencies, are inadequate. The problem stems essentially from the organization and quality of extension services rather than from a shortage of personnel. There are some 21 different Government agencies and institutions providing advisory services to farmers; seven of these have a total of about 20,000 technicians and the other 14 agencies, another 3,000 technicians. 3/ Just how many are regarded as field staff is uncertain, but even if it were only one-half (1 technician for every 200 farmers) to two-thirds (1 technician for every 150 farmers), the ratio would not be an unfavorable one. 4/

5.72 Although the various extension agencies have specialized functions, a large number of technicians spread among so many different agencies must inevitably give rise to duplication of effort, if not conflicting advice to farmers. To cite only one example, field teams of the Department of Agrarian Reform (DAR) which are carrying out the country's agrarian reform

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1/ See Chapter 10.

2/ For a discussion of farmer training, see Chapter 7.

3/ The seven important agencies and their technicians are: the Bureau of Agricultural Extension (4,000), the Department of Agrarian Reform (4,000), the Department of Local Government and Community Development (3,500), the Bureau of Plant Industry (3,000), the Bureau of Animal Industries (2,200), the National Irrigation Administration (1,700) and the Bureau of Soils (1,200).

4/ In Korea, for example, the ratio in 1970 was 1 technician for every 385 farmers.

program are becoming unnecessarily involved in agricultural extension work. In many cases, technical training of extension worker is poor, but even when they are adequately trained, coordination with research laboratories, which should provide technical support, is lacking.

5.73 For the next few years at least, emphasis should be placed upon upgrading the quality of the existing extension services rather than on expanding them. A careful review should be undertaken of the relative roles of the many agencies involved with a view toward closer cooperation and supervision. In addition to incentives such as salary levels and promotions, an intensive 4-year program to retrain the existing field staff should probably also be given high priority. In developing a comprehensive training program, consideration should be given to the long-term approach the Government wishes to take toward extension work. In the immediate future, the training program will, of course, be limited by the facilities available, but in the long-term, flexibility exists to upgrade the quality of education provided by agricultural schools and colleges.

5.74 On the whole, the Philippines is building a competent research establishment. The Bureau of Agricultural Economics (BAECON) is developing increasing competence to provide data and analyses for agricultural policy decision-makers. The research institutions are well-advanced in research on HYV rice and on corn for which downy mildew resistant varieties have been developed. Research on sugarcane has had a long and generally fruitful history but varieties resistant to the ratoon stunting disease have not yet been developed. Other research is less impressive, particularly for coconut on which the cadang-cadang disease is making substantial inroads. Research on sorghum and soybeans has not yet had time to make a large contribution to the development of a feed base.

5.75 The Government has undertaken a seven year program to develop its agricultural research capabilities, which will include investments in infrastructure, laboratory and farm equipment, and the development of manpower. The program is being carried out by the Philippine Council for Agricultural Research (PCAR), which was established in 1972. As part of this seven-year program, the United States Agency for International Development (USAID) is providing financial support for the strengthening of four research centers located in Negros Occidental, Southern Mindanao, Bicol, and Central Luzon. For agricultural research to be relevant, it must focus not only on the current needs of the farmer, but also anticipate future problems. For example, disease resistant HYVs take several years to develop. A researcher must be able to identify the characteristics of a particular variety and, if possible, develop the seed for it in advance. Moreover, the capacity of a strain of HYV to resist any one type of disease does not remain constant. Thus, a good research program must not only be in constant touch with the farmer, but it must be continuously developing new technology which can be made available when the need arises.

#### Irrigation and Water Management

5.76 Increased investment in the construction, rehabilitation, and maintenance of irrigation works will be essential during the next decade for the

intensification of land utilization. Estimates vary as to the harvested area that is presently irrigated. In the lowlands the proportion of the irrigated area to the total rice area is less than half, and virtually no irrigation facilities have been established in the uplands. According to the BAECON, there were 1.33 million hectares of harvested rice land in 1972. <sup>1/</sup> The National Irrigation Administration (NIA), on the other hand, estimated the total irrigated harvested area at 1.11 million hectares in 1972, and the World Bank's agricultural sector mission, after taking into account the past deterioration of the irrigation systems and the inaccuracy of reporting, estimated that there was a harvested irrigated area of 833,000 hectares in 1972 (Table 5.13).

5.77 Rehabilitation and Maintenance of Existing Systems: In 1972, the geographic area actually served by existing irrigation systems <sup>2/</sup> was substantially less than their design capacity (Table 5.13). Although the NIA and World Bank estimates differ somewhat, they both suggest that only about 70 percent of capacity was being utilized. To a large extent, this situation reflects the past inadequate maintenance and operation of these systems. As a result, cropping intensity was as low as 116 percent in 1972, according to NIA estimates. With proper attention to maintenance, it should be relatively easy to reach a cropping intensity of 140 percent. The high returns from rehabilitation and improvement of the present systems are demonstrated in Table 5.14. The Government recognizes that much more attention should be given to making better use of existing systems. The 10-year program drawn up by the NIA calls for the rehabilitation of about 340,000 hectares during

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<sup>1/</sup> In 1975, the BAECON estimate was 1.41 million hectares.

<sup>2/</sup> There are three main types of irrigation systems in the Philippines:

- (a) National irrigation systems, which are gravity systems constructed, operated, and maintained by the NIA. In general, individual systems cover an area of over 1,000 hectares. The total physical area served was estimated at 407,000 hectares in 1972, although the actual area was probably closer to 300,000 hectares.
- (b) Communal irrigation systems are for the most part also planned, designed and constructed by the NIA, but are turned over to an irrigation association for operation and maintenance. The normal size of these projects is 50-500 hectares. The total physical area served was estimated at about 130,000 hectares in 1972.
- (c) Pump irrigation systems utilize shallow wells, rivers, and irrigation canals as sources of water. The service area of the individual pump units is small, with the majority serving less than 20 hectares. According to the NIA, there were about 10,300 pumps operating in 1972, covering an area of about 240,000 hectares.

Table 5.13. Estimates of Geographic and Harvested Area of Irrigated Land, 1972

Type of System	Physical Area (In thousands of hectares)			Harvested Area that is Irrigated (In thousands of hectares)		Intensity of Irrigation (In percent)	
	Potential irrigated area	NIA estimate of actual irrigated area	World Bank estimate of actual irrigated area	NIA estimate	World Bank estimate	NIA estimate	World Bank estimate
Gravity Systems	719	577	519	861	735	119.7	102.2
NIA	407	314	305	470	441	115.5	108.4
Communal (NIA)	222	133	133	211	186	95.0	83.8
Communal (Private)	90	130	81	180	108	200.0	120.0
Pump Systems	239	165	110	248	148	103.8	61.9
Total	958	742	629	1,109	883	115.8	92.2

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Note: The potential area is the geographic area the systems were designed to serve. The intensity of irrigation is the ratio of harvested area to potential geographic area that could be irrigated, expressed as a percentage.

Source: World Bank, Agricultural Sector Survey; Philippines, Vol. II, Annex 3, p.9.

FY75-84. This would cover about one-half of the NIA's existing national irrigation system. Of this proposed area, about 175,000 hectares (or about 50 percent of the system) are already included in the on-going projects being financed by the World Bank and the Asian Development Bank. The remainder, which accounts for most of the area proposed for rehabilitation in FY80-85, has yet to be identified. It should be possible to rehabilitate a total of about 300,000 hectares during the FY75-84 period.

Table 5.14: Investment and Operating Costs per Harvested Hectare for NIA Gravity Systems and Pump Systems

(In 1974 US dollars)

Cost Item	NIA Gravity Systems		Pump Systems	
	Rehabilitation	New	Electric	Diesel
Installation <u>/a</u>	270	540-810	210	230
Operations and maintenance <u>/b</u>	13	13	32	34
Recovery of capital <u>/c</u>	27	68	21	22
Total costs (excluding installation)	40	81	53	56

/a Based on costs per hectare of physical area of US\$400 for rehabilitation, US\$800-1,200 for new gravity systems, US\$290 for electric pump systems, and US\$300 for diesel pump systems. The ratio of harvested area to geographic area was assumed to be 1.48 for NIA gravity systems and 1.40 for pump systems.

/b Based on information supplied by the NIA, these costs are in line with those reported for similar systems in other countries.

/c Assuming that for the NIA gravity systems, the capital cost is recovered over 50 years; for pump systems, over 10 years. Interest is charged at 10 percent a year for both systems.

Source: Mission estimates.

5.78 New Irrigation Facilities: The total amount of new land that is potentially suitable for irrigation is not known with any degree of certainty. The 1973 World Bank agricultural sector mission conservatively estimated that a total physical area of about 1.4 million hectares of land could be irrigated. Since the potential area of existing systems accounted for close to one million of the 1.4 million hectares, the report suggested that only an additional 400,000 hectares could be developed with irrigation. The NIA, on the other hand, has estimated that a much larger potential area of 1.7 million hectares remains to be developed, 1/ particularly in the Cagayan

1/ ILO, Sharing in Development, p. 460.

Valley, Central Luzon, and Northern and Eastern Mindanao. Obviously, the amount that can be developed is a matter of cost, but even with the more conservative World Bank estimate, the irrigation potential is large.

5.79 The NIA prepared a program for 1975-84 that calls for an accelerated pace of irrigation. The program is very ambitious and would irrigate an additional 1.3 million hectares by 1985. About 700,000 hectares would be irrigated with large-scale gravity systems operated by the NIA, and the remaining 600,000 hectares would use smaller communal and pump systems. A program of this magnitude raises two important questions: one is whether the agencies concerned have the capacity to undertake the program; the other is whether the balance between large-scale gravity projects and the smaller communal and pump projects is appropriate. Obviously, both kinds of projects are needed, but just what the proportions should be is less clear.

5.80 The small-scale projects have low investment costs per hectare but they have high operating costs (Table 5.14). The reverse situation exists in the large-scale projects when allowance is made for recovering capital costs. However, the current costs for the large-scale projects are about 50 percent higher than for the small-scale projects. One of the reasons that pump systems are cheaper to install than the NIA gravity systems is that the former are built to lower standards. Individual farmers are responsible for tapping the main canal (which is provided by the pump systems) to deliver water to their own fields. Furthermore, no drainage is provided. The NIA systems are built so that each 10 hectare block of land is served by canals, which deliver water by drainage systems and by roads, which allow the delivery of inputs and products. As a result, the NIA systems tend to have more water control and to provide for a better distribution of inputs than the pump systems. Because of these differences, yields are usually 30 to 50 percent lower with pump systems than with gravity systems. When this difference is taken into account, the cost of irrigation per unit of output in the large and small schemes is roughly comparable. Nonetheless, the small-scale projects do have shorter gestation periods and thus yield quicker results. For this reason, efforts should be made to accelerate the pump irrigation development program.

5.81 The proposed NIA ten-year program calls for the development of about 800,000 hectares with new large-scale gravity and communal systems and about 500,000 hectares with pumps. In view of existing administrative and technical constraints, a more reasonable target for 1985 would be about 200,000 hectares with new large-scale gravity systems and 100,000 hectares with communal systems. For the pump systems, in addition to administrative problems, there is a lack of detailed information about the availability of groundwater or the power needed to operate the pumps. Although it is difficult to accurately assess the potential for expansion, it may be possible to develop 200,000 hectares with pumps by 1985.

5.82 In the past year, the Government has begun to put much greater emphasis on expanding the area under small-scale irrigation projects. The Farm Systems Development Corporation (FSDC) was recently set up to develop additional irrigation by tapping groundwater sources and pumping from streams; it has authorized capital of ₱ 800 million to be funded over an eight-year period; it has sole responsibility for developing small-scale irrigation systems, leaving NIA to concentrate on developing the national gravity systems. A successful small-scale irrigation development program will require more attention to expanding knowledge about groundwater availability and stream flows, improving operation and maintenance, and clarifying water rights. Groundwater development still remains at a tentative and investigative stage. The Bureau of Mines is undertaking groundwater and hydrological surveys in the Agusan River basin, Northwestern Luzon, Eastern Misamis, Pangasinan, Samar, and Southern and Western Mindanao.

5.83 Water Charges: Until 1975, irrigation fees on the national systems were fixed at ₱ 25 per hectare for wet season rice and ₱ 35 per hectare for dry season rice. 1/ Over the years these amounts were eroded by inflation so that they failed to cover even the cost of operating and maintaining the systems, let alone to recover any of the capital cost. 2/ In 1975, the Government developed a new rate formula which represents a major improvement over the old system. Irrigation fees on the national systems are now the equivalent of 100 kilograms of paddy per hectare for wet season rice and 150 kilograms per hectare in the dry season. At the 1975 Government support price for paddy, the new fees equal ₱ 100 and ₱ 150 per hectare in the wet and dry seasons, respectively, or about four times the previous rates. Furthermore, by specifying the rates in terms of rice equivalents, the Government has built in a hedge against inflation. For a typical new or rehabilitated national system, these rates would cover annual operation and maintenance costs, but would contribute little toward capital cost recovery.

5.84 As an exception to the uniform rate policy, the Government has agreed to gradually raise water rates on irrigation systems in Central and Northern Luzon and the island of Mindoro to the equivalent of 175 kilograms of paddy per hectare in the wet season and 225 kilograms of paddy per hectare in the dry season. Such rates are expected to recover from 30 to 40 percent of the full cost of constructing, operating, and maintaining these systems over the lives of the projects when both costs and water charges are discounted at a rate of 10 percent. They would also recover from the

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1/ Since virtually all national irrigation systems are in rice producing areas, this discussion is limited to water charges for irrigated rice.

2/ Under Republic Act 3601, the NIA has the power to "collect from the users of each irrigation system constructed by it such fees as may be necessary to finance the continuous operation of the system and reimburse within a period of not less than 25 years the cost of construction thereof."

beneficiaries of the systems from 10 to 20 percent of the incremental net farm incomes expected to result from the investments; in fact, after making allowances for the value of farm family labor, return to farm capital, farm management, and the uncertainty of future income streams, they actually represent a much higher contribution. However, there may still be room to increase water charges in the future, which the Government might consider doing after it has had time to evaluate the impact of the new 1975 rates.

5.85 Of primary importance to the question of water charges is the issue of collections. The NIA's record of irrigation fee collection has improved steadily during the last few years. Total collections rose from ₱ 4.8 million in FY69 to ₱ 9.2 million in FY74; the collection rate as a percentage of fees charged improved from 50 to 66 percent over the same period. Although the 66 percent collection rate does represent an improvement, it is still low. Furthermore, improved collection will become even more important with the new water charges, and as the level of investment increases. Unfortunately, sufficient information is not now available to relate actual collections to prior cost and the availability of services or benefits. It is possible, for example, that some farmers are charged for water they do not actually receive. There are also indications that collection rates are better wherever the NIA provides reasonable service; therefore, the ambitious program to improve and expand irrigation should also result in improved collections. The NIA is currently carrying out studies on the service level provided by the national system and on the relationship between service and collections. Results should be available in 1976 and will be used as a basis for determining ways to improve collection. Even less is known about water charges and collection rates in areas which use small, communal gravity irrigation systems and where NIA is not responsible for operation and maintenance.

5.87 One result of the proposed strategy for rice is that farmers in irrigated areas would probably be better off than their counterparts in rainfed and upland areas, particularly in the early years when improved agricultural supporting services would be concentrated on the irrigated areas. The strategy would also have regional implications since most of the existing and potential irrigated rice land is in Central and Northern Luzon. One way to offset this imbalance would be for the Government to increase water charges (as discussed above) and/or levy other improvement-specific taxes on beneficiaries of irrigation systems. The Mission strongly recommends that the Government undertake a review of the overall implications of its policy toward agricultural taxation and water charges. Increasing such charges or taxes would: (a) help equate the private and public benefits of public investment in irrigation; (b) reduce the net public cost of a given level of investment (or, alternatively, permit a larger investment for the same outlay of public funds); and (c) minimize the income disparities between those with and without irrigation.

5.88 In determining the appropriate level of water charges or benefit taxes, care must be taken to ensure that charges do not discourage farmers from participating in the irrigation schemes. Benefit taxes should also be simple to administer and collect, and should be difficult for farmers to

evade. The Government should explore ways of developing a more effective system of taxing agricultural land in conjunction with water charges in irrigated areas to discourage the conspicuous waste of water. With different tax rates for irrigated and rainfed land, it would not be difficult to identify taxpayers in either category, and there would be no disincentive to using water, since land in the service area would be taxed at the higher rate whether the water is used or not. Similar reasoning would apply to other public investments. For example, differential land tax rates could be applied to areas close to public roads or other amenities where public investments lead to private benefits in terms of increased land values merely as a result of proximity to a public service. The land tax could also incorporate a degree of progressivity by assessing higher rates for larger holdings, although too much progressivity would probably lead to evasion through farmers subdividing larger holdings among family members.

### Agricultural Credit

5.89 Little is known about the total amount of credit used in the agricultural sector to finance production inputs and farm development. It is generally believed, however, that the amount has been inadequate and that the lack of credit on reasonable terms has constrained growth in agricultural production. Institutional sources probably provide somewhere around one-third of the total credit used in agriculture, but for almost a decade there has been no growth in real terms in the amount of credit granted to the agricultural sector by these institutions. The one exception to this alarming trend has been the supervised credit programs for rice and corn introduced in 1973 and 1974, respectively. It is estimated that credit granted to agriculture by institutions will have to grow at 6-8 percent a year in real terms over the next decade if the production programs discussed in earlier parts of this chapter are to be realized. Before reviewing the role of these institutions more closely, it may be useful to examine briefly the contribution of noninstitutional sources of credit in agriculture.

5.90 Noninstitutional Sources of Credit: A considerable amount of the short-term credit available - more than half the production credit and about 95 percent of the nonproduction credit - has come from traditional sources. The sources for this credit in the Philippines, as elsewhere in the world, have been primarily landlords, relatives, merchants, and moneylenders. A survey by the BAECON in 1968-69 reported that about 20 percent of the loans from noninstitutional sources came from landlords and 30 percent came from merchants and moneylenders. <sup>1/</sup> The advantage of using traditional sources for small farmers is that collateral is not necessary, loans do not encounter administrative delays, and repayment schedules are flexible. A major disadvantage is the exorbitant interest rate that is often charged and that can reach up to 300 percent a year. One early study in 1957-58 indicated that half of the loans made by relatives had no interest charge (though 17 percent charged interest rates equivalent to 200-299 percent a year), while 43 percent of the loans made by landlords and 33 percent of those made

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<sup>1/</sup> BAECON, Integrated Agricultural Surveys, 1968-69.

by merchants had an interest rate of 100-199 percent a year. 1/ A more recent study indicates the existence of somewhat lower interest rates, ranging on average between 10 percent and 50 percent on an annual basis. 2/ It is not clear whether private rates may have declined in response to competition from financial institutions.

5.91 Access to Institutional Credit: One of the major issues in credit policy is the extent to which the supply of institutional credit for agriculture can be expanded. What is most striking about the pattern of credit allocation in the Philippines is that the share of total credit going to agriculture has declined steadily from 40 percent in the early 1950s to less than 10 percent in 1973. Since 1968, there has been no increase in real terms in the total amount of institutional credit extended to agriculture. Although the productive sectors do not necessarily require proportions of credit that are similar to their contribution to overall production, it appears that agriculture has tended to receive a smaller share of institutional credit than factor intensities would warrant. The most important reason for this state of affairs has been the Government's policy of encouraging the growth of import-substitution industries through a variety of policy instruments, including preferential access to substantial amounts of financial resources. 3/

5.92 Part of the explanation also lies within the agricultural sector itself. Until recently at least, there has been little attempt to expand the network of financial institutions serving the rural areas. As a result, the inadequate institutional network has become a bottleneck to increased lending. Moreover, the institutions that have served the agricultural sector have required collateral for their loans and this has excluded a large number of small farmers, particularly tenants. Expanding institutional credit to agriculture by 6-8 percent a year in real terms over the next decade will require a much stronger network of financial institutions serving the agricultural sector in general and small farmers in particular.

5.93 The Government is aware of this problem and in recent years it has been vigorously promoting the rural banking system. These banks have now become one of the main sources of institutional credit for agriculture. At the end of 1973, there were 628 rural banks in the Philippines; 415 were in Luzon, while 131 were in the Visayas and 88 in Mindanao. The rural banks lend almost exclusively seasonal production credit. They are locally-owned, usually by families with interests in landholdings and the rice trade. Their

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1/ Jose P. Gapud, "Financing Lowland Rice Farming in Selected Barrios of Munos, Nueva Ecija, 1957-58," Undergraduate Thesis, University of the Philippines College of Agriculture, p. 79.

2/ J.M. Manto and R.D. Jones, "Sources and Cost of Credit of Rice Farms in Central Luzon," Report No. 74-15 (Quezon City: National Food and Agriculture Council, June 1974, processed), p. 10.

3/ These policies are discussed further in Chapters 6 and 9.

borrowers have traditionally been the larger farmers who have had access to other sources of credit. In 1973, however, the rural banks became a major source of production credit for the Masagana 99 and Masaganang Maisan programs. These programs have widened the scope of lending for the rural banks to include small farmers with holdings averaging about 2.5 hectares. Subsidized by the Central Bank through preferential rediscounting rates, the rural banks' share of total agricultural credit has increased steadily in the past decade, and since 1965 they have accounted for 75 percent of the total increase in agricultural credit provided from institutional sources.

5.94 The Government plans to continue expanding the rural banking system as a means of improving the financial infrastructure in rural areas; the goal is to establish about 1,000 banks by 1977. Since 1970, 305 new banks have been established. Continued expansion of the rural banking system will require an intensified savings mobilization campaign in rural areas and a broadening of the equity base of existing rural banks. Currently, the viability of the rural banking system depends heavily on the continued willingness of the Government to channel subsidized resources to the banks. The profits of the rural banking system are low by Philippine standards; higher profitability could be achieved by an increase in loan volume which, in many banks, could be handled without proportionately increasing operating expenses.

5.95 The other major source of funds for agriculture has been the Philippine National Bank (PNB). In the mid-1960s, for example, it accounted for about 40 percent of the total amount loaned to agriculture, but since 1969 there has been a decline in the amount of the PNB's loans, in real terms, and by 1974 the PNB accounted for only 28 percent of loans outstanding to agriculture (Table 5.15). More than any other commercial bank, the PNB, with 161 branches and 121 mobile banks, has the size and geographic coverage needed to play an important part in filling the country's agricultural credit needs. The PNB has historically extended short-term credit to the sugar industry. <sup>1/</sup> Its lending to the foodgrain sector has been limited to large farms (25 hectares or more) and financing the deficit of the now defunct Rice and Corn Administration. In 1973 and 1974, the PNB expanded its lending by providing more than half the loans for Masagana 99 and Masaganang Maisan-- a dramatic increase of some 700 percent from its previous loans to the rice industry. Recently, the Central Bank directed that at least 25 percent of all loanable funds from commercial banks should be for agricultural credit; not less than 10 percent should be available for agrarian reform, and the other 15 percent for agricultural credit in general.

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<sup>1/</sup> In 1971, for example, 93 percent of all agricultural loans went to sugar production. Manuel Soliven, "The Philippine National Bank," Agricultural Credit Report (April 15, 1972), Appendices D and E.

Table 5.15: Loans Outstanding for Agriculture By  
Financial Institution

(In millions of pesos)

	AGLF	ACA	Rural Banks	PNB	Develop- ment Banks	Commer- cial Banks	Total	Deflated Total (at 1967 prices)
1965	...	87	167	569	293	458	1,574	1,760
1966	...	88	199	630	317	448	1,682	1,777
1967	n.a.	96	259	751	380	450	1,936	1,933
1968	15	106	302	857	438	612	2,330	2,208
1969	16	106	325	923	485	687	2,542	2,273
1970	17	119	391	973	500	741	2,741	2,139
1971	24	127	261	902	498	877	2,689	1,835
1972	65	127	508	855	740	919	3,214	2,010
1973	58	109	825	1,283	820	961	4,056	2,225
1974	80	110	1,334	1,429 <u>/a</u>	877	1,278 <u>/a</u>	5,108	2,098

/a As of June 30, 1974.

Source: Central Bank.

5.96 Special Credit Programs for Small Farmers: An important shortcoming of the past role of financial institutions in providing credit to agriculture has been their bias towards the larger and more affluent farmers, especially those in the sugar industry, leaving the bulk of the small farmers to rely on moneylenders and other traditional sources of credit. In one study conducted several years ago, it was estimated that farmers with less than 3 hectares received less than 2 percent of their production credit from institutional sources. Yet this group constituted about three-quarters of the total farm population and accounted for about 40 percent of the cultivated area. 1/ One reason for this pattern has been the insistence of financial institutions on collateral to secure a loan. In an effort to broaden access to institutional credit, the Government has been promoting a series of supervised credit programs in which farmers are not required to pledge collateral in order to obtain loans.

5.97 To overcome the hesitation of rural bankers to lend to small farmers, the Agricultural Guarantee and Loan Fund (AGLF) was established in

1/ Study cited by Orlando Sacay in "Small Farmer Credit in the Philippines", in Small Farmer Credit in the Philippines, USAID Country Paper No. SR 113, Vol. XIII (February, 1973).

1966. Channelled through rural banks in the form of special time deposits, the fund was administered by the Central Bank. However, after 5 years of operation, the AGLF encountered a number of difficulties and accounted for only about 2 percent of the volume of agricultural loans. The main problem was that supervision, which was supposed to be provided by Government extension workers, was minimal. To protect the rural banks from losses on unsecured loans, the Agricultural Guarantee Fund (AGF) was established in 1971. The AGF originally guaranteed 70 percent of the losses of the rural banks on unsecured production loans to support the agrarian reform program. The guarantee was recently raised from 70 percent to 85 percent, however, to encourage the rural banks to participate more actively in the supervised credit programs. Although the AGF guarantee overlapped with that of the AGLF, it nonetheless provided a more liberal guarantee scheme than the latter.

5.98 In 1972, the Agricultural Loan Fund (ALF) was established to finance an accelerated rice production program, largely in response to the severe floods that affected Central Luzon in that year. Administered by the Central Bank, the ALF took over the functions of the AGLF. The Land Bank of the Philippines administers all of these agricultural guarantee funds, including those used in the Masagana 99 and Masaganang Maisan programs.

5.99 By far the most important special credit program to date is the Masagana 99 program, which was started in May 1973. Initially undertaken as a means of aiding the recovery from the badly damaged rice crop in 1972/73, the Masagana program is designed to increase production through the provision of credit without collateral, improving extension services, and encouraging modern farming practices. It is aimed at rice farmers cultivating 7 hectares or less, who are encouraged to join an informal liability group called a selda, with each member of the group co-signing for the others as a substitute for collateral. At the beginning of the Masagana 99 program, a series of steps were undertaken by the Government to strengthen the agricultural credit system. First, as mentioned above, the AGF raised its guarantee on losses from 70 percent to 85 percent. Second, additional funds were given to the ALF which were channeled as special time deposits in rural banks. Third, the whole rediscounting system was overhauled. Rural Banks were allowed to rediscount up to 100 percent of their unsecured loans. In addition, the rediscount rate for supervised credit was lowered from 3 percent to 1 percent, compared to a rediscount rate of 5 percent for collateralized loans. Fourth, regional departments were established within the Central Bank which administered the ALF to expedite rediscounting.

5.100 During the two years the Masagana program has been in operation, an average of about ₱ 950 million of production credit a year has been granted (Table 5.16). The harvested area covered has been about 1.3 million hectares each crop year, or about one-third of the total harvested area of rice. About two-thirds of the area covered by the program has been irrigated land, which suggests that about half the irrigated area in the Philippines is being covered by the Masagana program. In the main season of the 1974/75 crop year, the program reached about 734,000 farmers, compared to about

638,000 in the previous year. These data suggest, therefore, that about 45 percent of the rice farms are benefiting from the program. The few studies which have been undertaken indicate that the average farm size for participating farmers is about 2.5 hectares, whereas the national average for rice farms is about 1.7 hectares. 1/ Most of the Government's extension agents are concentrated on the Masagana program and, while the ratio of production technicians to farmers varies with the season, the average is about one technician to 200 farmers. The expanded coverage of the program in crop year 1974/75 created considerable strains and led to a deterioration in the quality of supervision. It is generally believed that this is partly the reason for the deterioration in the repayment record in the second year of the program.

5.101 In the early phases of the program, the determination of the rural banks, the Central Bank, and the Government to collect loans was clear to borrowers. As a result, repayment records were very good, with a collection rate of about 90 percent for loans granted in phases I and II (May 1973 to April 1974). In the third phase, however, the repayment rate declined, and by mid-1975 there was a total of about ₱ 237 million overdue and demandable. This was about 18 percent of the total amount loaned in the first three phases. 2/

5.102 The Government has undertaken a program designed to improve the credit system, the most significant measures of which are the following:

1. The basic pay of the field technicians was increased and their salary incentives adjusted. Every technician now receives an incentive allowance of ₱ 0.50 for every farmer supervised plus ₱ 6.00 upon full payment of the loan.

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1/ See, for example, the study by S.P. Mariano, Masagana 99 (Manila: National Food and Agriculture Council, October 1974, processed).

2/ The details of the repayment record as of September 30, 1975 were:

	Amount (in millions of pesos)		Amount delinquent as percentage of amount loaned
	<u>Loaned</u>	<u>Repaid</u>	
I. May-October 1973	369	337	9
II. November 1973- April 1974	230	206	10
III. May-October 1974	<u>716</u>	<u>535</u>	<u>25</u>
Total	1,315	1,078	18

2. Rural bank managers were given administrative control over the production technicians. This authority will be exercised jointly with the technicians' provincial supervisors. In addition, rural banks were instructed to hire additional collectors funded out of the service charges collected from borrowers.
3. Additional production technicians have been bonded so that they are now authorized by the banks to make collections for them.
4. The technicians' work load has been lightened through a scheme of assisting only those farmers who are having difficulty adopting the new technology or have an unsatisfactory loan repayment record.
5. The barangays have also been utilized. A barangay chairman is now entitled to an incentive allowance if he accompanies a farmer to the rural bank in the payment of the Masagana loan. In addition, Barangay Action Teams have been formed, composed of the barangay leader, the production technician, a representative of the rural bank, and two exemplary farmers to encourage delinquent farmers to settle their loan obligations.
6. Before production technicians are transferred or allowed to resign, they are required to familiarize their replacement with the farmer-borrowers in their area for 2 months to assure continuity of adequate supervision.
7. The Land Bank of the Philippines has revised its guarantee fund to lessen the administrative delays involved in approving guarantee claims.

5.103 The Masagana 99 approach was extended to corn, sorghum, and soybeans in 1974 with a program called Masaganang Maisan. Results to date are generally acknowledged to be disappointing, with the major constraints being a lack of staff, improved seeds, and market outlets. Steps have been taken to improve the program, but it is still too early to determine the results.

5.104 In view of the dominant position of small farmers in agriculture today, it is clear that continued efforts will be needed to develop institutional credit programs for these farmers. Despite the recent difficulties, the Masagana program (or some variant of it) will need to be strengthened. Close attention will have to be given to the training and supervision of field technicians and the continued expansion of the network of financial institutions in key agricultural areas. But success in the long-term will also require a good record of loan repayments among small farmers, which has been one of the less satisfactory aspects of special credit programs in the past. In view of the frequent crop failures in the Philippines that stem from typhoons and floods, it may be difficult to achieve a high average repayment record in all major agricultural regions. Perhaps a collection rate of 80-90 percent is the best that can be accomplished.

Table 5.16: Progress of the Masagana 99 Program

Category	Crop Year 1973/74		Crop Year 1974/75	
	May-Oct 1973	Nov. 1973- Apr. 1974	May-Oct 1974	Nov. 1974- Apr. 1975
Area financed (in thousands of hectares)	622	353	865	...
Farmers supervised (in thousands)	402	236	429	305
Total credit (in millions of pesos)	369	231	717	572
Average loan per hectare	595	654	829	...

Source: PNB, Progress Report, February 6, 1975; Rural Banks Progress Report, January 2, 1975; PNB, Fact Sheet on Selected Industries, May 1975; Department of Agriculture, Management Information Systems Progress Reports.

#### D. Other Programs

##### Expanding Access to Electricity

5.105 The low-cost electricity needed to upgrade irrigation services and to promote small industrial or other production enterprises is not currently available in most rural areas. An integral component of the Government's strategy for rural development, and one to which a high priority is attached, is the electrification of the entire country during the next 20 years. The goal of the program is to provide electricity for household use and for productive agricultural and industrial activities. The first stage of the electrification program is the establishment of an electric cooperative system in each of the 72 provinces of the country by 1977; the second stage is the provision of electricity to 75 percent of the population by 1984; and the final goal is the provision of electricity for the entire population by 1994. By the end of 1974, 29 electric cooperatives had systems in operation. Over 160,000 cooperative members, representing a population of over one million, were receiving electrical service.

5.106 The uses of electricity for productive agricultural and industrial activities include power for irrigation and farm mechanization and for small and medium-scale industries in the rural sector. The main productive use of electricity in agriculture is for small electric pump irrigation. Companion programs either in operation or in the planning stage are expected

to fund the necessary equipment, technical assistance, and training to expand the use of pump irrigation in the electric cooperative areas. The introduction of electricity in rural areas is providing a stimulus for nonagricultural productive activities as well. In one area, lumber mills, feed mills, a fish research unit, and some small-scale industry have been developed, and three small municipal water systems have been installed using local funding. Small-scale industrial cooperatives are being promoted in areas served by the rural electrification program, and the World Bank has provided US\$2.5 million to the Government for support and expansion of this program as part of a US\$30 million loan for small and medium-scale industrial development.

5.107 The Government estimates that between 80 and 95 percent of the population will be able to afford electrical service when it is made available by a cooperative. Even though the incomes in many rural areas are low, experience has shown that Filipinos are willing to allocate a large portion of their cash income to electrical service. This strong demand among rural households is encouraged by the low rates being charged by the cooperatives. Indications of utilization in the home show that electricity is used most extensively for lighting, irons and hotplates, food preservation, and home entertainment.

#### Improving Transport Services

5.108 Increased agricultural production is possible only if fertilizers, seeds, sprays, and other inputs can be delivered where and when they are needed, and if surplus produce can be transported to consuming centers. Inadequate transport services in the Philippines increase the cost of agricultural production and worsen the competitive position of exports. Transportation networks which should serve to bring the isolated rural areas into the orbit of development activities are particularly difficult to establish because of the insular character of the country. Domestic trade requires, in addition to land transport infrastructure, many ports and ferries and complex networks of shipping and air transport services. Although the Government has made considerable progress in improving the major highway systems, particularly on the islands of Luzon and Mindanao, access to markets in rural areas is severely hampered by poor interisland transportation and the lack of adequate farm-to-market and feeder roads capable of accommodating motorized traffic and/or all-weather transport facilities.

5.109 Roads: It is estimated that half of all rural barrios have only poor quality farm-to-market roads which may be impassable during the rainy season, and another 20 percent have roads which are little more than footpaths. The currently inadequate transportation network contributes to local surplus/shortage situations and acts as a deterrent to increased production. A major task in rural areas is, therefore, to upgrade the existing footpaths and to maintain the existing gravel roads to prevent their deterioration during rainy periods.

5.110 The poor quality of existing roads frequently drives up the price of transport services where they are available. Freight rates, although

set by the Board of Transport, are not followed closely in practice. Competition in more readily accessible areas, such as the Cagayan Valley, results in somewhat lower rates than those prescribed by the Board, but elsewhere they are frequently higher. In relatively inaccessible areas, purchases of inputs such as fertilizers, insecticides, and seeds are not economical because of high transport costs, and marketing of output is difficult because of inadequate transportation networks.

5.111 The Government has begun to place greater emphasis on the improvement of farm-to-market and feeder roads to aid food production programs. The long-term goal is to establish one kilometer of effective feeder road per 100 hectares of cultivated land; this would require about 75,000 kilometers of feeder roads for the presently cultivated area. The Government intends to maintain and upgrade some 7,500 kilometers of feeder roads at a cost of about ₱ 130 million in 1974-75 and to sustain improvements at this level in future years. In the past several years, USAID has helped finance the construction and rehabilitation of low-standard, low-cost feeder roads under the Provincial Development Assistance Program (PDAP), with outlays of US\$750,000 a year. The World Bank is helping to finance the upgrading of 700 kilometers of minor roads in its Second Highway Project. In addition, the Asian Development Bank is considering including the upgrading of 800 kilometers of minor roads in Mindanao in a possible highway loan.

5.112 At present, the main responsibility for planning the improvement of local roads rests with the Department of Public Highways (DPH) and the Department of Local Government and Community Development (DLGCD). The allocation of resources for local road improvement programs is also made primarily through those two national government agencies. As the subsequent discussion indicates, consideration could be given to expanding local government responsibility for the construction and maintenance of local roads, which would be a concrete step towards increasing local participation in rural development programs. The Bureau of Barangay Roads (BBR) could play a particularly important role in this regard. The various local road improvement programs operated by the national government agencies could possibly be consolidated and incorporated into local programs to be administered by the provincial governments and supported by the BBR. In order to enable the provincial governments to carry out this task, the central authority could make an annual allocation to the provincial governments for local road improvement. The choice of roads to be improved and/or maintained would be the responsibility of the local governments who would be responsible for the efficient use of funds in coordination with national norms. Such an approach would provide all local governments with a regular flow of funds for improving and maintaining minor roads; it would also help strengthen local capabilities to plan, select, design, and implement projects on the basis of the intimate knowledge that only local leaders and technicians have of their region's economy and needs.

5.113 Ports and Shipping: With increasing regional specialization in production patterns and rural development, the need to improve hitherto neglected aspects of interisland shipping (including ferry connections, port

and storage facilities, and land access in the hinterland to port terminals) is taking on added importance. Small watercraft (bancas, batels and kumpits) play an important role in providing low-cost, short-haul transport of agricultural products for local as well as interisland markets. In addition, barges are used extensively to move raw and refined sugar, rice, and other produce. Coastal transport is frequently a logical alternative transport mode where cross-island road construction is made difficult by mountainous terrain. The hinterlands are also served by numerous roadsteads and shallow water ports which were developed in the past where land access was severely limited.

5.114 Despite their importance, the potential of interisland and coastal shipping has not yet been fully realized. In part, this has been due to inadequate port facilities for local shipping. In the past few years, the Government, with assistance from the World Bank and the Asian Development Bank, has improved the port facilities of Cagayan de Oro, General Santos, Davao and Cotabato. However, the majority of ports still suffer from inadequate working areas, transit sheds, antiquated cargo handling facilities, and disorganized port operations. Moreover, existing facilities are poorly maintained. A major task in outlying areas is to consolidate ports of various sizes and functions where improved overland mobility makes it possible to realize economies of scale and efficient functioning. The selection of port location must be undertaken in the context of the total transport network based on an investigation of traffic patterns, the development potential of the widened hinterlands, the natural conditions of the harbor areas, and the existence of over 500 private ports which handle about two-thirds of the total loaded and unloaded cargo tonnage.

5.115 Interisland shipping will have a major role to play in helping to meet the Government's development objectives of increased food production and regional specialization. The growing need for food in deficit areas has to be met by increased production in surplus areas such as Mindanao. This, in turn, will require efficient marine transport of both agricultural inputs and outputs. But the local shipping fleet is in poor condition, an estimated 40 percent of interisland vessels are over 24 years old, and a high proportion of the smaller ships are converted naval or military vessels. Overloading and prolonged journey times on antiquated vessels characterize interisland shipping. The cumulative effects of these deficiencies are congestion and confusion, which unduly restrict and slow the movement of cargo, stevedoring operations, and ship turnaround time. This is particularly true at ports where offshore loading and unloading is a frequent practice. A modernized and expanded interisland shipping fleet, operating on a reliable, regularly scheduled basis, could make a major transport contribution to the Philippines' rural and regional development. Much of this expansion and modernization could be accomplished through the development of domestic facilities for the construction of barges and small river crafts.

#### Water Resource Development

5.116 Although the Philippines is generally regarded as having abundant water resources, efforts to develop and regulate them have lagged because

of a lack of public funds and inadequate programs. These shortfalls have impeded the development of irrigation facilities, water supply systems for household and industrial uses, and flood control works for protection of agricultural basins. The development of an adequate rural water supply system should be given high priority in the Government's program to improve the level of services in the rural areas.

5.117 The importance of irrigation development for increased food production has already been stressed, and is well recognized by the Government. Intensive and prolonged rainfall brought on by typhoons and the southwest monsoon rains between July and January gives rise to extensive flooding in some of the major river basin areas. <sup>1/</sup> Heavy losses of agricultural crops, livestock, and property result. Largely as a result of the severe damage caused by the 1972 floods in Luzon, the Government has accelerated its program for flood protection and river control. Expenditures on flood control increased from an average of P 6 million a year in FY67-72 to P 280 million in FY75; the share of public investment for flood control increased from one percent during FY67-72 to 8 percent in FY74. USAID has assisted with flood disaster relief and substantial reconstruction and improvement of existing flood control structures has taken place. The program includes projects in Central Luzon, Mindanao (Cotabato and Agusan), and in Bicol.

5.118 Drainage is an important prerequisite to increased agricultural production in many river basin areas. Given the high intensity of rainfall and the large watershed area relative to the area of the plains, the natural drainage system is frequently not sufficient to dispose of the large amounts of water that are emptied onto the plains during the wet season. The damage may be total destruction of the crop or a lowering of yields. No information is available on the volume or cost of crops damaged by flooding or waterlogging, but the effects of both have undoubtedly been considerable. In order to improve health and land productivity, a drainage-cum-land reclamation attack on schistosomiasis has been included in the Government's Mindoro development project. On the islands of Leyte and Samar, schistosomiasis is believed to be endemic. The Government is aware of this problem and Leyte is the focus of a special development project being prepared at the provincial level which includes drainage, other land improvements, and credit for farm production. Many types of drainage schemes can be carried out through labor-intensive methods. The infrastructure requirements of the rural areas are such that there are likely to be ample economically justifiable small-scale projects, many of which could be met by local development funds.

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<sup>1/</sup> In the past quarter-century, the Philippines has been struck by an average of 20 typhoons a year; they occur most often in July through November. The highest frequencies are in Ilocos and the Cagayan Valley, Batanes Islands, the southern part of the Visayas, and Bicol. The frequency of typhoons is relatively low in Central Luzon.

## Chapter 6

### THE CHANGING ROLE OF INDUSTRY

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## CHAPTER 6

### The Changing Role of Industry

#### A. Past Trends in Industrial Growth and Structure

6.01 Industrialization has always been a prime objective in Philippine post-independence economic policy. In pursuing it, the country has been able to rely on a number of favorable circumstances, including: vast agricultural, forest, and mineral resources; abundant, literate, and relatively cheap labor; rapid urban population growth, including an aggressive entrepreneurial class; proximity to the Japanese market and relatively free access to that of the United States; and a rather unrestricted inflow of foreign direct investment. Yet the pace of industrialization over the past quarter of a century has been a fairly moderate one by all standards; with an industrial growth rate of 7.7 percent per annum, it took 24 years (1950-74) to raise the share of mining and manufacturing industries in total net domestic product from 14 percent to 23 percent. 1/

6.02 Industrial growth has obviously also been affected by a number of less favorable factors. The country has experienced strong competition by already established industries in the region; it has remained dependent on a small number of foreign markets for the bulk of its external trade; much of the gain from foreign investment has been accruing to the countries of origin; and there have been difficulties in coping with transportation and other infrastructure requirements, so important at all stages of industrialization and vital for a multi-island country with a rapidly growing population.

#### Past Industrial Growth Strategy

6.03 Historically, the highest and most stable growth rates were recorded in the initial phase of Philippine industrial development: 40-50 percent per annum in 1946-49, and around 10 percent in 1950-60. Even taking into account the low starting point and particular circumstances of early postwar reconstruction, it is evident that the highly sheltered import substitution drive was a major contributing factor to that growth. A protective system which strongly favored the domestic production of light consumer goods was effectively built up through a set of policy tools that included quantitative import controls, an overvalued exchange rate, low long-term interest rates, and specialized incentives to attract foreign investment. It was in these early postwar periods that the large-scale, capital and import-intensive enterprise which was located in or around Manila and catered to domestic urban markets, became the focal point of industrial policy. Visible by-products of that strategy were a sharp fall in the share of consumer goods in total imports and a movement in the internal terms of trade which favored the nonagricultural sectors. 2/

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1/ At constant 1967 prices.

2/ The ratio of nonagricultural to agricultural prices if 1950 is taken as a base year amounted to 1.21 in 1960.

6.04 Because import replacing production of nondurable and, later, durable consumer goods set off progressive changes in the traditional economic structure, that strategy was a necessary stage in the development process. It resulted in the productive employment of surplus labor and capital, the creation and education of a new entrepreneurial class, and the setting of new national and social goals. At the same time, however, that strategy had a number of inherent weaknesses that were not sufficiently appreciated by policy makers. The emphasis on finished consumer goods, for example, implied an increasing import dependence on the part of manufacturing since there was little stimulus for the production of domestic raw materials and intermediate goods. The increasing import dependence contributed to a heavy concentration of manufacturing activity in the area of the main port, Manila. The built-in preference in favor of production for the domestic market and the absence of any systematic export orientation put the country at a disadvantage at a time when several other countries in the region had successfully launched extensive export drives. Also, the preference for large-scale, capital-intensive enterprises tended to put small-scale producers in an inferior economic position and to reduce the labor-absorbent capacity of manufacturing and extractive industries.

6.05 This growth momentum was halted when the primary exporting sector was no longer able to supply all the foreign exchange needed to keep industry growing. Consequently, a severe balance of payments crisis developed as gross international reserves fell to a low of less than US\$100 million and the industrial growth rate dropped sharply to 2.1 percent in 1960 compared to an average of 10 percent a year during the earlier 1950s. The Government devalued the peso and relaxed exchange controls in 1960-62. Although quantitative import controls were replaced by relatively high import tariffs, the basic structure of incentives, subsidies, and other price distorting factors remained largely untouched. Import substitution began in the field of intermediate goods, and some new exports were induced by the devaluation, but there was no major change in the rate and pattern of growth. With an industrial growth rate of 4 percent, the relative contribution of the industrial sector to GNP remained almost unchanged at around 19 percent during 1960-65.

6.06 In order to revitalize industrial production, the Government undertook a series of measures to attract more investment into the industrial sector, redirect import replacing production, and give an impetus to export industries. The Investment Incentives and Export Incentives Acts were enacted in 1967 and 1970, respectively; the Board of Investment (BOI) was established; a 40 percent devaluation of the peso was undertaken in 1970; and a tariff realignment took place in 1972.

6.07 The impact of these policies will be discussed in some detail later in this chapter; it should be stressed at this point, however, that these policies brought little improvement in overall growth trends except in the export sector. During 1968-73, there was a further slowdown in industrial growth and a virtual stagnation in industrial employment. Total

manufacturing investment also stagnated at around 2 billion pesos (at 1967 prices). Moreover, no adequate strategy has yet been found to deal with the low employment generating capacity of the industrial sector, undoubtedly the most difficult problem inherited from the past.

### Output and Employment Trends

6.08 In order to analyze past industrial growth, three periods have been chosen on the basis of major policy characteristics and the availability of data: (i) 1956-62, which demonstrated the accumulated effects of foreign exchange and import controls; (ii) 1962-68, which illustrated partial decontrol along with devaluation; and (iii) 1968-73, when a further devaluation took place in conjunction with steps to improve the structure of investment. Except for employment, the analysis has been confined to "organized" industry (i.e., firms with 5 or more workers), since the information on the number of units and value added for cottage industries (i.e., those employing less than five persons) is generally lacking. 1/ The aggregate picture of trends in manufacturing appears to be strongly influenced by the large-scale sector, due to its increasing share of total output and employment. Table 6.1 summarizes these trends. 2/

6.09 The overall growth rate in the organized sector (firms with 5 or more employees) was 7.8 percent a year in real terms during 1956-73, with a distinct declining trend. Within this general trend, smaller scale industries performed most poorly. Compared to the 8.3 percent growth rate of the larger firms, industries with 5-19 employees stagnated in that period, with only a 0.3 percent growth rate. The small to medium scale industries

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1/ For official administrative purposes, small-scale industries are defined as those with total fixed assets (including land) of between P 100,000 and P 1,000,000; medium-scale industries are those in the P 1-4 million range, and large-scale are those over P 4 million. At current price levels, the above definition probably comprises establishments in the category of 10-50 employees. The fourth group is composed of the "unorganized" industries, i.e. those in the range of 1-4 employees. In a broader sense, the small-scale sector will be taken here as industries in the range of 1-50 workers; the 1-4 workers group will be referred to as cottage industry, and the remaining group as modern small-scale industry.

2/ In spite of some improvement in recent years, the quality of manufacturing census data used in this table leaves much to be desired. The year-to-year comparability of these data is somewhat affected by methodological and coverage inconsistencies. The Annual Survey of Manufactures (ASM) data on value added are not quite comparable with the national accounts figures cited above; the ASM's "census value added" is, within its lesser coverage, inflated by interindustry re-sales. The use of the GDP deflator in manufacturing value added computations (instead of manufacturing price indices) is another weak point. Basic output and employment trends can, nevertheless, be used as approximations.

Table 6.1. Growth of Manufacturing Industries, 1956-1973

Category	1956	1962	1968	1973	Annual Growth Rates (In percent)			
					1956-62	1962-68	1968-73	1956-73
Number of firms								
20 or more workers	1,833	2,180	2,385	2,912	2.9	1.5	4.1	2.8
5-19 workers	5,375	6,289	7,673	9,469	2.7	3.4	4.3	3.4
Total	7,208	8,469	10,058	12,381	2.7	2.9	4.2	3.2
Employment (in thousands)								
20 or more workers	150.9	230.5	325.1	454.4	7.3	5.9	6.9	6.7
5-19 workers	54.9	48.0	69.2	72.4	-2.2	6.3	0.9	1.6
1-4 workers	829.2	845.5	912.7	788.2	0.4	1.3	-3.0	-0.3
Total	1,035.0	1,124.0	1,307.0	1,315.0	1.4	2.5	0.1	1.4
Value added (in millions of pesos at 1967 prices)								
20 or more workers	1,532.8	2,769.9	4,457.1	5,948.0	10.3	8.2	5.9	8.3
5-19 workers	181.8	132.3	266.9	191.3	-5.4	13.8	-7.0	0.3
Total	1,714.6	2,902.2	4,724.0	6,139.3	9.2	8.5	5.4	7.8
Value added per worker (in thousands of pesos at 1967 prices)								
20 or more workers	10.2	12.0	13.7	13.1	2.8	2.2	-1.0	1.5
5-19 workers	3.3	2.8	3.9	2.6	-3.0	5.8	-7.3	-1.4
Average	8.3	10.4	12.0	11.7	3.8	2.4	-0.5	2.0

Note: The implicit GDP deflator from the national accounts (revised April 23, 1975) was used in value added computations.

Source: Bureau of Census and Statistics (BCS), Annual Survey of Manufactures, 1969; preliminary results of the Annual Survey of Manufactures, 1973; and national accounts

with 20-99 employees had a negative growth rate in 1968-71. Information on the output in the smallest scale cottage sector is lacking, but, judging from employment figures, there is little doubt that it has been declining in recent years. 1/

6.10 From 1956-73, with a growth rate of 1.4 percent per annum, industrial employment's share in total employment dropped from 12.9 percent to 10.5 percent. While the modern manufacturing sector (i.e., industries employing over 20 employees) was able to maintain a fairly high and stable rate of new labor absorption (6-7 percent per annum throughout the 1956-73 period), employment in firms of 5-19 workers showed an erratic trend, with a modest average growth rate of 1.6 percent. Employment in cottage industries proved on balance to be declining. The relative shares of the latter two industrial groups (5-19 and 1-4 workers) decreased from 0.7 to 0.6 percent and from 10 to 6 percent, respectively, while that of the modern manufacturing sector increased from 1.8 to 3.5 percent.

6.11 Employment trends deteriorated in the most recent period (1968-73). The gain in modern sector employment (an increase from 325,000 in 1968 to 454,000 in 1973) was offset by an absolute fall of employment in the cottage sector (from 913,000 to 788,000) and a basically stagnating employment level in the mining and 5-19 workers industrial groups. Total industrial employment reached 1,411,000 in 1974, compared to 1,068,000 in 1956; the annual increment amounted to 19,000, out of which 18,000 were absorbed by the modern manufacturing sector.

#### Changes in Industrial Structure

6.12 The changes in the relative importance of individual industries in terms of their participation in total manufacturing value added and employment are shown in Table 6.2. It can be seen that the present structure of industry is not substantially different from that of the mid-1950s. The group of the five fastest growing industries - chemicals, basic metals, electrical machinery, rubber and tobacco - increased its share in total value added from 17 percent in 1956 to 29 percent in 1974. The share of the five slowest growing industries - food, metal products, machinery, transport equipment, and "miscellaneous" industries - decreased from 46 to 36 percent during the same period. Similar trends were registered in the distribution of employment, although with a somewhat different industrial composition.

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1/ The proportion of this sector's contribution to total industrial value added has been estimated by a recent document of the National Economic and Development Authority (NEDA) at 4 percent, and by the ILO study at around 6 percent.

Table 6.2. Distribution of Value Added and Employment in Organized Manufacturing

Industry	Value Added (At constant 1967 prices)							Employment (In percent)				
	1956	1960	1964	1968	1972	1973	1974	1960	1964	1968	1971	1973
Food processing	30.1	27.6	28.5	23.5	27.8	26.2	27.8	18.1	20.8	21.1	20.8	21.5
Beverages	9.2	7.6	8.4	8.2	8.9	8.1	8.1	4.0	3.9	3.3	3.8	3.4
Tobacco	5.4	4.8	3.9	6.4	5.6	7.0	7.2	5.8	4.4	4.8	5.0	4.3
Textiles	3.8	5.7	5.9	7.0	5.4	5.5	4.9	10.7	11.1	11.8	13.0	15.9
Apparel	6.5	3.7	2.6	2.4	5.3	5.0	4.8	13.1	9.8	9.6	7.8	7.4
Wood products	4.6	4.3	5.4	5.5	4.5	5.3	4.9	8.5	9.5	9.9	9.9	8.9
Furniture	1.1	.9	.9	.6	1.1	1.0	1.0	2.5	2.4	2.0	1.5	2.0
Pulp and paper	1.5	2.6	1.9	2.7	1.8	1.7	1.8	2.0	2.2	2.0	2.5	2.3
Printing and publishing	3.4	3.5	3.2	2.9	2.9	2.7	3.0	5.3	4.5	3.8	3.4	2.9
Leather products	.4	.5	.3	.3	.1	.1	.1	.7	.7	.6	.5	.4
Rubber products	.9	3.2	3.2	2.8	1.9	1.8	2.7	2.2	2.1	2.3	2.2	2.4
Chemicals	8.9	9.8	10.1	11.9	13.6	14.3	11.9	5.5	5.8	5.9	6.1	8.9
Petroleum	3.0 <u>a/</u>	3.0 <u>a/</u>	3.8	4.9	4.8	4.4	4.2	.3 <u>a/</u>	.4	.3	.4	.2
Nonmetallic mineral products	3.6	3.7	4.8	5.1	3.1	3.4	2.8	3.5	3.8	4.1	5.1	3.5
Basic metals	.9	1.5	1.6	2.6	1.6	2.0	2.2	1.5	1.5	2.1	2.8	3.0
Metal products	3.9	5.5	4.1	4.4	3.0	2.9	2.8	6.3	5.3	5.9	4.3	4.0
Machinery	1.6	1.9	.7	.9	1.1	1.2	1.2	1.7	1.4	1.5	1.6	2.1
Electrical machinery	1.0	3.1	4.6	3.3	3.8	3.8	4.7	3.3	4.4	3.3	3.5	3.2
Transport equipment	5.1	3.0	5.0	3.6	2.1	2.0	2.4	3.2	3.9	3.8	3.5	2.6
Miscellaneous	5.1	4.1	1.1	1.0	1.6	1.6	1.5	1.8	2.1	1.9	2.3	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a/ Mission estimate

Source: BCS, Annual Survey of Manufactures, 1969, 1971, and 1973; national accounts data; and, for 1956, E. M. Bautista, "Industrial Capital Utilization in the Philippines," University of the Philippines Discussion Paper No. 74-13, (n.p., September, 30, 1974).

6.13 Table 6.3 illustrates the links between changes in the composition of manufacturing value added and trends in the relative factor use and market orientation. <sup>1/</sup> Somewhat surprisingly, after a long period of relative decline, consumer goods industries as a group increased their share in total manufacturing output from 52 percent in 1968 to around 58 percent in 1972-74. Several important consumer goods industries - particularly the export-oriented ones such as food processing, garments, footwear, and furniture - have been able to maintain relatively high growth rates. The share of industries producing intermediate goods declined from 40 percent in 1968 to 34 percent in 1972-74, primarily because of a sharp fall in the rate of growth in intermediate sectors (such as pulp and paper, other wood products, cement, and metal products) from 15 percent in 1960-68 to 4 percent in 1968-74. The third industrial group of durable consumer and capital goods maintained its share at a fairly constant level of around 8 percent.

6.14 These developments coincided with enormously increased imports of industrial raw materials and intermediate inputs in 1968-74, while domestic production of finished consumer goods was enjoying almost absolute protection. It appears that there has been little import substitution in some intermediate and capital goods with a ready domestic market (for example, metal products and simple industrial and agricultural machinery), which has been largely due to virtually tax-free imports of these items under the existing incentives schemes and to more appealing investment opportunities in more sheltered areas.

6.15 On the other hand, intermediate goods produced for export (particularly wood, cement, minerals and rubber products) have proved to be more vulnerable to market fluctuations than most other product groups. A high degree of underutilized capacity developed in these industries, further eroding their cost competitiveness. In both import-replacing and export-oriented industries, producers were, until recently, insufficiently encouraged to turn to higher processing stages, create new industrial linkages, and thus increase the demand for inputs made by domestic industries.

6.16 In the period 1968-74, industries having an export potential, which grew at 8 percent per annum, fared better than those geared only to the domestic markets, which grew at only 6 percent (Table 6.3). This indicates how important it may be for industries facing domestic demand limitations to have an additional outlet for their products.

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<sup>1/</sup> The classification of industries according to their end-use characteristics corresponds with that in NEDA publications, except that "miscellaneous industries" are included here in the consumer goods category. The classification of industries according to factor intensity and capital productivity is based on capital-value added and capital per worker ratios as taken from the Central Statistical Office (CSO), Annual Surveys of Manufactures, 1969 and 1970. Industries with export potential are defined as those producing largely for exports, or having substantial potential for exports.

Table 6.3. Structural Changes in Manufacturing Industry, 1956-74  
(At constant 1967 prices)

Category	Percentage Shares in Value Added							Annual Rate of Change in Value Added (In percent)		
	1956	1960	1964	1968	1972	1973	1974	1960-68	1968-74	1960-74
End-use Characteristics										
Consumer goods <u>a/</u>	65	58	55	52	59	57	58	10.8	9.0	10.0
Intermediate goods <u>b/</u>	27	34	35	40	34	36	34	14.9	3.9	10.0
Durable and capital goods <u>c/</u>	8	8	10	8	7	7	8	12.3	8.0	10.5
Factor Intensity										
Capital-intensive industries <u>d/</u>	49	51	54	54	55	54	53	13.0	7.0	10.4
Labor-intensive industries <u>e/</u>	51	49	46	46	45	46	47	11.7	7.1	9.7
Capital Productivity										
High capital-output ratio industries <u>f/</u>	37	43	43	47	41	42	39	13.8	3.9	9.5
Low capital-output ratio industries <u>g/</u>	63	57	57	53	59	58	61	11.3	9.5	10.5
Import-Substitution/Export Orientation										
Domestic market oriented industries <u>h/</u>	41	41	42	47	45	46	44	14.1	5.9	10.5
Industries with export potential <u>i/</u>	59	59	58	53	55	54	56	10.6	8.0	9.7
<b>Total</b>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>12.4</u>	<u>7.0</u>	<u>10.0</u>

- a/ Food, beverages, tobacco, textiles, apparel, furniture, printing, leather, miscellaneous.  
b/ Wood, paper, rubber, chemicals, petroleum, nonmetallic mineral products, basic metals, metal products.  
c/ Machinery, electrical machinery, transport equipment.  
d/ Food, paper, rubber, chemicals, petroleum, nonmetallic mineral products, basic metals.  
e/ Beverages, tobacco, textiles, apparel, wood, furniture, printing, leather, metal products, machinery, electrical machinery, transport equipment, miscellaneous.  
f/ Textiles, paper, leather, chemicals, petroleum, nonmetallic mineral products, basic metals, metal products, electrical machinery, transport equipment, miscellaneous.  
g/ Food, beverages, tobacco, apparel, wood, furniture, printing, rubber, machinery.  
h/ Beverages, tobacco, printing, chemicals, petroleum, basic metals, metal products, machinery, transport equipment.  
i/ Food, textiles, apparel, wood, furniture, paper, leather, rubber, nonmetallic mineral products, electrical machinery, miscellaneous.

Source: Table 6.2

6.17 Factor Use and Productivity: As shown in Table 6.3, industries characterized by higher capital-output and capital-labor ratios have experienced a sharper fall in their growth rates in recent years than those with lower capital-output and capital-labor ratios. As a result, industries with generally higher productivity of capital as indicated by lower capital-output ratios grew at a rate of 9.5 percent per year in 1968-74, compared to only 3.9 percent per year in the case of the higher capital-output ratio industries. This trend coincided with the revival of consumer goods industries and the slower growth in intermediate sectors referred to earlier, at least in part because there was a diversion of investments from intermediate sectors.

6.18 The relationship between the factor use and market orientation of manufacturing industries and their capacity utilization levels is shown in Table 6.4, which has been compiled from two recent surveys based on representative samples of 400 large and medium-scale firms (those with over 20 employees) and 91 export-oriented, BOI-registered firms. The labor-intensive industries are generally found to be operating at lower rates of capacity utilization, which limited their employment generation during the 1968-73 period; capital and consumer goods industries, both predominantly labor-intensive, utilize fewer shifts and use their capacity less efficiently than intermediate goods industries, which are largely capital-intensive. Firms using local raw materials do not utilize their capacity any better than those depending on imported inputs, and export-oriented industries are more efficient in utilizing their capacity than those geared to the domestic market, as are larger firms.

#### B. Import Substitution and the Role of the Domestic Market

6.19 The thrust of Philippine industrialization during the 1950s and 1960s was clearly towards "traditional" import substitution in final consumption goods as well as extractive and agro-based export industries. In more recent times, the authorities have been endeavoring to shift the emphasis in import substitution towards intermediate and capital goods industries, and in exports, towards nontraditional manufacturing activities. At the same time, they have also sought to promote labor-intensive and small and medium-scale production. The prospects for a real change in the pace and direction of industrial growth in the Philippines depends upon the existing investment programs, as they will to a large extent determine the nature and dimensions of industrial growth over the next few years. The main issue is the scope and relative importance of the major growth factors; i.e., further import substitution, increased nontraditional manufactured exports, and the expansion of industrial production into new areas of demand in the domestic market.

6.20 The Board of Investment: The BOI investment program, as set out in the Eighth Investment Priorities Plan (IPP) and the Sixth Export Priorities Plan (EPP), is a combination of intended investment by the private sector and designation by the Government of preferred growth areas. These preferred areas include most of the industrial sector. However, the BOI program

Table 6.4: Average Capital Utilization Rates

<u>Item</u>	<u>General Industry Survey (1972)</u>	<u>Export Industry Survey (1973/74)</u>
<u>Total Number of Firms Surveyed</u>	400	91
One shift	180	16
Two shifts	73	17
Three shifts	147	36
<u>Average Capital Utilization Rate (in percent)</u>	41.6	52.7
Capital-intensive industries	43.4	55.7
Labor-intensive industries	40.5	50.4
Consumer goods industries	39.2	48.3
Intermediate goods industries	49.4	61.6
Capital goods industries	27.0	35.6
Import-dependent industries	41.9	51.8
Industries depending on local inputs	41.2	53.2
Export oriented industries	50.8	52.7
Non-export oriented industries	38.6	--

Note: Capital utilization rates in this table are based on the proportion of time the plants are in operation and on the intensity of use of the equipment installed. These rates represent simple averages for the firms in the sample; the capital-weighted mean of capital utilization rates would be considerably higher (by 19 percent in the case of the 1972 survey), reflecting better capital utilization by larger-sized plants.

Source: R.M. Bautista, "Industrial Capital Utilization in the Philippines" and B. Diokno, "Capital Utilization in Government 'Favored' Export-oriented Firms," Report No. 74-8 (Manila: University of the Philippines, July 10, 1974).

does not represent a firm plan; some of the projects listed may never materialize, and new ones may be added to it in the course of its execution. The BOI-registered projects are likely to make up over one-half (perhaps even two-thirds) of total industrial investment in the next few years, so this program is representative enough of the main features of the planned growth in large-scale industry.

6.21 The Eight IPP and the Sixth EPP list 130 and 61 priority areas, respectively, for investment. Cost and employment requirements implied by these plans, as well as their sectoral breakdowns, are presented in Table 6.5. The most striking feature of this program is undoubtedly its heavy bias toward capital-intensive projects. The capital/labor ratio of ₱ 500,000 (US\$71,000) per worker for the program as a whole is one rarely found in countries at a similar stage of development. Even if the cost estimates turn out to be overstated and the anticipated employment understated (employment is frequently registered in terms of one shift even though additional shifts may be introduced later), this capital-worker ratio is much higher than in previous years. 1/

6.22 The increase in capital-intensity of the BOI projects is largely due to a drastic shift in the distribution of industries. Agro-based and engineering industries, which are generally more labor-intensive than those in mining and chemicals, account for 47 percent of all projects in the Eighth IPP and Sixth EPP combined, compared to about 70 percent for the same groups in all projects registered with the BOI in 1968-72. In terms of resource requirements, engineering industries--which are the least capital-intensive group in the above classification--accounted for only 6.5 percent of the total. It is interesting to note that projects that are more export-oriented (those under the EPP) are also generally less capital-intensive. The 1975 additions to the IPP and EPP show a different picture. Twelve projects added to the IPP in 1975 will cost ₱ 182.6 million and provide 1,418 new jobs (at ₱ 129,000 per worker), while ten projects included in the EPP in the same year appear to be more capital-intensive, with 3,237 new jobs costing ₱ 516.9 million (at ₱ 160,000 per worker).

6.23 However, the BOI sponsored investment program shown in Table 6.5 does not give the complete picture of the investments in large capital-intensive projects that are likely to arise in the next five years or so. The Mission has attempted to set down a list of such projects in Table 6.6. The total costs of the projects listed approximates ₱ 30 billion (US\$4.3 billion) during the 1975-80 period, although a few of the largest projects may be extended well into the 1980s. The three largest projects (an integrated steel plant, a petrochemical complex, and the COMALCO aluminum plant) account for ₱ 20 billion (US\$2.9 billion), or two-thirds of the total program.

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1/ It averaged ₱ 200,000 in 1968-72 at 1974 prices.

Table 6.5: The BOI Sponsored Investment Program, 1976-79  
(At 1974 prices)

Item	Number of Projects	Employment (In thousands)	Investment Cost	
			Total (In millions of pesos)	Per Worker (In thousands of pesos)
<u>Eighth Investment Priorities Plan</u>				
Agro-processing	30	4.8	3,174.5	655.7
Mining and mineral processing	14	8.8	6,456.9	733.7
Chemicals and chemical products	59	4.0	3,461.7	865.4
Engineering	27	3.5	729.8	208.5
Total	130	21.1	13,795.9	653.8
<u>Sixth Export Priorities Plan</u>				
Agro-processing	18	3.9	477.5	122.4
Mining and mineral processing	7	1.4	605.4	432.4
Chemicals and chemical products	21	3.2	947.1	296.0
Engineering	15	2.7	324.4	120.1
Total	61	11.2	2,354.4	210.2
<u>Total</u>				
Agro-processing	48	8.7	3,625.0	416.7
Mining and mineral processing	21	10.2	7,062.3	692.4
Chemicals and chemical products	80	7.2	4,408.8	612.3
Engineering	42	6.2	1,054.2	170.0
Total	191	32.3	16,150.3	500.0

Source: Board of Investments (BOI).

6.24 A very rough calculation indicates that the aggregate direct employment effect of the investments listed might be approximately 65,000 new jobs, of which 20,000 would be in wood processing. This implies a cost of ₱ 462,000 per job for the program as a whole (₱ 613,000 per job without wood processing), which are ratios similar to those for the BOI-registered projects (Table 6.5). Since the projects under active consideration are complementary to those already registered with BOI or specifically designated for promotion by the BOI they can be analyzed as a group.

6.25 If the projects are roughly classified into three groups, approximately ₱ 24.5 billion, or 53 percent of the total estimated investment requirement of ₱ 46.3 billion (US\$6.6 billion), relates to projects catering to the domestic market, the majority of it consisting of large import-replacing projects (steel plants, fertilizers, and the other petrochemicals, pulp and paper, shipbuilding). The remaining ₱ 21.8 billion is divided between mining exporting industries (₱ 14.9 billion)--with aluminum, nickel and copper as the main items--and other exporting industries (₱ 6.9 billion), mainly wood processing, sugar, coconut oil and other agro-based products.

6.26 It is likely that the new investments under consideration for the coming years will include a large number of smaller and less costly projects, many of which will not seek BOI registration. The investment programs mentioned above can, nevertheless, give some indication of the main directions industrial growth is likely to take in the near future. Policy changes are necessary if more investments should take place in labor-intensive industries and if manufacturing exports are to be diversified. Any changes of this kind should consider carefully the relevant growth potential in both the domestic and foreign markets.

6.27 Growth in the Domestic Market: About three-fourths of total domestic demand for manufactured goods in 1974 was met by local production, while one-fourth was imported (Table 6.7). The highest import ratios 1/ are found in the basic metals group (53 percent), which is largely steel, and in engineering industries (48 percent); the lowest are in the food and wood processing sectors (well below 10 percent). 2/

6.28 In order to derive what the scope for future growth in the domestic market for manufactured goods is likely to be, a set of income coefficients of demand has been worked out and applied to an assumed annual GDP growth rate of 7 percent (Table 6.7).3/ The result of this calculation shows that domestic demand for products of such traditional industries as food processing and textiles would grow at 6-7 percent a year; that for products of basic metal industries would grow at 10.5 percent a year; and that for all other

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1/ The ratio of imports to total consumption.

2/ It should be noted that industrial raw materials are not included in these imports.

3/ Mission projections assumed these growth rates to be 5 percent in 1975, 6.5 percent in 1976 and 7.5 percent afterwards. For the period 1975-80 this comes close to an average of 7 percent.

industries at roughly 8-9 percent a year. In aggregate, the domestic market for manufactured goods would grow at a rate of 7.7 percent assuming a 7 percent GDP growth. Incremental consumption of those goods would thus amount to ₱ 32.4 billion at 1974 prices.

6.29 It is important to determine how much of the projected demand for manufactured goods in 1974-80 can be met by domestic production. The rest will then obviously have to come from imports. An attempt to answer this question has been made on the basis of the information on BOI-sponsored investment plans (Table 6.5), other major projects under consideration (Table 6.6), and various sectoral programs or estimates, in such industries as sugar and coconut, basic metals, engineering, mining, wood processing, and other export-oriented industries. The main elements of this analysis are shown in Table 6.7. However, in the absence of input-output data and because of various other statistical weaknesses such as double counting, <sup>1/</sup> there is no reliable basis for the projection of growth in domestic demand, gross output, and import requirements for the manufacturing sector as a whole. The totals in Table 6.7 are, therefore, more an indication of the general direction the manufacturing sector is likely to follow than an exact quantification.

6.30 Taking into account these qualifications, the table indicates nevertheless that the proportion of domestic demand for manufactured products met by imports will noticeably decline. In all major industrial groups except engineering, the estimated increase in domestic demand during 1974-80 will be fully, or almost fully, supplied by domestic production. In engineering, despite an estimated annual gross output growth of almost 10 percent, imports will rise from around ₱ 6 billion to ₱ 10 billion in 1980. The reason is that it will take more time to develop domestic capability in the area of capital goods to meet the increased requirements of the large investment programs in industry, construction, power, and other infrastructure. However, the import dependency of this product group is projected to continue unchanged, with the imports/domestic demand ratio remaining at 47 percent. On the other hand, the imports/domestic demand ratio for chemicals and oil products and for basic metals would be halved (from 52 to 25 percent and from 26 to around 14 percent, respectively), and would also be reduced significantly in the case of light consumer goods, processed food and beverages.

6.31 Employment Creation and Investment Needs: The preceding analysis has provided some indication of the scope of the domestic market for manufactured goods, and the extent and directions of growth in production required to meet domestic demand. It has also given some measure of a relative decline in industrial import-substitution potential that can be expected in the coming years. The export dimension as worked out in the following section has to be included in this picture in order to derive aggregate

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<sup>1/</sup> Gross output figures in Table 6.7 include interindustrial transactions. Similarly, there is some overlapping between import and export value.

growth magnitudes in terms of manufacturing value added, employment creation, and investment requirements. The export component of total manufacturing growth is shown in column 9 of Table 6.7. The main results and the underlying methodology of these projections, covering the period 1974-80, are presented in Table 6.8.

6.32 These projections represent a combination of what is likely to happen on the basis of the existing development programs, as well as what the Mission believes could be achieved through intensified efforts under an improved policy framework. The organized manufacturing sector is assumed to grow at 9.1 percent a year during the 1974-80 period, <sup>1/</sup> which would represent a marked acceleration in comparison with recent trends and also the long-term trend. With an incremental capital-output ratio of 3.3, total investment requirements would amount to ₱ 44 billion (US\$5.9 billion). The employment gain is estimated at 251,000, a 48 percent increase over the 1974 level. Implied are an employment-income elasticity of 0.74, an investment-worker ratio of ₱ 176,000 (US\$25,000), and a growth in labor productivity of 2 percent per annum.

6.33 It should be noted, however, that while no time-lag between investments and value added generation was assumed, in the case of the large steel project indications are that full production will be realized only after 1980. The capital-output ratio for the manufacturing sector as a whole is 3.3 instead of approximately 3.1 because of that factor. This variation has been slightly offset by the assumption that in some of the sub-sectors (particularly in the wood processing and cement industries), there is much room for production increases through better capacity utilization. In reality, there will of course be many more offsetting effects of that kind, considering that the average investment/output time-lag must be well over two years. Judging from the number of high cost projects with long gestation periods, it is clear that the spillover of output from investments made in previous periods will be much more pronounced at the end of the period than at the beginning.

6.34 Food processing industries, which employ almost 30 percent of total labor in manufacturing, will grow more slowly than other industrial groups. The rate of growth in food processing is to a large extent determined by a limited potential on the supply side (a growth rate of 4 percent has been estimated for agriculture) and by less than bright prospects for sugar, the Philippines' principal export crop, in the world markets (a 4 percent long-term real growth rate has been projected). On the other hand, meat and fish processing, export-oriented fruit and vegetable canning, and the phasing out of unprocessed copra exports through its processing into oil and other products, will account for much of this sector's growth in the coming years.

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<sup>1/</sup> A growth rate of 6 percent is assumed for 1975, and 9.7 percent a year in subsequent years.

Table 6.8. Manufacturing Growth Projections, 1974-80  
(At 1974 prices)

Sector	Value Added (In millions of pesos)		Employment (In thousands)		Growth Rates 1974-80 (In percent)		Value Added Per Worker (In thousands of pesos)		Investment 1975-80		ICOR
	1974	1980	1974	1980	Value Added	Employment	1974	1980	Total	Per Worker	
									(In millions of pesos)	(In thousands of pesos)	
Food, beverages and tobacco	8,433	12,266	153	217	6.4	6.0	55	57	8,433	132	2.2
Textiles and apparel	1,882	3,164	123	174	9.0	6.0	15	18	3,461	68	2.7
Wood processing	1,167	2,700	58	98	15.0	9.1	20	28	3,066	77	2.0
Pulp and paper	348	734	12	16	13.2	4.9	29	46	1,698	420	4.4
Chemicals and oil products	3,148	5,344	48	58	9.2	3.2	60	92	9,882	1,000	4.5
Nonmetallic mineral products	542	963	18	27	10.0	7.0	30	36	1,600	180	3.8
Basic metal industries	434	1,492	16	35	23	13.9	28	43	9,400	490	8.9
Engineering	2,169	3,687	63	96	9.3	6.2	34	38	4,099	124	2.7
Other light industries	1,439	2,572	36	57	10.2	8.0	40	45	2,606	125	2.3
Total	<u>19,562</u>	<u>32,922</u>	<u>527</u>	<u>778</u>	<u>9.1</u>	<u>6.7</u>	<u>37</u>	<u>45</u>	<u>44,245</u>	<u>176</u>	<u>3.3</u>

Notes: 1. Two methods, or their combination, were used in value added projections; (a) where the magnitude of investment was known, or could easily be approximated, the growth rate was derived by applying an incremental capital-value added ratio (e.g., in metals, pulp and paper, chemicals, wood processing); and/or (b) a growth rate was first assumed on the basis of demand projections, improvised income elasticity coefficients, and, as an orientation point in some cases, NEDA's targets for 1974-78, and the investment requirements were then computed, again using assumed capital-output ratios. No time lag between investment and value added generation was assumed except for basic metals and, in part, petrochemicals.

2: Project information, historical labor coefficients and assumed capital-labor ratios were used to derive employment projections. For the purpose of this exercise, the employment figure for the organized manufacturing sector in 1974 was assumed to be the same as given by preliminary census results for 1973. The reasons for this are an unusually high employment increase in 1973 (the employment figure for 1973 being given as 526,000 or 25 percent higher than in 1971, which is too high to be credible); and the very sluggish growth of industry in 1974.

Source: National accounts statistics for 1973 and 1974, producers' associations, and Mission estimates.

6.35 Textile and chemical industries, metal products, machinery and equipment, and the group of "other light industries" are all envisaged to grow at a rate of 9-10 percent a year. In the textile sector, almost one-third of the increment in output will be generated through exports, and another third will originate in import substitution, particularly in the production of yarns and synthetic materials. A certain revival of the rubber-based industry, and a considerable measure of expansion in footwear, furniture, plastic products, and some other light industries, are projected to take place in the latter half of the 1970s.

6.36 A major new oil refinery, expansion of the existing refineries, two or three large fertilizer plants, and several downstream projects in petrochemicals, are important parts of the development program in the chemical sector. While the Philippines currently meets about two-thirds of its fertilizer requirements from imports, the Government would like to cover at least 70 percent of its needs through local production and the rest through local production and the rest through joint ventures with neighboring countries, notably Indonesia, Malaysia, or Brunei. For this reason, the Government is undertaking a major nitrogenous fertilizer project. Consumption of nitrogenous fertilizer rose by an average of 20 percent per annum in the 1969-74 period. The consumption of urea will continue to rise at high rates, particularly since recent projections show that the share of nitrogenous fertilizers in total fertilizer consumption will increase from 53 percent in 1974 to 60 percent in 1980 and 65 percent in 1985. Demand estimates and expansion plans for the existing plants indicate that the urea supply gap will be as follows:

Fertilizer Demand and Production

	Thousands of tons		
	Actual 1974	Projected 1980	Projected 1985
Demand	212	440-520	610-750
Production	<u>53</u>	<u>100</u>	<u>120</u>
Gap	159	340-420	490-630

6.37 The proposed fertilizer project would have a capacity of 1,550 tons per day of urea and 1,200 tons per day of ammonia, 300 tons of which would supply the existing urea plants. This means that there would be very little need for imports of urea in the early 1980s when the new plant is envisaged to start operation.

6.38 According to preliminary calculations, the project would cost some US\$260 million if based on naphta; this amount will probably have to be raised somewhat if the plant has its own power generating unit. It is generally agreed that naphta from local refineries should be used as feed-stock for urea production. At full production, the plant will require 8,500 barrels per day (bpd) of naphta and 2,500 bpd of fuel oil for steam and power generation. The present operating capacity of Philippine oil

refineries is 245,000 bpd, while actual production amounted to 199,500 bpd in 1975. Irrespective of the naphta requirements of the fertilizer project, a further expansion of the refining capacity will be necessary after 1980 to keep up with the growing demand; naphta requirements for urea represent only a small fraction of that expansion.

6.39 In the engineering sector, the expansion effort will be spread over a very wide range of industries, notably agricultural machinery, irrigation equipment, shipbuilding, car assembling and manufacturing, construction equipment, rural electrification-related inputs, machine tools, electronics, and household durables.

6.40 By far the fastest growing subsectors will be found in basic metals and wood processing, with compound growth rates of 23 percent and 15 percent, respectively. The planned expansion in the basic metals sector consists primarily of an integrated steel plant project. The possibility of establishing such an industry in the Philippines came under active consideration after the highly regarded International Iron and Steel Institute (IISI) in late 1974 forecast a worldwide shortage of steel in 1978-85. 1/ The country currently consumes around 1.5 million tons of steel products in terms of crude steel equivalents, of which 80 - 85 percent is imported. According to a generally accepted projection, steel consumption will reach 2.5 million tons in 1980 and 4.1 million tons in 1985. 2/ When the existing capacity and specialty steel requirements (to be met from imports) are taken into account, it is believed that there is room for an economic size plant producing 2 million tons.

6.41 Preliminary studies by British and Japanese consultants indicate that the proposed integrated steel mill would utilize the blast furnace/basic oxygen process and continuous casting and would have rolling facilities for flat and non-flat products (billets, slabs, hot and cold rolled steel, and long products). Iron ore and coking coal would have to be primarily imported; only about 5 percent of the iron ore requirements could be obtained through local iron sand mining. Several ferro-alloy ingredients could be supplied domestically, while the use of domestic limestone may be problematic.

6.42 The mill would be adjacent to the iron ore sinter plant of Kawasaki Steel Corporation in Northern Mindanao and could use the same deep-water harbor. 3/ The total cost of the project has been estimated at

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1/ According to IISI's projection, the world demand for steel in 1985 would exceed its supply by 49 million metric tons.

2/ Center for Research and Communication, A Projection of Philippine Steel Demand up to Year 2000 (Manila, October 1974).

3/ Under a long-term agreement with Kawasaki Steel Corporation, the Larap iron ore mine will probably be tied up with production for exports until its depletion and cannot be counted on as a source of ore for the steel mill.

US\$1.2 billion at 1974 prices, of which US\$160 million would be for infrastructure; the Government would own the majority of equity shares. After 1981, the capacity could be expanded by an additional 2 million tons facility. A modified project proposal that takes into account the enlarged market opportunities opened under ASEAN 1/ envisages a plant with a capacity of 2.5 - 3 million tons of crude steel to be completed by 1982 at a cost of US\$1.7 billion.

6.43 There is little doubt that the economy could benefit from such a project in more than one way. The uncertainties arising from an erratic steel supply would be eliminated and the rapidly growing domestic demand for diverse steel products could be met locally when the further expansion of Japanese steel capacities - hitherto the main source of Philippine steel imports - is severely restricted. There would be some foreign exchange savings, preliminary estimated at about US\$200 million a year at 1974 prices. Through backward and forward linkages, the new industrial complex could spur the development of secondary and tertiary industries and thus lead to employment generation. Much more study will be needed, however, before the feasibility of the project can be clearly established. The main concern revolves around the question of whether, and to which extent, a developing country lacking its own natural resources can establish a viable steel industry. The historical experience of Japan and the more recent experience of the Republic of Korea suggest that under certain circumstances this is possible. In comparison with these two countries, the Philippines has a certain edge in terms of transportation costs and the possession of some important ferro-alloy elements.

6.44 Two copper smelters/refineries (sponsored by Atlas Consolidated Mining Company, Marinduque Mining and Industrial Company, and Lepanto Consolidated Mining Company) are in a more advanced stage of planning and project preparation. 2/ The two projects combined would produce 215,000 tons of electrolytic copper, 90 - 95 percent of which would be for export. Their total cost has been estimated at US\$400 million (or around US\$470 million without BOI incentives). Most of the copper concentrates needed for smelting and refining would come from expanded mining operations and the rest from the existing output.

6.45 Although these projects make only a negligible contribution to direct employment creation, they do offer several advantages:

- (a) domestic value added, foreign exchange, and transportation cost gains would be increased due to the processing of the ore and exporting the high copper-content blister or refined products instead of the bulky concentrate;

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1/ This proposal was submitted by the Philippines at a high-level ASEAN conference in Kuala Lumpur in March 1976.

2/ The larger of the two projects may be deferred because of the currently depressed international copper prices.

- (b) an additional competitive margin in favor of the Philippines would be created since smelting charges are likely to continue to rise worldwide due to more stringent pollution abatement requirements in industrialized countries;
- (c) the country would benefit from a greater diversification of markets;
- (d) the development of domestic copper and copper alloys fabrication industries would be encouraged;
- (e) 734,000 tons per annum of sulfuric acid, a by-product of copper smelting, would be produced that could be used for the production of super-phosphate fertilizers (by acidulation of imported phosphate rock) and could be exchanged for nitrogenous fertilizers under the ASEAN schemes.

6.46 In order to assess some of the more important implications of growth in individual subsectors, they have been grouped according to factor-intensity and product type. The mining sector, as well as cottage industry, are analyzed along with manufacturing industries having more than five workers, in order to derive global trends and to evaluate their relative costs and benefits. An attempt is also made to extend this analysis beyond 1980 in order to determine the longer term pattern of industrial growth. The results of this analysis are presented in Tables 6.9A and 6.9B.

6.47 Industry as a whole (including mining) is projected to grow at a rate of slightly over 9 percent during 1974-85; capital-intensive activities (the mining and manufacturing industries as defined in Table 6.9A) would have a growth rate of 11.6 percent, labor-intensive industries 8.5 percent, and cottage industry one percent. Under another classification, intermediate goods industries (the capital-intensive group plus wood processing) would grow at a rate of about 12 percent, capital goods industries at 9.6 percent, and consumer goods industries at 7.4 percent. The share of consumer goods and labor-intensive industries in total output would, as a result, sharply decrease in favor of intermediate and capital-intensive industries (Table 6.9A). Analogous shifts would occur on the employment side.

6.48 The contribution of these industrial groups to the growth in value added and employment must, of course, be valued against its cost. The contribution of the cottage industry sector is assumed to be negligible and is therefore omitted. The following pattern emerges from the above analysis for the decade 1978-85:

Table 6.9A. Growth Projections by Broad Industrial Groups  
(At 1974 prices)

Items	Value Added (In millions of pesos)			Employment (In thousands)			Investment (In millions of pesos)	
	1974	1980	1985	1974	1980	1985	1975-80	1981-85
<u>Amounts</u>								
Type of activity								
Mining <sup>a/</sup>	2,154	4,483	7,554	40	69	99	5,822	8,292
Capital-intensive manufacturing <sup>b/</sup>	4,472	8,533	14,705	94	136	186	22,580	27,774
Labor-intensive manufacturing <sup>c/</sup>	15,090	24,389	36,842	433	642	880	21,665	31,133
Cottage industry <sup>d/</sup>	1,350	1,433	1,506	844	844	844	125	117
Total	<u>23,066</u>	<u>38,838</u>	<u>60,607</u>	<u>1,411</u>	<u>1,691</u>	<u>2,009</u>	<u>50,192</u>	<u>67,316</u>
Type of products (excluding cottage industry)								
Final demand goods <sup>e/</sup>	11,754	18,002	25,713	312	448	600	14,500	16,964
Intermediate goods <sup>f/</sup>	7,793	15,716	27,450	192	303	433	31,468	44,157
Capital goods <sup>g/</sup>	2,169	3,687	5,938	63	96	132	4,099	6,078
Total	<u>21,716</u>	<u>37,405</u>	<u>59,101</u>	<u>567</u>	<u>847</u>	<u>1,165</u>	<u>50,067</u>	<u>67,199</u>
<u>Percentage Shares</u>								
Type of activity								
Mining	9	11	12.5	3	4	5	12	13
Capital-intensive manufacturing	19	22	24	6	8	9	45	41
Labor-intensive manufacturing	66	63	61	31	38	44	43	46
Cottage industry	6	4	2.5	60	50	42	0	0
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
Type of products								
Final demand goods	54	48	44	55	53	52	29	25
Intermediate goods	36	42	46	34	36	37	63	66
Capital goods	10	10	10	11	11	11	8	9
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

<sup>a/</sup> Includes metal-making other than basic metals.

<sup>b/</sup> Pulp and paper, chemicals oil products, cement and other nonmetallic mineral products, and basic metals.

<sup>c/</sup> Food, beverages and tobacco, textiles and wearing apparel, wood processing, engineering and other light industries.

<sup>d/</sup> Establishments with less than 5 workers.

<sup>e/</sup> Food, beverages and tobacco, textiles and wearing apparel, and other light industries.

<sup>f/</sup> Mining, pulp and paper, chemicals, oil products, cement and other nonmetallic mineral products, basic metals and wood processing.

<sup>g/</sup> Engineering industries.

Source: Table 6.8

Table 6.9B: Economic Indicators

Category	1974-80					1980-85				
	Annual Growth Rates (In percent)		Value Added per Worker (In thousands of pesos)	ICOR	Investment per Worker (In thousands of pesos)	Annual Growth Rates (In percent)		Value Added per Worker (In thousands of pesos)	ICOR	Investment per Worker (In thousands of pesos)
	Value Added	Employ- ment				Value Added	Employ- ment			
<u>Type of activity</u>										
Mining	13.0	9.5	80	2.5	200	11.0	7.5	102	2.7	276
Capital-intensive manufacturing	11.4	6.4	97	5.6	538	11.5	6.5	123	4.5	555
Labor-intensive manufacturing	8.3	6.8	44	2.3	104	8.6	6.5	52	2.5	131
Cottage industry	1.0	...	...	1.5	...	1.0	...	...	1.6	...
Total	9.1	3.1	56	3.2	179	9.3	3.5	68	3.1	212
<u>Type of Product</u>										
Final demand goods	7.4	6.2	53	2.3	107	7.4	6.0	51	2.2	112
Intermediate goods	12.4	7.9	71	4.0	283	11.8	7.4	90	3.8	340
Capital goods	9.3	6.2	46	2.7	124	10.0	6.6	63	2.7	169
Total	9.5	6.9	56	3.2	179	9.6	6.6	68	3.1	211

- Notes: 1. For 1974-80, the same basic assumptions as in Table 6.7 were used. For 1980-85, these assumptions were modified to reflect the partially applied investment-value added time lag, and a further (policy-induced) shift in investments in favor of labor-intensive exports.
2. Individual industries are classified into broad groups on the basis of their predominant characteristics (e.g., the textile sector is placed under labor-intensive and final demand industrial groups, even though a part of it can be described as capital-intensive and belonging to the intermediate group). It is believed that this has not significantly affected the projection of basic trends.
3. The following assumptions were used in the projections of growth in the cottage sector: (a) the 1974 value added figure is established by multiplying the number of persons employed (which is known) by a certain value added per worker ratio (assumed to be equal to the minimum wage level in the organized sector); (b) employment is taken to remain unchanged during the 1974-85 period; and (c) a growth rate of 1% per annum is assumed in this sector's value added over 1974-85.

Source: See Table 6.8

Table 6.10. Growth Pattern by Industrial Groups

Sector	Percent Shares In		
	Investment	Value Added Increment	New Employment
Mining	12	15	10
Capital-intensive group	43	27	15
Labor-intensive group	45	58	75

6.49 With 43 percent of all investment, the capital-intensive manufacturing industries would contribute 27 percent of incremental value added and 15 percent of new employment. On the other end of the scale are the labor-intensive industries, whose shares in incremental value added and employment in particular, are substantially higher than those in investment. Mining lies between these extremes.

6.50 For a country short in capital and abundant in labor, such a growth pattern would seem inappropriate were it not for other important considerations. It is clear that the cottage industry cannot assume a major role in future industrialization. <sup>1/</sup> The potential for growth in that sector, although it would provide significant employment and require primarily low cost investments is clearly very limited. In many production lines, this sector is only inadequately suited to provide goods and services at a cost and of a quality competitive with larger scale manufacturers using more efficient production methods. The model adopted in Tables 6.9A and 6.9B assumes that, while some further displacements in the cottage sector are inevitable, they would be counterbalanced by Government support for the more viable production units. On balance, cottage industry may be able to maintain its present employment level over the next 10 years. This is already an optimistic assumption, considering the recent declining trend in this sector, and would, of course, imply a sharp drop in the sector's relative share in total industrial employment, from 60 percent in 1974 to 42 percent in 1985.

6.51 The growth potential of the other labor-intensive industrial group with relatively more favorable cost-benefit relationships has limitations of its own. As already stressed, some major final demand industries such as food processing and wearing apparel are handicapped by the relatively weak potential growth of domestic demand (Table 6.7). Another limitation is that export prospects for some labor-intensive traditional agro-processing sectors, such as sugar, are not very favorable. Leaving these areas aside, what remain as major sources of industrial growth in the labor-intensive group are wood processing and a wide range of nontraditional manufacturing industries.

<sup>1/</sup> See the section on small-scale industry.

The nontraditional labor-intensive industries (including wood processing) are estimated to increase their exports at an annual rate of well over 30 percent in 1974-80, and consequently to raise their contribution to total industrial exports from 12 percent in 1974-75 to 26 percent in 1980 (Table 6.16). This is a formidable task, implying an average increment in these exports of close to US\$150 million annually. It would be difficult to imagine a more rapid growth of these exports, although there are quite a few countries which have scored even higher export growth rates in recent years.

6.52 For a variety of reasons, a large group of intermediate goods industries (mining, basic metals and other metal making, chemicals and chemical products, mineral fuels and lubricants, pulp and paper, cement and other non-oil and nonmetallic mineral products and wood processing) offers considerable scope for accelerated growth in the years to come. Relative to the growth of incomes, domestic demand is likely to rise much faster in these areas than in most final demand categories. Foreign market prospects for several Philippine mining products and their processed derivatives are also likely to be favorable. Except for some basic metals, oil, and many chemical products, intermediate goods industries rely on domestic natural resources, which will continue to give them a comparative advantage. As shown above, import dependency in intermediate goods industries other than mining, wood processing, and cement is very high, and imports of many items that could be produced domestically are substantial. Consequently, there is considerable room for further import substitution and foreign exchange savings.

6.53 It appears, therefore, that Philippine industrial growth, at least for the next ten years, should be based on a two-pronged strategy: (i) for the reason of employment generation, labor-intensive activities should be promoted as much as possible; and (ii) the intermediate sector should be permitted to expand further in order to reduce import dependency and utilize external market opportunities. While the expansion in capital-intensive and intermediate goods industries should under no circumstances occur at the expense of labor-intensive activities (both for economic and social reasons), these industries will have to grow at a rapid pace if industry is to develop faster than the economy as a whole.

6.54 What has been suggested by the above analysis--a dual emphasis on labor-intensive activities and import substitution in intermediate sectors--is what should have happened during the 1960s, after import substitution in finished consumer goods was virtually achieved. It must be borne in mind that much of the potential for this second stage import substitution will be exhausted by the mid 1980s. Less than 15 percent of aggregate demand for industrial goods (finished and semi-finished products) in 1985 will come from imports, compared to 24 percent in 1974 and 19 percent projected for 1980. Most of these imports will be confined to goods whose local manufacturing will not be feasible either because of the lack of technological capability or because of the limited size of the domestic market. Hence, it is clear that sufficient additional sources of growth will have to be developed during the next decade in order to sustain the increased growth.

6.55 All this means, however, that there will still be a serious employment problem in the 1980s. According to the above projections, about 600,000 new jobs will be created in manufacturing during 1975-85, and the annual capacity of this sector to absorb new labor will approach 80,000 new entrants by the end of this period. This would represent 13-14 percent of the incremental labor force in 1985, a fairly low labor-absorption capacity considering the amount of financial resources expected to be drawn into this sector over the period under consideration. The major alternative source of growth is to be found in labor-intensive exports. Employment will also need to be promoted in the areas of rural industrialization and small-scale industry.

6.56 Growth Oriented Policies: The main policy tools traditionally used to generate and influence industrial growth in the Philippines have been protectionist policies, changes in exchange rates and regimes, interest rates and other monetary policies, and investment incentives. These policies were successfully used to divert domestic resources from non-productive sectors into industry, attract foreign capital, and provide a shelter from foreign competition in the initial stages of development. In retrospect, however, they were less successful in channeling investments into socially desirable sectors and in encouraging exports. Moreover, they failed to provide for necessary changes in the structure of protection once import substitution in finished consumer goods was achieved. There is little chance that a growth program along the lines described above can be implemented without certain major changes in the policy framework which influence the structure of protection, resource allocation, and, most importantly, the relative position of manufactured exports.

6.57 The Issue of Protection: The basic structure of protection was shaped during the 1950s, and it has changed very little since then in spite of two major devaluations and other policy changes. This is clearly illustrated in Table 6.11, which shows the rates for major categories of imported and exported goods. Nonessential consumer and producer goods are strongly favored. This helps to explain the particular pattern of import substitution that emerged in the early period of industrialization in the Philippines, and the emergence of the incentives gap, which has caused resources to be diverted from manufactured exports and nonconsumer goods industries. On the other hand, the relatively low effective protection rates for producer goods explains at least partly the fact that quite a number of the capital and intermediate goods are still not produced locally as a result of the lack of protection for these industries in their infant stages.

6.58 Very little has happened since 1971 to change the basic features of the protection system, although there has been an increasing awareness that the system ought to be changed. The task of lowering the general level of protection and changing the order of priorities within the system will be a formidable one because of conflicting interests and active resistance.

Table 6.11 Effective Protection Rates 1949-71  
(In percent)

Category	1949-50	1951-52	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Consumer goods																					
Nonessential	5	114	114	110	141	154	179	178	183	349	230	337	332	326	365	354	357	363	365	354	362
Semiessential	4	23	23	19	19	34	18	37	31	149	61	54	53	50	56	50	52	54	55	51	57
Essential	...	-7	-7	-7	-8	-5	-6	-7	-18	-15	-9	-2	...	...	...	1	1	1	1	2	5
Imported producer goods																					
Nonessential	5	24	24	17	19	28	26	25	5	173	56	169	174	171	198	191	193	195	197	193	203
Semiessential	...	19	19	19	21	22	24	24	51	52	40	21	14	12	12	12	13	15	15	14	14
Essential	...	19	19	19	20	23	24	24	52	50	39	28	25	25	28	26	26	27	27	26	19
Traditional exports	...	-15	-15	-15	-16	-19	-19	-20	-43	-27	45	-37	-38	-38	-22	-20	-21	-22	-21	-43	-33
New exports	23	23	31	31	31	31	31	27	25	40	2	-4	-9	-9	12	12	13	13	13	21	26

- Notes: 1. Effective protective rates are defined as follows: for imported items, the effective protection is taken to be the percentage by which the effective exchange rate in any given year exceeds the effective exchange rate for producer goods used by "new and necessary" industrial group in that year. The nominal subsidy on new exports is taken to be equal to the percentage by which the effective exchange rate for this category exceeds the effective exchange rate for traditional exports.
2. The effective exchange rate is defined as the number of units of local currency actually paid or received per dollar of a given international transaction. It also includes the differential impact on these transactions of tariffs, discriminatory sales or compensating taxes, special foreign exchange taxes, exemption from domestic taxes, subsidized borrowing rates, and marginal deposit requirement on imports.

Source: R. E. Baldwin, "Foreign Trade Regimes and Economic Development: The Philippine Case," Table 17 (n.p., 1974, processed).

6.59 Philippine industry is currently receiving a high degree of protection through quantitative restrictions, tariffs, sales taxes, preferential interest rates, and fiscal incentives. The Mission believes that quantitative restrictions should be gradually removed, tariff levels should be restructured and lowered, and the protective element should be removed from all other fiscal and monetary policies.

6.60 As to quantitative restrictions, it would be difficult to concur with the recommendation in the International Labor Office (ILO) report <sup>1/</sup> to abolish them immediately. A more realistic approach would be a gradual relaxation of the import-licensing system, removing an increasing number of commodities from it. This step, of course, would have to be coordinated with other liberalization measures, as well as with measures designed to promote the operational efficiency of domestic production and to ease the adjustment process.

6.61 The last major reform of the tariff system was undertaken in January 1973 (Presidential Decree 34), when 271 specific tariff rates were reduced to 2 and all the ad valorem rates grouped into 6 levels ranging from 10 percent to 100 percent depending on the degree of product completeness and on the existence of local production. These rates fall into three groups: (a) 10-20 percent rates, which are in principle imposed on basic necessities such as food products and medicines, raw materials not available in the country (e.g., cotton, basic iron and steel products, chemical substances), and industrial equipment not manufactured within the country; (b) 30-60 percent rates which are levied on a vast range of intermediate and capital goods such as tubes, synthetic fibers, machine parts, cigarette paper, chemicals, tools, trucks, barges, motors, and some easily smuggled consumer goods like watches and cameras; and (c) 70-100 percent rates which are applied to luxury goods and products available within the country, mostly finished consumer goods (e.g., confectionary, varnishes, rubber tires, leather and wood products, garments, home appliances, toys, and jewelry). Although very successful from a revenue generation point of view, this reform has not reduced the protective element; it has actually raised more tariff rates than it has reduced, and its overall impact, in terms of the average nominal tariff rates, appears to have slightly increased protection.

6.62 Although little time has elapsed since that reform, a careful re-examination of the levels and structure of tariffs is urgent. There are several facets to this problem. First, there is a definite need for the readjustment of the tariffs which are applied to certain specific product categories. Tariff rates as well as product classification should be modified after important changes in the structure of production have occurred. In fact, tariff rates should be monitored in such a way as to anticipate and influence changes in the production structure. The present case-by-case decision-making, based on individual producers' initiatives, should be incorporated in a more systematic effort on the part of the Government and

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<sup>1/</sup> ILO, Sharing in Development (Geneva: ILO, 1974).

producers' associations. Industries engaged in the production of finished consumer goods currently enjoy the highest rate of protection, and, as industrial structure is becoming diversified, new industries, many of them in intermediate and capital goods sectors, will be added to the list of those highly sheltered, raising further the average level of protection. The evolution of the system should be a two-way process: the well-established industries should be gradually shifted into lower rate tariff groups and some essential nonconsumer goods should receive timely and effective protection.

6.63 Second, the Philippines should formulate and pursue a program of reducing the average tariff level. Industrial growth will be increasingly constrained by high production costs built up under the inward-looking industrialization strategy, and it will be progressively more difficult to maintain these cost disadvantages and simultaneously expand. A substantial proportion of total industrial growth envisaged for 1975-85 under the Mission's recommended strategy should be generated by exporting industries. Since those industries will require a significant increase in the domestic production of their inputs and are also indispensable for balance of payments reasons, 1/ an enlarged role of exports will only be possible if the production costs of supplying and participating industries can be brought down to competitive levels. Thus, any protection reducing program has to be closely linked with cost reducing policies.

6.64 While it is clear that such a program will require some time to be realized and will have to be done on a step-by-step basis, its concrete forms are difficult to visualize without further study. 2/ The Mission believes that a substantial decrease of the average tariff level is possible within the next 10 years, and, therefore, the already mentioned distortion of the exchange rate in favor of final demand goods could be reduced considerably. The fiscal revenue generating function of the tariff system should also diminish relatively, despite the increasing role of import duties in Government revenues in recent years. 3/ As a first step, the decision to impose a general 10 percent duty on all imports (which may then be raised for various commodity categories by an additional 10-90 percent) should be reconsidered.

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1/ See Chapter 11.

2/ The ILO report recommends a uniform tariff level of 20 or 30 percent after 8-10 years. Such a uniform tariff rate would mean an unnecessary cost increase for many imported inputs presently charged with a 10 percent duty. On the other hand, even after 8-10 years, the country may need to establish certain new industries under temporarily higher protection.

3/ The average custom rate (i.e., the custom revenue as a percentage of the value of imports), after having experienced a declining trend during the 1960s, rose from 9.2 percent in 1970 and 10.7 percent in 1971 to 12.3 percent in 1972 and 13.3 percent in 1973, the first year with the revised tariff code. (Data are from the Central Bank and the Bureau of the Census and Statistics.).

C. Expanding Industrial Exports

6.65 Past Development of Industrial Exports: Historically, Philippine industrialization has been geared largely to the domestic market; the traditional exporting sector has provided foreign exchange for the payment of intermediate inputs and machinery needed by the growing import substituting production of consumer goods. For long periods of time exporters were in fact penalized; they had to pay more for their inputs both because of the overvalued exchange rate and because of the increased costs of imports and local production resulting from highly protectionist policies. Two major postwar devaluations (in 1960-62 and 1970-73) provided only temporary relief, since the system continued to work in favor of import substitution and capital-intensive production. The system has entailed a built-in incentive to shift resources from the production for export and the production of essential goods into the production of consumer goods particularly oriented to the domestic urban markets. Between 1950 and 1971, the effective exchange rates for imported nonessential consumer and producer goods increased 9.4 and 6.2 times respectively, while in the case of essential consumer and producer goods they increased 3.5 and 3.2 times, and in the case of traditional and new exports, they increased only 2.9 and 3.2 times respectively. <sup>1/</sup>

6.66 In spite of some countervailing measures (import duty rebates, special export incentives, and the switch to a floating exchange rate), the gap has persisted between the increasing real costs of importing commodities with import substitution potential and the domestic purchasing power of traditional (and even new) exports. The situation has changed little since 1971; export incentives have been increased, but the average degree of protection also appears to have been raised. The new tariff code, in effect from the beginning of 1973, raised the duty rates of 796 items, and reduced them for 451 items; in 392 cases these rates were left unchanged. The average increase has been estimated at 3-4 percentage points by the ILO. Even more important, however, has been the administrative imposition of many import restrictions in recent years.

6.67 Some positive trends began to develop with regard to Philippine exports in the late 1960s. They came about as a result of special efforts by the Government to counter the mounting balance of payments crisis and, more recently, to deal with structural imbalances which emerged under the past inward-looking industrialization strategy. These efforts included, among others: the Investment Incentives Act of 1967 and the Export Incentives Act of 1970 (which provided stronger fiscal incentives to exporting industries); the establishment of multiple, and, later, floating exchange rates; the introduction of several export-g geared sectoral development programs; and the establishment of an Export Processing Zone in Bataan.

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<sup>1/</sup> R.E. Baldwin, "Foreign Trade Regimes and Economic Development: The Philippine Case" (n.p., 1974, processed).

6.68 With an average growth rate of 5.0 percent, it took twelve years (1960-72) for Philippine exports, at current prices, to double (Table 6.12). In real terms, the situation was the same since the export price index did not change significantly during that time. Most of the growth occurred during the years immediately following the two peso devaluations (i.e. in 1960-62 and 1970-73). The years 1973 and 1974 recorded a dramatic increase in export earnings, because of unprecedented rises in the prices of principal export commodities. In real terms, however, the growth of exports in 1973 was in line with that of the preceding years, while in 1974 there was even a decline of 24 percent.

6.69 These general trends conceal significant changes in the relative position of broad export categories. Industrial exports (consisting largely of traditional semi-processed and processed products of agricultural, forest, and mineral origin) increased their share in total exports from 48 percent in 1960 to 77 percent in 1974 at the expense of unprocessed products of the same origin. Within that group, new manufacturing exports consisting of a wide range of products began to play an increasing role.

6.70 Extractive and Agro-Processing Industries: Traditional industrial exports reached a record US\$1,917 million in 1974, increasing their share in total exports to about 70 percent in that year from 48 percent in 1960 and 58 percent in 1973 (Table 6.12). The growth in 1974 was primarily the result of favorable price movements, particularly in the first part of the year. <sup>1/</sup> During the entire year, the export price index jumped 87 percent, which meant that in volume terms traditional industrial exports declined by a sizable margin.

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<sup>1/</sup> According to Central Bank data, the price of coconut oil, desiccated coconut, and sugar in 1974 was 2.5 times higher than in 1973; that of lumber, sugar, copper concentrates and some other mineral products, and canned pineapple was 12-37 percent higher in 1974.

Table 6.12: Structure of Philippine Exports, 1960-74

Category	1960	1968	1972	1973	1974
<u>Value of exports</u> (in millions of US dollars at current prices)					
Nonindustrial <u>/a</u>	276	360	332	548	466
Traditional industrial <u>/b</u>	271	454	674	1,093	1,917
Nontraditional manufacturing <u>/c</u>	7	29	67	133	171
Re-exports and undefined exports	6	15	33	112	171
Total	<u>560</u>	<u>858</u>	<u>1,106</u>	<u>1,886</u>	<u>2,725</u>
<u>Percentage share</u>					
Nonindustrial	49.3	42.0	30.0	29.0	17.0
Traditional industrial	48.4	52.9	60.9	57.9	70.3
Nontraditional manufacturing	1.2	3.4	6.1	7.1	6.3
Re-exports and undefined exports	1.1	1.7	3.0	5.9	6.3
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

/a Logs, copra, bananas, abaca and tobacco.

/b Sugar, coconut and other food products; lumber and other wood products except furniture; copper concentrates, gold and other mining products.

/c Manufactures other than food and wood products, and base metals.

Source: Central Bank of the Philippines.

Table 6.13: Traditional Industrial Exports 1960-74  
(In millions of US dollars at current prices)

Sector	1960	1968	1972	1973	1974
Coconut oil and products	40	113	118	206	469
Sugar and products	143	151	218	295	766
Other food products	10	22	28	30	46
Wood products (excluding furniture)	17	54	71	140	117
Copper concentrates	30	89	191	275	397
Other mining products	31	25	48	147	122
Total	<u>271</u>	<u>454</u>	<u>674</u>	<u>1,093</u>	<u>1,197</u>

Source: Central Bank of the Philippines.

6.71 Table 6.13 reveals several significant changes in the composition of this export group. The share of agriculture-based traditional industrial exports (sugar, coconut, and other food products) in the total declined from 71 percent in 1960 to 49 percent in 1973 (although it rose to 67 percent in 1974 because of the unusual price trends in that year). The share of mining exports, on the other hand, increased from 22 percent to 39 percent (decreasing to 27 percent in 1974), while that of forest-based products doubled, from 6 percent to 13 percent, between 1960 and 1973 (returning to 6 percent in 1974). These changes reflect cyclical changes in raw materials prices in the world markets, but they also reflect the change in the commodity composition of Philippine exports that has been taking place for some time. There has been a tendency to phase out exports of raw materials in favor of exporting processed materials. In 1960, the Philippines earned 4.5 times more from copra sales than from coconut products sales, and in 1974 the sales of processed coconut products were 3 times higher than those of unprocessed products. In the case of exports of logs and processed timber, this relationship between sales of unprocessed and processed products changed from 5:1 in 1960 to 2:1 in 1974. The same process is beginning to take place with regard to copper products (from copper concentrates to refined metal) and sugar (from centrifugal to refined sugar), though in the latter case it has occurred much more slowly. <sup>1/</sup>

6.72 Nontraditional manufactures: With nominal average growth rates of 20 percent per annum in 1960-68 and over 34 percent in 1968-74, new industrial exports have been the most dynamic export group. Real growth, however, was well below 20 percent a year for the entire 1960-74 period although it began from a very low starting base (US\$7 million in 1960). By 1973, the value of these exports had reached US\$133 million, or 7 percent of total exports, and

<sup>1/</sup> The prospects for sugar and coconut exports are discussed in Chapter 5.

in 1974, it had increased to US\$171 million, despite the worldwide recession, although its share in total exports declined to 6 percent. Since 1970, Philippine exports of nontraditional manufactures have diversified significantly; starting from little more than woven materials and light chemical products in 1960, they consist today of a rather wide variety of products, including garments, cement, paper, mineral fuels and lubricants, metal products, car and machinery components, footwear, furniture and fixtures, travel and sporting goods (Table 6.14).

6.73 At present, only a little over 3 percent of total manufacturing output is marketed abroad. It will be important to determine how much industrial growth could be generated through exporting activities, and in which fields a breakthrough in new manufacturing exports could be achieved. Although specialized industry-by-industry studies would be needed to assess the scope of future export demand growth as well as the potential on the supply side to meet that growth, a desirable pattern of development can be drawn on the basis of existing knowledge. For this purpose, nontraditional manufacturing industries may be grouped into four categories: cement, pulp and paper, chemicals and oil products; textiles and garments; engineering goods; and other light industries.

6.74 Growth prospects: The preceding discussion of past trends in industrial exports and the export potentials of major industrial groups provides some basis for projecting the growth in industrial exports for 1975-80. Investment and employment projections of such a program have been derived in Tables 6.15 and 6.16.

6.75 Major changes in the pattern and dynamics of industrial exports could take place by 1980. Traditional agro-processing exports (sugar and coconut products), although hampered by sluggish demand growth, would grow at a rate of 6 percent per year, reaching US\$1,736 million in 1980 (at 1974 prices), in large part as a result of an almost complete phasing out of copra exports in favor of coconut oil and other processed coconut products. The primary export items in the mining sector will be refined nickel, copper, and gold; this group would grow at 14 percent per year. Four capital-intensive export groups 1/ would achieve a significant relative gain, partly as a by-product of the intensive growth in production necessary to supply the domestic market; they would experience an 18 percent growth rate, although because of a low starting point (US\$73 million in exports in 1974) the absolute level of these exports would not exceed US\$200 million. The greatest change is projected to occur in labor-intensive exports; with an average growth rate of 26 percent, these exports would amount to US\$1,050 million in 1980, compared to US\$260 million in 1974. The main contributor to the increase in labor-intensive and light industries' exports would be the wood processing sector, accounting for 60 percent of their export increment.

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1/ Pulp and paper, cement and other nonmetallic mineral products, chemicals and petroleum products.

Table 6.14: Exports of Nontraditional Manufactures, 1960-74  
(In millions of dollars)

Item	1960	1964	1968	1972	1973	1974
Textile products (excluding clothing)	3.4	4.0	4.1	8.5	24.3	20.1
Clothing	0.1	0.3	0.4	2.4	11.4	23.7
Paper and products	...	...	0.4	1.9	9.1	5.0
Chemicals and products	2.0	3.0	3.7	6.2	10.0	15.2
Cement and other nonmetallic mineral products	...	...	0.9	7.9	24.9	36.5
Oil products	...	3.6	15.2	19.3	16.0	17.3
Metal products	...	0.1	0.1	1.4	2.4	3.2
Machinery and parts (excluding electrical)	...	0.1	0.2	3.0	2.3	4.2
Electrical Machinery and appliances	...	...	...	1.8	0.9	2.1
Transport equipment	...	...	...	0.2	1.4	1.3
Footwear	...	0.1	0.4	1.2	2.1	3.7
Travel goods, handbags and similar products	...	0.1	0.5	1.7	4.5	7.6
Furniture and fixtures	0.4	0.4	0.8	1.7	3.3	6.1
Building elements and fixtures	...	...	0.1	1.6	0.5	1.3
Miscellaneous	0.9	1.1	1.8	8.4	20.0	23.3
Total	6.8	12.8	28.6	67.3	133.1	170.6

Source: Central Bank of the Philippines.

Table 6.15. Projection of Industrial Exports, Implied Investment, and New Employment, 1975-80  
(At 1974 prices)

	Exports (In millions of US dollars)		Annual Growth Rates 1974-80 (In percent)	Increment in Export Earnings (In millions of pesos)		Value Added Component of Incremental Exports (In millions of pesos) <sup>e/</sup>	Investment 1975-80 <sup>d/</sup> (In millions of pesos)	New Employment (In thousands)	Capital/ Foreign Exchange Ratio (7/5)	Foreign Exchange/ Labor Ratio (In thousands of pesos) (5/8)
	1974	1980		Gross	Net <sup>b/</sup>					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Mining and metal making	519	1,140	14	4,347	3,825	1,454	4,217	23	1.1	166
Traditional agro-industrial exports	1,235	1,736	6	3,507	3,156	1,263	3,158	24	1.0	132
Coconut products	469	790	9	2,247	2,022	809	2,023	15	1.0	132
Sugar	766	946	4	1,260	1,134	454	1,135	9	1.0	132
Labor-intensive manufacturing industries	259	1,055	26	5,572	4,401	1,653	3,892	45	0.9	98
Food processing other than sugar and coconut	50	125	17	525	446	147	353	4	0.8	112
Textiles and garments	44	170	25	882	529	190	532	7	1.0	76
Wood products, except furniture	112	550	30	3,066	2,698	1,052	2,314	28	0.9	96
Engineering	11	70	36	413	248	82	238	2	1.0	124
Other light industries <sup>a/</sup>	42	140	22	686	480	182	455	4	0.9	120
Capital-intensive manufacturing industries	73	200	18	889	571	192	844	2.2	1.5	260
Pulp and paper	5	40	41	245	208	62	273	0.7	1.3	297
Cement and other nonmetallic mineral products	36	60	9	168	101	44	176	1.0	1.7	101
Chemicals and products	15	50	22	245	147	54	248	0.5	1.7)	524
Oil products	17	50	20	231	115	32	147)		1.3)	

a/ Exchange rate of US\$1.00 = P7.0 is used.

b/ The following import dependency coefficients (imported inputs/exports) were used in the computation: 0.10 for coconut and sugar products; 0.12 for mining and wood products; 0.15 for other food products and pulp and paper; 0.30 for other light industries; 0.40 for chemicals, cement and other nonmetallic mineral products, textiles and garments, and engineering industries; and 0.50 for oil products.

c/ The following value added coefficients are used: 0.38 for mining and "other light industries"; 0.36 for textiles; 0.39 for wood products; 0.33 for other food products and engineering; 0.30 for pulp and paper; 0.44 for cement and other nonmetallic mineral products; 0.37 for chemicals; 0.28 for oil products; 0.40 for coconut and sugar industries.

d/ Slightly modified capital-output and capital-labor ratios from Table 6.8 are used in these computations. For mining, the respective ratios are assumed to be 2.9 and 180.

e/ Footwear, travel and sports goods, furniture and fixtures, building elements and fixtures, plastic products and miscellaneous.

Source: Central Bank and Mission estimates.

Table 6.16: Summarized Projection of Industrial Exports and Related Indicators, 1975-80  
(At 1974 prices)

Category	Mining	Traditional Agro-Industries <sup>a/</sup>	Capital- Intensive Manufacturing	Labor- Intensive Manufacturing	All Industry
Annual growth rate, 1974-80 (in percent)	14	6	18	26	12
Investment, 1975-80 (in millions of pesos)	4,217	3,158	844	3,892	12,111
New employment (in thousands)	23	24	2.2	45	94
Incremental capital-output ratio	2.9	2.5	4.4	2.4	2.7
Investment per laborer (in thousands of pesos)	183	132	384	86	129
Investment per unit of incremental net export earnings	1.1	1.0	1.5	0.9	1.0
Net export earnings per laborer (in thousands of pesos)	166	132	260	98	127

<sup>a/</sup> Sugar and coconuts

Source: Table 6.15

6.76 Due to the dominant share of sugar and coconut products (almost 60 percent of total industrial exports in 1974), total industrial exports would grow at about 12 percent per annum, or 3 percentage points above the rate of growth of aggregate industrial value added. Exporting activities would thus account for some 28 percent of total industrial growth in 1974-80.

6.77 Aggregate employment to be created through industrial exporting activities has been roughly estimated at 94,000 persons; the largest single contributor is expected to be the wood processing industry, with 28,000 new jobs. Such an increment in export-oriented employment would represent some 37 percent of total projected additions to employment in the industrial sector during that period (Table 6.9), demonstrating that exporting activities are considerably more labor-intensive than the industry as a whole. These export projections imply investments of ₱ 12 billion during 1975-80, with one-third each earmarked for labor-intensive industries, and mining.

6.78 Table 6.16 shows that the four major industrial groups differ significantly in terms of their relative export performance and factor-intensity. The cost of export growth (in terms of investment per unit of net foreign exchange earned) is the highest in capital-intensive industries and mining (1.5 and 1.1, respectively), but these sectors also have the largest foreign exchange yields per laborer. Labor-intensive exports incur little cost per dollar earned and provide much employment, although they rank low in terms of productivity, with a foreign exchange/labor ratio of ₱ 98,000.

6.79 The above analysis would suggest that none of the four industrial groups is at an explicit disadvantage when their respective cost-benefit combinations are compared. Considering, however, the importance of employment creation at this stage of Philippine development, labor-intensive exports deserve the highest priority in the industrialization program.

6.80 Export promotion policies: It seems very clear that without well-designed promotional policies, Philippine manufactured exports will not be able to play an important role in economic growth. The major elements of an expansionary export policy would involve the exchange rate policy, investment incentives, and a set of other policies in the areas of financing, free trade zones, and other promotional measures.

6.81 The major issue for future Government strategy is how to effectively reduce the previously mentioned incentives gap between exports and import-substituting manufacturing without disrupting industrial growth. This can only be achieved by tackling the incentives gap from both sides, that is, by reducing the amount of protection enjoyed by import replacing sectors and increasing the effective subsidy given to exporting activities. This process will have to be stretched over a reasonable period of time in order to prevent excessive disruptions, and it will have to be supplemented by compensatory measures.

6.82 On the import side, there are three areas where action should be taken: quantitative restrictions, tariffs, and fiscal incentives. Import liberalization is a vital element of a long-term industrialization strategy in the Philippines, but carefully coordinated compensatory measures will be required to bring it to desirable levels 1/. As a part of this effort, investment incentives should gradually be reduced and ultimately confined to only labor-intensive and exporting activities. 2/ It is clear that an improvement in the relative position of exports must be made soon. An important part of such an action would be the strengthening of investment incentives, favoring, in particular, export industries.

6.83 The emerging ASEAN industrial cooperation schemes represent a potentially important element in the future export growth strategy that should not be overlooked. An agreement was announced in March 1976, to develop five projects as ASEAN industries; they include: urea projects in Indonesia and Malaysia, super-phosphates in the Philippines, soda ash in Thailand, and diesel engines in Singapore. A decision was also made to study the feasibility of establishing additional regional industries in newsprint, potash, metalworking, machine tools, electrolytic tin plating, heavy-duty ties, and electronic components. Future negotiations will determine the related preferential trade arrangements. In the meantime, the Philippine Government has announced its plans to establish an import financing scheme to support imports from other members of ASEAN and thus strengthen regional industrial cooperation. The scheme will be designed to enable Philippine importers to purchase goods from other ASEAN countries at preferential rates and to use low-interest loans from Government institutions for that purpose.

6.84 Export Incentives: The introduction of a comprehensive incentives package through the Investment Incentives Act of 1967 gave a noticeable boost to new industrial exports since most of the benefits resulting from these incentives accrued to export producers as well. Export producers were accorded an additional tax credit on taxes and duties paid on the supplies, raw materials, and semi-manufactured products they used in production for export, as well as a double deduction of promotional expenses for exports. These export incentives were granted for all activities listed in the Investment Priorities Plan (IPP), but in the case of nontraditional exports they could be granted even if the activity was not specifically listed in the IPP. The Export Incentives Act, introduced in 1970, added to the package of incentives the exemption of industrial exports from export taxes and provided additional tax credits on sales and excise taxes on inputs. An important innovation of the Export Incentives Act was the extension of incentives to export traders and service exporters. A 1973 decree made the total cost of direct labor inputs and local raw materials used in export production deductible from income before taxes. The ceiling for income tax deduction is now 25 percent of total export revenues for export producers, 10 percent for export traders, and 50 percent for service exporters.

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1/ See paras. 6.49 - 6.56.

2/ See paras. 8.84, 8.85, and Technical Note I in Chapter 8.

6.85 Incentives under the Export Incentives Act are in principle available to firms that export at least 50 percent of their output and whose activities are listed in the Export Priorities Plan (EPP). The EPP lists two types of exportable products: those produced in existing facilities, which may, however, undergo an export-oriented expansion (List A), and those in the preferred areas of investment, whose export potential warrants the establishment of new production facilities (List B). In order to prevent abuses, the Export Incentives Act stipulates that any firm which imports capital equipment using the incentives must earn foreign exchange equivalent to the cost of that equipment within five years. The registration of any firm that fails to export within the period imposed by the BOI or whose exports fall below 70 percent of the projected export sales can be cancelled or subject to other prescribed penalties.

6.86 It is, therefore, clear that the relative preference accorded to export activities under the existing tax laws is only marginal. Exporting enterprises in preferred areas enjoy substantial fiscal benefits, but those benefits are, however, only slightly greater than those enjoyed by all enterprises in these particular preferred areas.

6.87 On the other hand, more applications are now being made under the Export Incentives Act than under the Investment Incentives Act. Enterprises do this in order to strengthen their case for receiving Government loans, allocations of foreign exchange, and fiscal incentives. In this way, they also circumvent the limitations imposed on new projects by provisions relating to "measured capacity" and "overcrowded industries."

6.88 Since the incentives given to exporting activities are not very different from those given to all preferred activities, it is clear that more effective efforts are required to encourage exports. There is little doubt that manufactured exports would benefit greatly from import liberalization; they could rely on a better supply of cheaper inputs and, more important, the relative attractiveness of import-competing sectors would weaken, making more resources available for the export sector. However, export incentives would also become less important, since many of them are related to imported inputs which would be subject to fewer restrictions, making tax preferences redundant.

6.89 While a lowering of the effective subsidy to nonexporting sectors is essential from the point of view of export stimulation, equally important is the strategy of direct export incentives. Export incentives should be directly tied to export performance rather than to the level of investment cost or the quantity of imported inputs. Just as the objective of general investment incentives should be not merely to increase output but also to raise its domestically-generated value added component, export incentives should seek to raise net export earnings, rather than only the level of exports. There is also little point in making incentives available to only those firms whose exports constitute more than one-half of their total sales; all export sales above a certain point (and within prescribed limitations) should be encouraged.

D. Promoting Small-Scale Industries

6.90 The small-scale sector is an important component of Philippine industry. In 1973-74, it employed close to 1 million people, or 68 percent of the total industrial labor force, and it represented 12-13 percent of total industrial value added. However, the relative importance of the small-scale sector has been decreasing over the past two decades, and, during the last 5-6 years, this sector seems to have been declining even in terms of absolute employment and value added. Moreover, the relative size of the small-scale sector in the Philippines is below the level found in many other countries with comparable per capita incomes.

Past Trends and Structure

6.91 Of the 12-13 percentage share of the small-scale sector in total industrial value added, roughly 6 percent is accounted for by firms employing less than 5 workers 1/, 3 percent by the 5-19 workers group, and 3-4 percent by the 20-49 workers group. The respective shares of the same industrial groups in total industrial employment can be estimated at 60 percent, 5.5 percent, and 2.5 percent.

6.92 Taking the 1956-74 period, there was a steady decline in the relative importance of the cottage sector (1-4 workers) in terms of industrial value added and employment, while that of the modern small-scale sector (above 5 workers) stagnated. It is interesting to note, however, that the long-term declining or stagnating trend of these two industrial groups was reversed during the 1962-68 period. 2/ In that period, industries of 5-19 workers scored better than the larger-scale industrial group on several scales: 13.8 percent versus 8.2 percent in the case of gross value added, 5.8 percent versus 2.2 percent in productivity of labor, 3.4 percent versus 1.5 percent in the number of establishments, and 6.3 percent versus 5.9 percent in employment. Similar trends can be detected within those firms in the small scale sector employing over 20 workers. Even industries employing 1-4 workers grew at 1.3 percent per year in terms of employment during those years, in contrast to both the preceding and following periods.

6.93 The reasons for these trends are not clear, but it is possible that the upsurge in modern small-scale industry, unparalleled before and after the 1962-68 period, had much to do with the relaxation of foreign exchange controls during the period. In the Philippine setting, small enterprises seem to have been more responsive to liberalization measures (and more affected by control measures) than their larger counterparts. This also suggests that access to foreign exchange and imports is more important than

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1/ See the explanation in Note 3, Table 6.9B.

2/ See Table 6.1.

usually thought for such enterprises. On the other hands, cottage industries also seem to have benefited from specialized incentive laws promulgated at that time. 1/

#### Factor Use and Size of Operations

6.94 Table 6.1 shows that, during 1968-73, despite the stagnation in output and the decline in employment, the number of establishments in the 5-19 workers group rose sharply; it grew at a rate of 4.2 percent a year, compared to 3.4 percent in 1962-68 and 2.7 percent in 1956-62. However, between 1956 and 1973, the size of an average firm employing 20 or more workers doubled in terms of employment (from 82 to 156 workers), and grew 2.5 times in terms of gross value added (from ₱ 836,000 to ₱ 2,043,000, at constant 1967 prices). During the same period, the average firm in the small-scale group (5-19 workers) declined in size in both respects (from 10.2 to 7.6 workers, and from ₱ 34,000 to ₱ 20,000 in terms of gross value added). Taken together, the increasing number of small-scale firms, their diminishing size, and the absolute decrease in cottage industry employment referred to earlier, seem to reflect the existence of both favorable and unfavorable factors: a continuous effort to enhance the investment climate and emergence of a vigorous Philippine entrepreneurial group on the one hand, and on the other, a policy-induced proliferation of inefficient units as well as the lack of a normal process of consolidation and growth from smaller into larger units.

6.95 As in other countries, there is a definite pattern in industries' proportional use of productive factors in the Philippines, depending on the size of firms. The larger a firm, the more capital-intensive (in terms of

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1/ Particularly, Republic Acts 3470 and 5326 and Presidential Decrees 34 and 62 (cottage industry); Republic Act 4086 (textile industry); Republic Act 4155 (tobacco industry); and a number of laws and decrees relating the activities of rural banks and nonagricultural cooperatives.

fixed capital per worker) it tends to be, and the higher level of labor productivity (in terms of value added per worker) it tends to have, as can be seen from Table 6.17.

Table 6.17: Factor Intensity and Productivity  
in Manufacturing, 1971

Size of firms (Numbers of workers)	Capital per worker (In thousands of pesos)	Value added per worker (In thousands of pesos)	Capital/value added ratio <u>/a</u>
9 - 19	5.1	5.9	0.85
20 - 99	11.4	12.3	0.9
100 - 199	14.0	19.6	0.7
200 and above	22.3	22.3	1.0

/a Book value of fixed assets.

Source: CSO.

6.96 It is less clear to what extent the size of the enterprise affects its capital productivity (Table 6.8). 1/ However, a certain pattern emerges if fixed assets are expressed in terms of replacement rather than book values; small-scale firms definitely tend to need less capital for the same amount of output. 2/

6.97 Although these patterns exist at the aggregate level, a more detailed classification of industries would show that there are less clear patterns in the efficiency of factor use in firms of different sizes. It appears, therefore, that any policy other than that encouraging the development of the most efficient industries, irrespective of their size, would be irrational. The Mission concurs with the conclusion of the ILO study that there is ample room for the successful development of industries in all size-groups, if artificially-induced distortions in factor use could be eliminated.

#### Problems of Future Growth

6.98 A drastic change of trends in the modern small-scale and in the cottage sectors will be necessary if the industry as a whole is to reach a labor absorption target of 75,000-80,000 a year by 1985. The growth of these sectors is highly desirable on the grounds of their low capital use, their favorable capital productivity and, above all, their role in maintaining the existing employment level and generating new employment.

1/ In terms of fixed capital needed to produce one unit of value added.

2/ See ILO, Sharing in Development Table 25, p. 144.

6.99 To revive and sustain the growth in modern small-scale industries and to maintain the present employment level in the cottage sector, policies will have to be developed that will lead to the removal of artificial disadvantages affecting that sector and to the active promotion of firms within the cottage sector that have propitious prospects. In order to have the kind of growth described in Tables 6.9A and B, there would have to be an accessible market for the increased output of small producers; the cottage and small-scale sectors would have to be able to productively absorb the increased investment and would have to be made attractive for potential investors. There would have to be an adequate supply of producer goods needed for expanded production, which would have to be backed by financing on favorable terms; and the growth of small industries will have to be dispersed throughout the country.

6.100 Although some progress has been achieved in some of these areas through recent efforts on the part of the Government, much more needs to be done. The improvement is perhaps most obvious in the area of financing. Several major development banking institutions have set up special funds for small and medium-scale industries. The Development Bank of the Philippines (DBP) has earmarked ₱ 500 million for this purpose, out of which 626 loans amounting to ₱ 76 million were granted in 1973-74. The DBP invested ₱ 121 million in small and medium-scale industries outside the Greater Manila area, of which one half was made in 1973-74. In the second half of 1974, the DBPs approved 497 new loans for small and medium-scale industries amounting to ₱ 33 million 1/ with an additional 285 loan applications totalling ₱ 65 million in the pipeline. A number of rural, commercial, and development banks are also engaged in financing small-scale projects under the Industrial Guarantee and Loan Fund (IGLF) Scheme, whose total assets amounted to ₱ 56 million in 1974. It is significant that much of the lending to small industries now originates from field branches of development institutions. The DBP currently has a network of about 60 branches and agencies which it is still expanding.

6.101 The Medium and Small-Scale Industries Coordinated Action Program (MASICAP), in existence since November 1973, is another instrument for the promotion of small-scale investments. From its inception until March, 1975, the MASICAP had generated 479 projects (261 for DBP, 155 for IGLF, and 63 for other financial institutions), with a total project cost of ₱ 330 million and a loan requirement of ₱ 132 million. It is significant that the number of projects increased sharply in 1975 (276 out of 479 projects were completed in the first quarter of 1975), and that about 150 additional projects were in preparation in March 1975. One-third of the total cost of all MASICAP-assisted projects was less than ₱ 50,000.

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1/ One half of these loans are in the range of ₱ 10,000 and below.

6.102 The financial position and requirements of small-scale industries, however, have to be compared to those of their large-scale counterparts. The large-scale sector benefits fully from the BOI incentives; it has access to easy-term credit for expansion and working capital purposes, its voice is heard when it comes to policy formulation, and it can avail itself of the pool of skills existing in the country or abroad. In order to minimize relative disadvantages on the part of small-scale producers, additional efforts will be needed to facilitate their access to institutional finance, particularly for working capital requirements. The Mission believes that a much needed relaxation of collateral requirements on the part of banking institutions can be effected without endangering the viability of their operations. Technical assistance schemes now being implemented in the provinces should improve the selection of projects and their sponsors, which is an important condition for overcoming the procedural difficulties and for broadening the basis for further expansion of small-scale industries.

6.103 Considering that both the traditional sector and the smallest units of the modern sector have been neglected under the present promotional schemes, it is important to explore the possibility of setting up special funds (either under existing financing programs or independently) earmarked for them; raising the size of loans provided on concessionary terms (at a 9 percent interest rate) in order to modernize very small units; and giving a fair share of the fiscal benefits provided to the large scale sector for their small-scale sub-contractors.

6.104 Another critical area where improvements are necessary is related to technical services and expertise. This vast area comprises improved technical information and extension services, technological adaptation and product design, the availability of material inputs and spare parts, marketing information and organization, assistance in project preparation and, above all, the acquisition of entrepreneurial and managerial skills. The basic organizational framework set up to deal with these specific fields already exists. 1/

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1/ It includes: the Department of Industry's Commission on Small and Medium Industries (CSMI), created by Presidential Decree 488 of June 1974, whose task is to "promote, assist and develop small and medium-scale industries, particularly in the rural areas" and which is composed of the representatives of various government agencies involved with small industries in one way or another; the DBP, IGLF, and other development institutions, together with their regional networks; the University of the Philippines' Institute for Small-Scale Industries, the Development Academy of the Philippines, the Design Center of the Philippines, and the National Manpower and Youth Council, which are all involved in various technical assistance and training schemes; the Trade Assistance Center, Food Terminal, Philippine International Trading Corporation, and National Cottage Industries Development Authority (NACIDA), which are all engaged primarily with marketing; and the posting of "industrial specialists" or "small industry coordinators" to local governments, whose job will be to help in the selection of projects and their proponents. By early 1975, some 150 "industrial specialists" had been trained by the Development Academy of the Philippines.

6.105 There are two questions that arise with respect to this institutional organization which deserve further consideration. First, the entire machinery seems to be geared primarily to modern small-scale industries, particularly the larger firms in that group; the cottage sector, except for the NACIDA, is only marginally affected by it. Rather than creating new institutions, the operations of the institutions mentioned above should be modified to serve the needs of both the traditional cottage sector and the modern small-scale industries. Second, the current creation of coordinating councils for small and medium industries at provincial and city levels raises many questions as to their relationships with regional technical centers and the Central Commission on Small and Medium Industries.

6.106 The following problems can, therefore, be identified:

- (a) Even with an improved organization, it will be difficult to ameliorate the position of the cottage industry entrepreneurs. Since one has to deal with a large number of individuals that are difficult to reach and ill-equipped to make use of any technical services offered, the missing link is a separate cottage industry organization. Producers' and traders' co-operatives, if well organized, could perform many useful functions on behalf of small industrialists, particularly in such areas as loan mediations, the organization of bulk purchases, joint marketing (and perhaps even joint production) services, the dissemination of technical advice, and training.
- (b) More needs to be done to multiply the linkages between small and large-scale industries, especially under specific development schemes sponsored by the BOI. The establishment of information exchanges (both with respect to supply and demand, and technological information) could greatly contribute to this end, and some fiscal encouragement would also be advisable.
- (c) A sine qua non of any serious drive to enhance and revitalize small-scale industries in the Philippines is to improve infrastructure in rural areas, particularly through better supplies of electricity and water, more roads and inter-island coastal shipping, improved health, education, and housing.
- (d) The Government has successfully set up various organizations and mechanisms for the promotion of small industries, but these agencies know very little about the existing cottage and other small-scale industries, and particularly about where the true potential for sound growth lies. A comprehensive survey of the small-scale sector is needed, as are sub-sectoral and regional studies. With some financial support, the Institute for Small-Scale Industries could conduct such surveys and studies.

- (e) A fresh look into new opportunities for small producers as a result of the planned programs of rural electrification, and agricultural mechanization, the growth in rural incomes, the labor-intensive exports drive, and the policy of industrial decentralization is becoming more and more necessary. Planning authorities might consider establishing a separate unit to study these issues on a permanent basis.

E. Regional Dispersal of Industries

6.107 Manufacturing activity has changed little since the 1950s, remaining heavily concentrated in the Greater Manila area and in the adjoining provinces of Central and Southern Luzon. Statistical data relating to industrial establishments employing 5 or more workers indicate that the Greater Manila area alone accounted in 1969 for 39 percent of all such establishments, 45 percent of employment, 44 percent of value added, and 31 percent of fixed assets. If the adjoining Luzon provinces were considered, these percentages would rise by 20 to 30 points. More detailed information on the regional distribution of establishments employing 20 or more workers indicates that of a total of about 332,000 industrial workers in 1969, 156,000 were employed in Metropolitan Manila, an additional 100,000 in other parts of Luzon, and only 76,000 in the rest of the country, chiefly in Negros, Cebu, and three industrial centers in Mindanao.

6.108 Regional imbalances in the Philippines have reached the point of becoming a cumbersome burden on future growth. This situation is exemplified by the irrational regional distribution of the wood processing industry. Table 6.18 shows that a large excess capacity has been developed in Luzon, much of it in the Greater Manila area, making wood processing costlier both because of capacity underutilization and the importing of logs from Mindanao. Similar examples can be found in other resource-based industries.

Table 6.18: Log Supply and Processing Capacity Balance, 1972-73  
(In thousands of cubic meters)

Region	Supply	Processing Capacity	Excess Capacity	Excess Supply
Luzon	1,721	3,819	3,098	--
Greater Manila Area <u>/a</u>	508	1,917	1,409	--
Visayas	714	579	--	135
Mindanao	8,022	4,885	--	3,137
Palawan	59	38	--	21
Excess	<u>10,516</u>	<u>9,321</u>	--	<u>1,195</u>

/a Bulacan, Manila, Laguna, Nueva Ecija, Pampanga, Quezon, Quezon City and Rizal.

Source: Department of Agriculture.

6.109 The Government, well aware of the consequences of increasing regional imbalances, has undertaken several steps in order to check the expansion in the Manila area and to create conditions for more balanced growth in the future. These steps include: fiscal incentives to encourage projects to be located in less developed areas (which have, however, proved to be of little impact); 1/ promotional measures by the BOI such as regional seminars and an experimental regional development pilot program in Northern Mindanao; BOI's practice of negotiating the location of a project before it is approved; a ban on the establishment of new plants within a 50 kilometer radius of Manila, except for export industries; and the requirement that financing institutions in the provinces allocate 75 percent of their accumulated deposits for loans to projects in their respective areas.

6.110 These measures may have had a positive impact, but were not sufficient to change significantly the regional pattern of investments. This is clear from Table 6.19 which shows the distribution of BOI-approved projects by region.

Table 6.19: Regional Distribution of BOI-Approved Projects, 1968-74

Region	Number of Projects Approved Under		All Projects
	R.A. 5186 (1968-74)	R.A. 6135 (1971-74)	
I Ilocos	8	3	11
II Cagayan Valley	2	...	2
III Central Luzon	23	30	53
IV Southern Tagalog	144	218	363
V Bicol	7	4	11
VI Western Visayas	9	4	13
VII Central Visayas	19	14	33
VIII Eastern Visayas	8	...	8
IX Western Mindanao	9	1	10
X Northern Mindanao	39	6	45
XI Southern Mindanao	30	10	40
Total	<u>300</u>	<u>290</u>	<u>590</u>

Source: BOI, Statistical Appendix to the Eighth IPP and Sixth EPP.

6.111 Out of 590 projects approved by the BOI in 1968-74, 363 are located in Southern Tagalog, which comprises Greater Manila and its adjoining areas.

1/ See section on investment incentives.

This region accounts for 23 percent of the total population and 61 percent of BOI-approved projects. The provinces of Central Luzon, Central Visayas, Northern Mindanao and Southern Mindanao, where other major industrial centers are located (Bataan, Cebu, Cagayan de Oro, Iligan, Davao), account for 35 percent of the total population and 29 percent of the BOI projects. The rest of the country, with 42 percent of the total population, accounts for only 10 percent of BOI projects. Many of the large-scale projects in Manila are export-oriented; 218 out of 290 projects approved under the Export Incentives Act in 1971-74 are located in Southern Tagalog, as are a number of export-oriented projects approved under the Investment Incentives Act. It should also be noted that the predominance of Manila among BOI projects did not decrease in 1973 and 1974; on the contrary, the Southern Tagalog province accounted for 65 percent of all projects approved in those years, compared to 58 percent in 1968-72.

6.112 It is obvious that new and stronger efforts are needed in order to shift the balance of industrial investment in favor of other provinces. In terms of the value of investment, this balance is likely to move in that direction in the years to come in any case, because of a small number of very large projects in mining, basic metals, petrochemicals, and pulp and paper. However, very little change in the geographical distribution of industrial employment will result from this shift. A real shift in the balance of industrial growth will take place only when it occurs in labor-intensive sectors, such as in wood processing, textiles, and the production of other goods for mass consumption and export.

6.113 An absolute condition for investments to be directed into desired locations is the provision of adequate supporting infrastructure, such as electricity, water, transportation and communications, financial and technical services, and the availability of qualified labor. Fiscal incentives without such infrastructure and labor are unlikely to induce many new investments in the outer provinces and, with such infrastructure, are probably not needed. The Government has launched several programs in order to improve the basic infrastructure in areas outside Manila (such as substantial electricity generation projects in Mindanao and the Visayas, road construction, and a 10-year shipping and shipbuilding program. These efforts should be continued and extended to other types of infrastructure as well as to other regions.

6.114 Because of the need of industries - both large and small-scale - for substantial infrastructure facilities and support from other industries, Government policy has to be directed not only to dispersal away from Manila but towards the creation of other areas of industrial concentration. In addition to providing the necessary general infrastructure, an important emphasis of policy should be placed initially on the establishment of industrial estates and export processing zones in a few selected growth centers, and possibly later in other suitable areas.

6.115 Besides the already functioning Export Processing Zone in Bataan, there are several pre-investment studies and proposals for establishing

industrial estates in Bicol, Batangas, Manila, Cagayan de Oro, and Bulacan. While a desirable long-term objective seems to be the establishment of one or more industrial estates in each of the eleven principal regions, the Government intends to concentrate its efforts on a few highly promising projects; these will be determined after a study has been completed for a nationwide industrial estate program which is now in preparation by various Government agencies. 1/ This is undoubtedly the most appropriate way to proceed with the planning and programming work.

6.116 Another policy change that might be explored relates to the stipulation which permits an almost indiscriminate proliferation of industrial units in the Manila area if they are producing for exports. It is possible that many of these export-oriented projects would have been established anyway, even if the Manila area had been closed to them. Therefore, a modification of this policy, together with the establishment of more free trade zones and bonded factories and warehouses in the outer regions, could greatly contribute to an effective decentralization of industries.

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1/ This work is being coordinated by NEDA; the main implementing agency is the Planning and Project Development Office in the Department of Public Works, Transportation and Communications.



## Chapter 7

### HUMAN RESOURCE DEVELOPMENT

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## Chapter 7

### HUMAN RESOURCE DEVELOPMENT

#### A. Population Growth and Family Planning

7.01 Rapid population growth is one of the most serious problems facing the Philippines. It is restraining the growth of incomes; exacerbating unemployment, income distribution, and nutrition problems; and overburdening schools and other facilities. Because of this population growth, the incomes of many people will not rise very rapidly even with a good aggregate economic performance. Therefore, increased availability of publicly provided services for human resource development can make an important contribution to raising the level of individual and collective welfare. In recent years the Government has notably expanded its activity in this area. For example, in the 1960s the Government had no population policy and paid relatively little attention to nutrition, but there are now active, wide-ranging programs in both of these areas. There are also ongoing efforts to increase the efficiency and raise the quality of the education system, and to improve rural health services; these efforts will require increased resources if they are to completely achieve their objectives. 1/

#### Demographic Facts and Trends

7.02 The postwar censuses of 1948 and 1960 enumerated population totals of 19,234,182 and 27,087,685. The most recent census in the Philippines was held on May 6, 1970, and enumerated a population of 36,684,486. The intercensal annual average growth rates of the population for the periods 1948-60 and 1960-70 were 3.06 percent and 3.01 percent, respectively. These rates represent a considerable acceleration of population growth compared to the pre-war period. During the period since 1948, the Philippine population has been increasing at such a rate as to double every 23 years. The rapid population growth which has characterized the Philippines throughout the past three decades is caused by the persistence of traditionally high birth rates and by falling death rates.

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1/ In addition to the family planning, nutrition, health, and education activities discussed below, the Government has programs, within the framework of its limited resources, specifically oriented to disadvantaged groups. These programs, administered through the Department of Social Welfare, include: self-employment assistance for unemployed adults; day care for needy pre-school children; skill training for out-of-school youth; assistance to victims of natural disasters such as typhoons; and rehabilitation for such special groups as the aged, ex-prisoners, and persons recovering from drug dependency or mental illness. Although the Mission was not able to examine these programs, they undoubtedly make a useful contribution to human resource development.



7.03 Due to substantially incomplete registration of vital statistics, the current population level and growth rate are not known as accurately as would be desirable; the evidence that is available points to a slight decrease in the growth rate. The Population Commission, on the basis of the 1973 National Demographic Survey and reported family planning acceptance rates, estimated the population growth rate in 1975 to be in the range of 2.80 to 2.85 percent. This would indicate that the population is following the middle of three projections prepared by the National Census and Statistics Office (NSCO), 1/ which estimated the 1975 population of the Philippines at 42.5 million. This would mean that population has increased by about 5.8 million since the 1970 census and is currently growing by about 1.2 million a year.

7.04 Filipinos traditionally have large families. The total fertility rate, which is the average number of children born to a woman who survives throughout the reproductive years, was found to have been 6.3 for the period 1963-67 by the 1968 National Demographic Survey, and is estimated by the NCSO to have also been 6.3 for the period 1965-70. Since the base on which the total fertility rate is calculated includes single as well as married women, the marital fertility rate must have been even greater.

7.05 The problem of high fertility is particularly acute in rural areas, which had a total fertility rate of 6.7 in the period 1968-72, versus only 4.1 for Metropolitan Manila and 4.5 for other urban areas. The lower fertility in urban areas is due both to a higher age at marriage and to the fact that, once married, urban women have fewer children. These fertility rates mean that the national crude birth rate of 42 per 1,000 in 1970 was composed of a rural birth rate of 45 per 1,000 and an urban birth rate of 35 per 1,000. 2/

7.06 A significant part of the explanation for the observed family size lies in the fact that Filipino parents want large families. The evidence on desired family size comes from knowledge-attitude-practice (KAP) surveys on fertility and family planning. 3/ The 1968 National Demographic Survey found the preferred family size to be 5.2 children. In summarizing the

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1/ See Technical Note I to this chapter.

2/ Peter C. Smith, "Fertility in Metropolitan, Other Urban and Rural Areas: a Decomposition into Sources of Variation, 1968-72", Population Institute Research Note No. 40 (Manila: University of the Philippines, 1975). Total fertility rates and crude birth rates are not correlated perfectly because the latter is influenced by the age-sex composition of the population.

3/ Some demographers have argued that responses to survey questions on desired family size may be meaningless on the grounds that traditionally-mined people in developing countries do not make conscious decisions on family size. This problem is discussed in Mercedes B. Concepcion and William Flieger, "Studies of Fertility and Family Planning in the Philippines," Demography (1968), p. 718.

results of four community surveys in the mid-1960s, University of the Philippines demographers at the Population Institute wrote that "The most important fact about ideal family size in the Philippines is that Filipino women favor large families ... For the Philippine lowlands, nearly one-half of the younger women said that the ideal family has at least five children." <sup>1/</sup>

7.07 It is also clear that the marital fertility rate is higher than the ideal family size. This may be partly because parents wish to "insure" themselves against the possibility of infant and child mortality (which is quite high in the Philippines) and, on balance, they "over-insure" themselves. But there is undoubtedly also an element of unwanted fertility caused by a lack of knowledge as to how to control fertility. The observed facts suggest that a program of fertility reduction must have two components: bringing realized family size down to desired family size, and changing attitudes about family size, which is the more difficult task.

7.08 Mortality has been falling due to public health measures and improved levels of living. The death rate, which is estimated to have been 12 per 1,000 in the late 1960s, is projected by the NCSO to decrease to 10 per 1,000 in 1975 and 8 per 1,000 by 1985. This means that the population growth rate would increase by 0.4 percent (e.g., from 3.0 percent to 3.4 percent) in the absence of any offsetting fertility decline.

#### Consequences of Rapid Population Growth

7.09 Although there is no aspect of the economy that is unaffected by rapid population growth, this discussion will consider, for the sake of illustration, four areas of concern: incomes, jobs, food, and schools. Of course, one could easily extend the list to include housing, health services, energy consumption, environmental quality, and other areas as well. Current family planning efforts will have their most significant effects sometime in the future. In order to indicate the benefits of success (or the costs of failure) in such efforts, two alternative scenarios for 1990 will be presented, based on the medium and low projections of the NCSO. <sup>2/</sup> The medium projection assumes that the family planning program is only moderately successful and that fertility drops slowly, resulting in a population of 65.0 million in 1990. The low projection assumes that the family planning program is highly successful and that fertility drops relatively quickly, leading to a population of 59.6 million in 1990.

7.10 Incomes: Population growth has two opposing effects on gross national product. On the one hand, it adds to the labor factor of production. On the other hand, population growth causes more resources to go to consumption and fewer to investment, thus reducing the growth of another factor of production, capital. This is because high fertility results in a population with a large proportion of dependents. In the Philippines, the

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<sup>1/</sup> Ibid, p. 719.

<sup>2/</sup> These projections are shown in Technical Note I attached to this chapter.

dependency ratio (the ratio of persons under 15 or over 65 to persons of working age) is 0.94, compared with the 0.5 typical for low-fertility countries. The combination of a high proportion of dependents and low incomes makes it difficult for families to save. Rapid population growth also forces up current expenditures by the public sector.

7.11 Which of the above two effects (the increased growth of labor or the reduced growth of capital) is greater in a particular economy is a question that must be answered on the basis of empirical research. An economic-demographic model of the Philippines developed at the University of the Philippines' School of Economics (UPSE) indicates that, in the Philippines, the second factor outweighs the first, and that, therefore, the net effect of population growth is to retard the growth of GNP. This is what one would expect for an economy generally believed to have a shortage of capital and a surplus of labor. In particular, the model predicts that, with moderate assumptions about the impact of family planning, GNP at the end of the century would be 10 percent higher with family planning than without it. <sup>1/</sup>

7.12 If population growth has a negative effect on aggregate product, it has an ever more powerful negative effect on per capita product. The Mission projects GNP to be about 87 billion pesos in 1985. If GNP were to grow at 7 percent per annum in the following five years, it would be 122 billion pesos in 1990. With the medium projection, this would indicate a per capita GNP of ₱ 1,877 in 1990, or 9 percent less than the ₱ 2,047 indicated with the low projection. If fertility were to remain constant (as the high projection of the NCSO assumes), the figure would be only ₱ 1,730. These calculations assume that GNP is independent of population growth -- a more conservative assumption for assessing the benefits of fertility reduction than would be suggested by the results of the UPSE model. Clearly, fertility reduction is an extremely effective way of raising per capita incomes.

7.13 But the discussion thus far has understated the beneficial impact of fertility reduction on Philippine development by omitting the effect of population growth on the distribution of income. Population growth causes the capital/labor ratio to rise more slowly than it otherwise would, and it causes the ratio of land and natural resources to labor to fall. The decreasing average farm size observed in the Philippines, as discussed in Chapter 4, is evidence of the latter. The result is that wages fall relatively, and perhaps absolutely, aggravating the skewed distribution of income. Indeed, real wages in the Philippines have fallen considerably in recent years. It is also interesting to note that, according to the 1971 family economic survey, the per capita income of large families (seven persons or more) was only ₱ 534 in that year, versus ₱ 744 for small families (three to six persons), again indicating high fertility as one source of the highly skewed distribution of incomes found in the Philippines.

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<sup>1/</sup> Agustin Kintanar, et al., Studies in Philippine Economic-Demographic Relationships (Quezon City: University of the Philippines School of Economics, 1974), p. 188.

7.14 Jobs: The labor force of the Philippines is currently growing by 500,000 workers a year. Most of these workers have been able to find jobs. However, industrial and agricultural employment have not kept pace with labor force growth in recent years, forcing a spillover of job seekers into the services sector. Many of these service sector jobs are of inferior quality - they add little to the national product, and they bring little income to the worker. The prospects for agriculture and industry to absorb all of the increasing labor force increments projected for the next decade are not bright, pointing to the continuing growth of inferior service sector jobs that actually represent underemployment.

7.15 Current efforts to reduce fertility will not have a significant impact on the size of the labor force until the 1990s. At that time, however, the impact would be considerable. If the medium projection were to be realized and the labor force participation rate remains at the recently observed level, the labor force would be 23.0 million in 1990 and 30.5 million in 2000. But if family planning efforts were more successful and the low projection achieved, the labor force would be 22.4 million in 1990 and 27.8 million in 2000. With the medium projection, the average annual increment to the labor force during that decade would be 750,000, versus only 540,000 with the low projection. These figures probably exaggerate somewhat the effect of fertility reduction on the labor supply, since lower fertility would probably be associated with increased participation in the labor force by women. On the other hand, the demand side of the labor market should also be considered. With fertility reduction, there would be higher incomes, more capital and land available for each unit of labor, and thus a greater demand for labor. Although the effect is difficult to quantify precisely, it is clear that fertility reduction would substantially improve the prospects for labor force absorption in the Philippines in future decades.

7.16 Food: Rapid population growth in the Philippines has frustrated efforts to achieve self-sufficiency in rice and corn and to make adequate nutrition available to all groups in the population. In the bumper crop year of 1970, the Philippines imported neither rice nor corn. Due to adverse circumstances such as bad weather in 1972 and high fertilizer prices in 1974, however, production was less in subsequent years. Foodgrain production in 1975 surpassed the record of 1970, but imports were needed because the population had grown 15 percent in the meantime. In recent years, substantial amounts of foreign exchange, which otherwise could have been utilized for development purposes, have necessarily been diverted to foodgrain imports to feed the growing population. At the same time, nutritional standards have deteriorated.

7.17 Future prospects may be illustrated by reference to rice consumption. In normal years, rice consumption in the Philippines is about 90 kilograms per capita per year. Therefore, rice requirements in 1990 would be 5,364,500 tons with the low projection, but 5,950,000 tons with the medium projection, leaving aside the possibility of increased per capita consumption due to higher incomes or improved nutritional standards. The difference between these two figures is 486,000 tons. One of the principal means of raising

rice yields in the Philippines is to provide irrigation to previously rain-fed areas. Assuming that the addition of irrigation increases yields by two tons per hectare, there would be an incremental need for new irrigation of 243,000 hectares. This would represent a major burden in terms of resources and implementation capacity. Similar constraints can be expected in raising the production of other foodstuffs. In the absence of substantial fertility reduction, it is difficult to see how the Philippines can achieve its objectives of rice and corn self-sufficiency and adequate nutrition for all.

7.18 Schools: As discussed later in this chapter, school facilities in the Philippines are seriously overburdened. The rapid growth of the school-age population has been a major cause of this situation. The National Economic and Development Authority estimates that there is a national shortage of 36,000 classrooms. Textbooks are in such short supply that there is only one for every eight students. The need to cope with large year-by-year increases in the quantity of students has made it impossible for the educational system to implement urgently needed improvements in quality. Depending on whether the medium or the low projection is realized, elementary and secondary school enrollment in 1990 could be as much as 15,052,000 or as little as 13,219,000. With a standard of forty students per classroom, the medium projection would indicate a need for 45,825 more classrooms than the low one. At the current cost of building a classroom, this would indicate an incremental cost of P 815 million for school construction. Continued rapid expansion of enrollment would also force up operating costs, and prospects for quality improvement would probably be forestalled.

#### The Family Planning Program

7.19 In the Philippines, Government concern about the population problem came relatively late and public sector involvement in family planning activities was preceded by that of the private sector. Family planning in the Philippines was pioneered in the early 1960s by two private organizations, the Institute for Maternal and Child Health and the Family Planning Organization of the Philippines. In 1964, the University of the Philippines Population Institute (UPPI) was established for the purpose of training demographers and carrying out research. Two UPPI-sponsored Conferences on Population in 1965 and 1967 helped bring attention to the adverse consequences of rapid population growth for Philippine development. Indirect Government involvement in family planning began in 1967 with the signing of an agreement with the United States Agency for International Development (USAID) for the channeling of assistance to private agencies and to a few municipal and provincial health department which had begun to offer family planning services.

7.20 In 1969, in response to increasing concern, the Commission on Population (POPCOM) was established. Initially, POPCOM's responsibility was limited to studying the population situation of the country and making recommendations. In 1970, however, the Government decided for the first

time to adopt an active population policy. POPCOM was given additional duties, namely "to organize and implement programs that will promote a broad understanding of the adverse effects on family life and national welfare of unlimited population growth," and "to make available all acceptable methods of contraception ... to Filipino citizens desirous of spacing, limiting or preventing pregnancies." <sup>1/</sup> The budget of the population/family planning program has increased rapidly in recent years, reaching P 108 million in FY74, compared to P 12 million in FY70.

7.21 Program Activities: Although charged with carrying out the Government's population/family planning program, POPCOM has not directly engaged in the provision of family planning services or in other operational activities. Rather, it is principally a planning, policymaking, coordinating, fund-channeling, and reporting agency, although it intends to become directly involved to a limited extent in communications and training activities. Operational activities are carried out by a wide spectrum of public and private organizations, the great majority of which predate POPCOM. The activities of the family planning program, under POPCOM's guidance, are divided into four areas: clinical services; information, education and communications; training; and research and evaluation.

7.22 As of the end of FY74, there were 2,192 clinics offering family planning services, compared to only about 300 in 1969. Most of these are multi-purpose clinics and do not confine their activities to family planning. About two-thirds of the total are Government clinics and about one-third are private. The private clinics are located primarily in urban areas, whereas the Rural Health Units (RHUs) of the Department of Health comprise the majority of the Government clinics. Clinics are typically staffed by a physician, a nurse or midwife, and sometimes a motivator (a person without medical training who engages in communication work). Following the rapid expansion of recent years, the number of clinics is now considered to be adequate; however, many of the RHUs are in unsatisfactory physical condition. The RHU network, however, is being upgraded as part of a World Bank funded population project. Clinics reported 763,000 new family planning acceptors in FY74, representing only a modest increase over the 692,000 reported for FY73. <sup>2/</sup> Of the new acceptors, 56 percent chose to use oral contraceptives, 23 percent chose condoms; 12 percent chose intrauterine devices (IUDs); and 9 percent chose rhythm and other methods.

7.23 The purposes of the information, education, and communication (IEC) component of the program are to educate the population about population issues and to create a demand for family planning services. Several channels are used for this purpose, one of which is the school system. The Department of Education and Culture has initiated a Population Education Program for the integration of population subject matter into mathematics, social

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<sup>1/</sup> Presidential Decree 79, as cited in Commission on Population, Four-Year Population Program (Manila, 1974), p. 16.

<sup>2/</sup> Because of reporting errors, these figures are believed to overstate somewhat the true number of new acceptors.

studies, and natural science curricula. About 14,000 teachers received short training courses in population education in FY74, and population education is now a required course in teacher-training institutions. Another channel is the mass media. The Population Information Education Office (PIEO) of the National Media Production Center and the University of the Philippines Institute of Mass Communication are engaged in the development, production, and dissemination of mass media population/family planning materials. The media used include radio, dramatic presentations, comic books, and films shown by mobile vans. Finally, there is direct interpersonal communication by lay persons trained to give information about family planning services and encourage adoption. Some of these persons are clinic-based motivators; others are social workers or local government employees for whom family planning activities are only a part of their work.

7.24 The purpose of the training component of the program is to support clinical and IEC services by providing them with the trained personnel that they require. The clinical personnel receiving training include physicians, nurses, and midwives; nonclinical personnel include motivators, social workers, volunteer couple workers, and opinion leaders. Training is conducted by 12 agencies, including the Institute for Maternal and Child Health and the Family Planning Organization of the Philippines in the private sector, and the Departments of Health, Social Welfare, Local Government and Community Development (DLGCD), and the University of the Philippines in the public sector. In FY74, 21,322 persons received training, bringing the total number of trainees since 1970 to more than 50,000.

7.25 Research and evaluation activities consist of basic research and applied program research. Basic research includes studies in such areas as demography, biomedicine, behavioral sciences, and law reform. Applied program research attempts to evaluate the effectiveness of various program activities and has included studies of clinic effectiveness, motivator performance, and the results of training. Research work is contracted out to a wide variety of institutions; the Family Planning Evaluation Office of UPPI has done much of the applied program research.

7.26 Program Performance: One criterion against which performance of family planning programs is sometimes assessed is the population growth rate. POPCOM had set a target of 2.43 percent at the end of its four-year program, 1974-77; the target has recently been re-set to 2.4 percent in 1980. Accurate measurement is one problem with such targets. NCSO is attempting to develop a system of virtually complete vital registration in sample enumeration districts in order to estimate vital rates for the country as a whole. Pending the successful outcome of this effort, the rate of population growth in the Philippines is currently known only with a margin of error that is considerable in relation to the precision required if it is to be used as a "success indicator" for the family planning program. Another problem is that there are factors outside the family planning program acting on population growth, such as falling mortality, and the consequences for fertility of increasing urbanization and education.

7.27 Another, and probably more reasonable, criterion for assessment of program performance is family planning practice. When family planning continuation rates are applied to new acceptor statistics (Table 7.1), the proportion of women practicing family planning can be calculated. 1/ It can be seen from Table 7.1 that family planning practice has increased from 2 percent of the eligible population in 1970 to 10 percent in 1972 and 19 percent in 1974. These results are in accordance with the finding of the 1973 National Demographic Survey that the proportion of married women of reproductive age practicing contraception at that time was 18 percent (but only 15 percent if ineffective folk methods not recommended by the program are excluded). 2/ Further, the NDS found that the total fertility rate had fallen to 5.9 from the level of 6.3 observed five years earlier--a slight but nonetheless significant decline. Clearly, the clinical component of the program has made substantial progress.

7.28 The 1973 National Demographic Survey also surveyed attitudes toward family planning and compared with them 1968 NDS findings, giving an indication of the success of another aspect of the family planning program, the IEC component. The median number of children preferred decreased to 4.1 from 5.2 found five years earlier. 3/ The proportion of women wanting to have five children or more decreased by 61 percent in 1968 to 36 percent by one measure and 42 percent by another measure. 4/ The proportion who were aware of at least one method of family planning increased by 63 percent to 87 percent. The proportion of respondents disapproving of contraception decreased from 37 percent to 14 percent. These findings are encouraging in that they suggest that the IEC component of the program has had an impact; at the same time, they demonstrate the need for continued strong emphasis on IEC activity, because the desired number of children remains far above the replacement level (about 2.3) required for population equilibrium, and the proportion of women favoring large families remains disturbingly high.

7.29 Despite the Philippine program's very creditable accomplishments, it is falling somewhat short of the rather ambitious targets it has set

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- 1/ Some women will discontinue contraceptive practice because they accepted family planning, not because their families were complete, but rather because they wished to space their children; others will discontinue because they are not sufficiently motivated, or because they may believe, rightly or wrongly, that they are no longer fertile.
- 2/ John E. Laing and James F. Phillips, "Survey Findings on Family Planning Program Effects in the Philippines" (Manila: University of the Philippines, Population Institute, 1974, Processed).
- 3/ Obid, p. 4.
- 4/ Respondents were asked essentially the same question two different times using different languages in order to validate the responses.

Table 7.1. Family Planning Acceptors, 1970-74  
(In thousands)

Fiscal Year	New Acceptors <sup>a/</sup> (Reported)	New Acceptors <sup>a/</sup> (Adjusted)	Practicing <sup>b/</sup> Acceptors	Eligible <sup>c/</sup> Population	Coverage of Eligible Population (In percent)
1970	120	89	89	4,704	2
1971	302	204	262	4,907	5
1972	520	344	520	5,095	10
1973	686	349	794	5,288	15
1974	701	491	1,039	5,501	19

a/ New acceptors (reported and adjusted) for 1970-73 from the Population Commission (POPCOM), Four-Year Population Program, p. 13. Reported figures are adjusted for over-reporting and counting transfers from one clinic to another of new acceptors; the figures for adjusted acceptors are, therefore, the best estimates of new acceptors in a given year. New acceptors (reported) for 1974 from POPCOM, Annual Report, 1973-74, p. 20. New acceptors (adjusted) for 1974 is the difference between the corrected cumulative number of acceptors as of end of FY74 (1,567,000 in Annual Report, p. 24) and the cumulative total for previous years.

b/ The estimated number of women currently practicing contraception. It is calculated as the sum of new acceptors for the current year and continuing acceptors from previous years on the basis of the following continuation rates: first year, 65 percent; second year, 48 percent; third year, 37 percent; fourth year, 26 percent. These rates come from the 1974 National Acceptor Survey.

c/ Eligible population for 1973 and 1974 from POPCOM, Annual Report, estimated as 60.5 percent of the women aged 15-45 according to the medium projection of the National Census and Statistics Office (NCSO). Eligible population figures for 1970-72 are derived by applying this factor to NCSO projections for those years.

for itself. POPCOM's Four-Year Population Program sought 39 percent coverage of the eligible population in 1975 and 50 percent in 1976. 1/ These targets are unlikely to be met. This may reflect unrealistic target-setting as much as inadequate program performance, but it remains true that the level of family planning practice in the Philippines is far below the 40-50 percent level found in some neighboring Asian countries such as Korea and Taiwan. Further, the number of new acceptors has leveled off and was only 2 percent more in FY74 than in FY73.

7.30 The problems facing the program at this time have been analyzed in some detail in recent UPPI evaluation studies. 2/ The main findings are as follows:

- (i) The aggregate number of new acceptors has stabilized following rapid growth in the earlier years of the program.
- (ii) Urban women are more than twice as likely to practice family planning as rural women--28 percent versus 12 percent.
- (iii) The number of new acceptors per clinic has declined from 41 per month in 1972 to 31 per month in 1974, partly as a consequence of the expansion of the number of clinics.
- (iv) Continuation rates are slightly lower for women who accepted family planning in later years of the program compared to earlier years. This is attributable partly to the fact that early acceptors were predominantly women who had completed their families, whereas recent acceptors include many women who are spacing their families.

7.31 The above urban and rural acceptance rates mean that, if one takes 50 percent coverage as a target, 81 percent of the women remaining to be reached by the program are rural residents and only 19 percent are urban residents. Raising rural coverage from 12 percent to 21 percent would enlist as many acceptors into the program as would raising urban coverage to its probable maximum of 50 percent. This means that the future of the program lies in reaching the rural areas. There is also a need, however, to improve the low family planning practice rates among urban low-income groups.

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1/ It is not clear whether these targets refer to cumulative new acceptors or to currently practicing acceptors. The manner in which the number of acceptors is calculated suggests the former, whereas the manner in which averted births are calculated suggests the latter. Also, POPCOM indicates that the four-year plan is obsolete in some respects and no longer governs all aspects of the program.

2/ Laing and Phillips, "Survey Findings," and James F. Phillips, "The Philippine Family Planning Programs: Strategies for Program Improvement," (Manila: University of the Philippines, Population Institute, 1975, Processed).

7.32 One factor influencing rural acceptance rates is cultural values. As POPCOM puts it, "The program has now begun to confront target sectors with increasingly resistant attitudes and cultural environments less receptive to new acceptor recruitment." <sup>1/</sup> Another factor is the accessibility of family planning services; the 1973 National Demographic Survey found the proportion of women practicing family planning to be: 26 percent of those who live less than one kilometer from town, 15 percent of those 4-5 kilometers from town, and only 10 percent of those 9 or more kilometers from town. <sup>2/</sup> There is no very good evidence as to which of these two factors is more important in holding down rural acceptance rates. However, an inference may be made from the 1973 NDS finding that 73 percent of married women approve of contraception. If the proportion of urban women approving is assumed to be no more than 90 percent, the proportion of rural women approving must be at least 66 percent, given the urban/rural distribution of the population (and assuming a random sample). At any given time, some of these women will not practice contraception, although they approve of it, because they have not completed their families. But these figures do suggest a potential for achieving a much higher coverage of the rural population through improved accessibility of services.

#### Future Demographic Prospects

7.33 The number of women in the reproductive age brackets is expected to increase by 56 percent over the next 15 years and mortality will continue to fall. Therefore, the Philippine population has a built-in growth momentum which makes it difficult to slow down the rate of growth quickly. In some countries urbanization has been a significant factor in reducing population growth. However, in the Philippines, although cities are growing rapidly in absolute terms, the rural population is large enough and its rate of natural increase is high enough that the urban/rural distribution of the population is changing only relatively slowly. If Mission projections of rural-urban migration are realized, <sup>3/</sup> the proportion of the Philippine population that is urban will increase from 29 percent in 1975 to about 33 percent in 1985. This factor alone would slow down the rate of population growth by less than 0.1 percent. Therefore, primary reliance will have to be placed on the family planning program to reduce the burdens imposed by the current demographic situation.

7.34 The Government is keenly aware of the obstacles to expanding family planning practice in the Philippines. Over the past year POPCOM has developed a strategy for the future development of the program that involves shifts of emphasis compared with the past. The following are the key elements of the new strategy:

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<sup>1/</sup> Annual Reports 1973-74, p. 2.

<sup>2/</sup> Phillips, "The Philippine Family Programs," p. 18.

<sup>3/</sup> See Chapter 3.

- (i) The number of clinics will be increased only marginally, because a further increase in clinic density would be uneconomical and would most likely simply reduce the acceptor load at existing clinics. Instead, there will be increased emphasis on effective utilization of the existing clinic system.
- (ii) Barrio resupply points (BRPs) will be established in rural areas for family planning acceptors who initially enrolled at a town clinic. These will be operated by satisfied acceptors, barrio councils, barrio health clubs, local stores, or other appropriate local institutions.
- (iii) The commercial distribution of contraceptives will be promoted; for example, oral contraceptives and condoms will become available in sari-sari stores.
- (iv) Paramedics (nurses and midwives) will be permitted to prescribe contraceptives and lay motivators (non-medically trained personnel) will be permitted to resupply users who are not experiencing problems. Midwives will receive training to reorient them for family planning work at Regional Training Centers, which are being constructed as part of a World Bank-financed population project.
- (v) Mobile vans will be used to provide information, education, and family planning services in remote barrios.
- (vi) Local governments will become increasingly involved in the planning, implementation, and monitoring of population activities.

These commendable efforts to increase the accessibility of family planning services to the rural population should substantially enlarge family planning practice; the extent to which they do so should become evident in the program's reporting system in 1976. Because the proportion of women favoring large families still remains excessive, it will also be necessary to make the motivational aspects of the program more effective, in order to lay the foundation for the expansion of family planning practice in future years.

7.35 The prospects for influencing demographic rates through the family planning program are illustrated in Table 7.2. The figures show that if family planning practice remains at its current level, population growth will accelerate. Because of the program improvements being instituted by POPCOM and POPCOM's demonstrated capacity to react flexibly to an evolving situation, family planning practice rates should improve considerably over the next decade. The current improvements in the accessibility of family planning services should bring family planning practice up to about 30 percent of eligible couples by 1980. Further progress would

Table 7.2. Possible Demographic Rates, 1980

Family Planning Practice (In percent)	Births (In thousands)	Crude Birth Rate	Crude Death Rate	Population Growth Rate (In percent)
20	1,996	41	9	3.2
30	1,855	38	9	2.9
40	1,715	35	9	2.6
50	1,574	32	9	2.3

Note: NCSO projects that there will be 11,073,000 women aged 15-45 in 1980. If the eligibility factor of .605 (Table 6.1) is applied, there will be 6,699,000 eligible women in that year. POPCOM statistics indicate that the natural annual fertility rate among eligible women is .34; that is, in the absence of contraception, there will typically be 34 births per year among 100 eligible women. Survey findings on the family planning program indicate that the average annual fertility rate among women practicing family planning is .13 (greater than zero because some methods such as the use of condoms and rhythm are relatively unreliable). Where  $X$  is the proportion of women practicing family planning, the number of births is calculated as  $(6699)(X)(.13) + (6699)(1-X)(.34)$ . The number of births is divided by the projected population in 1980 to derive the crude birth rate. The crude death rate is as projected by NCSO; population growth rate by the difference between the two.

Sources: NCSO, Age and Sex Population Projections for the Philippines by Province, 1970-2000 (Manila, 1974), pp. 22, 40; POPCOM, Four-Year Population Program (Manila, 1974), p. 22; John E. Laing and James F. Phillips, "Survey Findings on Family Planning Program Effects in the Philippines" (University of the Philippines Population Institute, 1974, processed), p. 14.

depend on a continuation of the change observed in recent years in attitudes toward childbearing and family planning. If attitudinal change continues during the second half of the 1970s at the same rate as the surveys indicate occurred during 1968-73, it should be possible to bring family planning practice rates among eligible couples up to 40 percent by 1980. But, of course, such change is difficult to forecast, and, in encouraging rural people to practice family planning, the Government is attempting to undertake something, unlike rural roads or rural electrification, for which there is relatively little past Philippine experience to serve as a guideline.

7.36 As mentioned earlier, the population to date appears to have followed the medium projection of the NCSO. The future course of the population will probably lie between the medium and low projections. The medium, low, and medium-low projections are discussed in Technical Note 1 appended to this chapter; the achievement of a 40 percent family planning practice rate, which the Mission would regard as a reasonable objective, would indicate population growth along the medium-low projection. This would mean a population growth rate of more than 2 percent a year for the remainder of this century. It would also mean a population of about 55 million in 1985 and about 77 million by the year 2000.

#### B. The Nutritional Status of the Population

7.37 Around 1950, the nutritional status of the Philippine population was comparable to that found in neighboring Asian countries such as Malaysia, Taiwan, and Japan. In most of these other countries, the nutrition of the population has improved so much over the past 25 years that it is no longer a major problem. In the Philippines, nutrition has also improved considerably, but the nutritional status of the population remains unsatisfactory. The relatively mediocre nutrition performance of the Philippines in comparison with its neighbors is due to the more highly skewed distribution of income, more rapid population growth, and the relatively disappointing performance of the food production sector.

##### Current Nutritional Status

7.38 There are three major nutritional problems in the Philippines today. One is the inadequate caloric intake of much of the population, caused by insufficient incomes in relation to food prices; that is, there is a nutritional poverty problem. The second is the special problem of infant and child malnutrition, in which poverty is only one element of an etiology that also includes: excessive childbearing and poor child spacing; the high cost of available weaning foods and faulty weaning practices; false beliefs and ignorance of proper nutrition; and inadequate food distribution within the family. The third is the problem of dietary imbalance leading to vitamin and mineral deficiencies, caused by poverty, ignorance of good nutritional practices, and cultural preferences that hinder adequate nutrition. The nutritional status of much of the population is also adversely affected by intestinal parasitism.

7.39 The Problem of Nutritional Poverty: The nutritional requirements of a population are determined by body size, which is influenced both by genetic factors and past nutritional levels; climate; the age-structure of the population; and the proportion of physical work that is done by human labor rather than by animals or by machines. The World Health Organization has published "interim standards for developing Western Pacific countries," which are the ones adopted here. <sup>1/</sup> When applied to the Philippine population, these standards indicate an average daily requirement of approximately 2,100 calories and 30 grams of protein (Table 7.3). This compares with the "tentative" requirement of about 2,190 calories and 54 grams of protein used by the National Economic and Development Authority in its food balance sheets. The latter protein requirement evidently does not reflect the current thinking of nutritionists that the protein requirements of adults are less than previously believed, while continuing to emphasize the vital importance of adequate protein intake for infants and children.

7.40 Cereals currently provide the major portion (about 66 percent) of the calories consumed by the population, followed by meat, poultry, and seafood (8 percent); sugar (9 percent); rootcrops, fruits and vegetables (8 percent); and others (9 percent). <sup>2/</sup> The portion of the diet coming from meat, poultry, and seafood is sufficient to provide enough protein if an average quantity of food is eaten. However, the portions of the diet coming from dairy products and vegetables are grossly inadequate. In 1972, the consumption of dairy products was only 28 percent of the allowance recommended by the Food and Nutrition Research Center, and consumption of leafy green and yellow vegetables was only 27 percent of the recommended allowance.

7.41 Long-term trends in food availability over the past 20 years are illustrated in Table 7.4. The availability of cereals has increased only modestly. It has been offset particularly by the declining availability of rootcrops, an important secondary source of calories, as land has been diverted to more valuable crops. The availability of meat and poultry has merely kept pace with population growth. The per capita availability of fish and dairy products, on the other hand, has approximately doubled, although the availability of dairy products remains very low by international standards.

7.42 The per capita availability of calories improved substantially during the 1950s and early 1960s, but since 1963 has stagnated at an unsatisfactory level. In recent years the Philippine economy has fallen somewhat short of providing enough food to meet the minimum caloric requirements of the population. In 1972, the most recent year in which a Food Balance

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<sup>1/</sup> World Health Organization, Western Pacific Regional Office, The Health Aspects of Food and Nutrition (Manila, 1969), p. 245. The WHO requirements are called "interim" because they refer to existing average body size, rather than to greater body size believed to be attainable if adequate nutrition were available to all groups in the population.

<sup>2/</sup> NEDA, The Philippine Food Balance Sheet, 1971 (Manila, 1973) and The Philippine Food Balance Sheet 1972 (Manila, 1974). Figures in the text are three-year averages for 1970-72.

Table 7.3. Daily Nutritional Requirements for the Philippine Population

Category	Persons (In thousands)	Caloric Requirements		Protein Requirements	
		Per Person (In calories)	Total (In millions of calories)	Grams Per Person	Total Grams (In millions)
0 - 4 years	6,212	1,100	6,833	12	75
5 - 9 years	5,529	1,700	9,399	17	94
10 - 14 years	5,030	2,300	11,569	29	146
Adult males	9,732	2,900	28,223	39	380
Adult females NPNL <sup>a/</sup>	8,715	2,050	17,866	35	305
Adult females PL <sup>a/</sup>	1,467 <sup>b/</sup>	2,250	3,301	39	57
Total or average	<u>36,684</u>	<u>2,104</u>	<u>77,191</u>	<u>29</u>	<u>1,057</u>

<sup>a/</sup> PL: Pregnant or lactating  
NPNL: Non-pregnant, non-lactating

<sup>b/</sup> Assumed equal to estimated annual number of births.

Sources: Population figures are for 1970 and are from NCSO, Age and Sex Population Projections for the Philippines by Province, 1970-2000 (Manila, 1974), p.12. Caloric and protein requirements per person from World Health Organization, Western Pacific Regional Office, The Health Aspects of Food and Nutrition (Manila, 1969), p.245.

Table 7.4. Daily Per Capita Availability of Major Food Groups

Year	Grams Available					Calories Available <sup>b/</sup>	
	Cereals	Roots and Tubers	Meat and Poultry	Fish and Shellfish	Dairy Products <sup>a/</sup>	Calories (All Foods)	Three-year Moving Average
1953	308	121	40	46	20	1,691	
1954	310	120	42	48	22	1,725	1,727
1955	321	119	43	52	27	1,766	1,733
1956	307	121	44	53	31	1,709	1,744
1957	305	119	45	52	37	1,756	1,760
1958	330	115	44	56	38	1,814	1,768
1959	308	114	44	53	33	1,735	1,777
1960	312	117	43	57	34	1,782	1,793
1961	331	110	40	55	35	1,862	1,827
1962	318	108	40	53	32	1,836	1,925
1963	353	119	38	82	31	2,077	1,990
1964	347	122	38	84	41	2,057	2,098
1965	375	121	37	88	41	2,161	2,090
1966	332	110	47	90	42	2,053	2,124
1967	354	99	50	95	41	2,159	2,093
1968	359	93	45	107	50	2,068	2,125
1969	365	89	45	103	54	2,148	2,104
1970	376	81	43	103	43	2,097	2,123
1971	392	58	42	103	43	2,123	2,089
1972	363	66	43	107	47	2,047	

<sup>a/</sup> Whole milk equivalents.

<sup>b/</sup> Refers to calories available for all foods, not just the five categories shown in this table.

Source: National Economic and Development Authority (NEDA), Statistical Yearbook, 1975 (Manila, 1975), p. 480. Figures for 1962-69 have been adjusted to compensate for the fact that the population figures used in the Food Balance Sheets in the 1960s must be considered, in the light of the 1970 census, to have been overestimated by as much as 3-4 percent.

Sheet was published, an average of 2,048 calories per day were available to the population from domestic production and imports. Food consumption survey data indicate that the per capita availability of food, in caloric terms, declined in 1973 and 1974, and also that the quality of the diet, as measured by the proportion of calories coming from foods other than cereals and rootcrops, deteriorated (Table 7.6). This deterioration was caused by the food-price inflation in recent years, which was set off by the failure of food production to keep pace with population growth.

7.43 Although the Philippine economy has come close to accomplishing the task of providing an amount of food sufficient to meet minimum nutritional requirements, there has always been a substantial portion of the population suffering from malnutrition, due to the uneven distribution of food among regions and among income groups. The evidence on the regional distribution of food comes from nutrition surveys conducted by the Food and Nutrition Research Center (FNRC) during the early and middle 1960s and food consumption surveys conducted by the National Food and Agriculture Council (NFAC) in 1970-72 (Table 7.5). <sup>1/</sup> The earlier surveys show that the regions with the greatest nutritional deficit were the Visayas and Southwestern Mindanao, with Southern Luzon, including Manila, also faring poorly. The more recent surveys also reveal the Visayas and Southern Luzon as the regions with the lowest amount of food consumption, in addition to Bicol, which was not included earlier. The relatively high caloric intake of the Eastern Visayas, perhaps surprising in view of the region's reputation as one of the poorer ones, is offset by its diet quality rating, which was the poorest. Southern Luzon's low caloric intake and good diet quality score is probably explained by the existence of a low caloric intake among the urban poor in Manila and good diet quality among the middle classes in the Manila area. In general, therefore, the poorer regions are the most nutritionally deficient, but the correlation is not perfect. Northern Luzon, for example, is among the poorer regions, but has approximately average food consumption.

7.44 More severe than the uneven regional distribution of food intake is the maldistribution among income groups; as a result, inadequate nutrition appears to be commonplace among lower income groups in the Philippines. There are two kinds of evidence on this subject--direct observation from food consumption surveys, and inference from data on income distribution and food prices. The direct evidence from the NFAC surveys that have been conducted since 1970 is shown in Table 7.6. The regularity with which

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<sup>1/</sup> The FNRC and NFAC surveys are better suited for making interprovincial comparisons than for intertemporal comparisons, since the two series were done by different agencies, and possibly employed different measurement techniques. It is worth noting that whereas Food Balance Sheet and NFAC figures for caloric availability and consumption agree very closely, the average intake of 1,674 calories recorded in the FNRC surveys was only 85 percent of the average availability of calories indicated by the Food Balance Sheets for the same years. Since the Food Balance Sheets were prepared on a consistent basis over the period in question, this is a clear indication that the two series are not readily comparable.

Table 7.5. Caloric Intake and Diet Quality by Region

Region	Caloric Intake		Diet Quality <u>c/</u>
	FNRC <u>a/</u> Data (Year)	FNAC <u>b/</u> Data (1970-72)	FNAC <u>b/</u> Data (In percent)
Greater Manila	1,730 (1958)	n.a. <u>b/</u>	n.a. <u>b/</u>
Ilocos - Mt. Province	1,970 (1960)	)	)
Cagayan Valley	1,790 (1962)	) 2,190	) 70
Central Luzon	n.a.	2,300	70
Southern Luzon	1,700 (1962)	2,010	66
Bicol	n.a.	2,080	70
Western Visayas	1,640 (1964)	2,120	71
Central Visayas	n.a.	2,055	72
Eastern Visayas	1,500 (1965)	2,170	74
Northeastern Mindanao	)	2,240	69
Southeastern Mindanao	) 1,750 (1967)	)	)
Southwestern Mindanao	1,600 (1966)	2,240	68
		2,190	69

a/ Food and Nutrition Research Center.

b/ National Food and Agricultural Council.

c/ Diet quality is indicated by the percentage of total calories coming from cereals and root crops; the higher the percentage, the lower the quality.

d/ Greater Manila is included in Southern Luzon.

Sources: E. W. Quiogue, G. M. Villavieja, and V. Ramos, "Summary Results of the Eight Regional Nutritional Surveys conducted in the Philippines by the Food and Nutrition Research Center," Philippine Journal of Nutrition, vol. 22 (April-June 1969), pp. 61-101. M.Z.V. de los Angeles, et al., Regional Consumption Patterns for Major Foods (Quezon City: National Food and Agricultural Council, Department of Agriculture and Natural Resources, 1973).

caloric intake increases from the poorest to the richest income group strongly supports the validity of the data. The poorest group is consistently deficient in caloric intake, averaging only 88 percent adequacy, while the richest group achieves 125 percent adequacy. Protein intake is, by WHO standards, adequate for all groups, confirming the prevailing view that the Filipino diet is of such a composition that it provides enough protein if it provides enough calories, and, therefore, that there is no separable protein deficiency problem. Within each income group, caloric adequacy deteriorates quite dramatically over time. This is largely due to the fact that the income groups are defined in terms of money incomes rather than real incomes, and that the real incomes of the groups have deteriorated due to inflation. Families have apparently adjusted consumption habits to cope with the erosion of real incomes and, as a result, diet quality has deteriorated.

7.45 The data in Table 7.6 also provide a basis for calculating the proportion of families that is inadequately nourished. The families in Group I were certainly undernourished throughout the period in question. In the last survey, by which time food price inflation had brought the caloric adequacy of Group II down to 90 percent, it is reasonable to regard half of the families in Group II as not receiving sufficient nutrition. The survey observations of the undernourished group, thus defined, cluster in the range of 32-36 percent, with an average of 34 percent. Assuming a normal distribution before the last survey, this figure should be regarded as a lower limit and a probable underestimate.

7.46 Another method for arriving at the proportion of families receiving inadequate nutrition is to calculate the minimum cost of an adequate diet and then compare this cost with income distribution data to see how many families could not afford such a diet. The year 1971 is convenient for this purpose, since one of the NFAC food consumption surveys, which included food prices, was conducted in May 1971, and the Bureau of Census and Statistics also conducted a Family Income and Expenditure Survey (FIES) in May 1971. The representative weekly diet of the poorest group in the NFAC surveys is shown in Table 7.7. It is an austere diet, drawing the greatest porportion of its calories from cereals and roots and tubers, and allowing for very little consumption of meat, eggs, or dairy products. This diet, providing only 1,913 calories daily, needs to be increased by 10 percent to achieve caloric adequacy. A minimum adequate diet of such a composition cost P 432 per person in 1971. The FIES found that the poorest groups devoted 66.5 percent of their expenditures to food. The allocation of this proportion of the family budget to food and the remainder to non-food necessities indicates a "minimum needs" budget of P 650 per family member in 1971.

Table 7.6. Daily Nutritional Intake Per Capita by Income Group <sup>a/</sup>

Survey Date	Group I				Group II				Group III				Group IV				Undernourished Group <sup>b/</sup>
	Calories	Caloric Adequacy (Percent)	Protein (Grams)	Percentage of Group in Sample	Calories	Caloric Adequacy (Percent)	Protein (Grams)	Percentage of Group in Sample	Calories	Caloric Adequacy (Percent)	Protein (Grams)	Percentage of Group in Sample	Calories	Caloric Adequacy (Percent)	Protein (Grams)	Percentage of Group in Sample	Percentage of Group in Sample
Oct. - Nov. 1970	1,843	87.5	46	30.3	2,127	101.1	57	31.0	2,293	109.0	63	19.2	2,615	124.3	73	19.4	30.3
May - June 1971	1,955	92.9	48	34.7	2,235	106.2	62	26.0	2,637	125.3	72	22.4	2,809	133.5	82	16.8	34.7
Aug.-Sept. 1972	1,770	84.1	42	31.9	2,169	103.1	53	31.4	2,353	111.8	62	21.3	2,765	131.4	75	15.5	31.9
Feb.-March 1973	1,974	93.8	48	32.1	2,098	99.7	54	28.4	2,291	108.9	58	21.5	2,790	132.6	73	18.0	32.1
June 1973	1,868	88.8	40	34.7	2,144	101.9	48	28.8	2,696	128.1	58	21.4	2,618	124.4	68	15.2	34.7
Sept. 1973	1,828	86.7	45	35.8	1,971	95.7	49	29.4	2,275	108.1	60	21.1	2,501	118.9	67	13.7	35.8
Dec. 1973	1,869	88.8	44	33.9	1,978	94.0	46	28.6	2,233	106.1	53	21.4	2,460	116.9	65	16.1	33.9
Feb.-March 1974	1,867	88.7	42	31.6	2,072	98.5	47	28.1	2,199	104.5	53	23.1	2,551	121.2	64	17.2	31.6
May - June 1974	1,673	79.5	37	23.7	1,901	90.4	39	31.3	2,027	96.3	47	28.2	2,674	127.1	65	16.8	39.3
Average	<u>1,850</u>	<u>87.9</u>	<u>44</u>	<u>32.1</u>	<u>2,077</u>	<u>98.2</u>	<u>51</u>	<u>29.2</u>	<u>2,334</u>	<u>110.9</u>	<u>58</u>	<u>22.2</u>	<u>2,642</u>	<u>125.6</u>	<u>70</u>	<u>16.5</u>	<u>33.8</u>

<sup>a/</sup> The annual income level of Group I is less than P400 per capita; Group II, P400-799; Group III, P800-1,499; Group IV, P1,500 or more.

<sup>b/</sup> Includes Group I in all surveys except the last; Group I plus half of Group II in the last survey.

Note: Caloric adequacy is intake divided by requirement.

Source: Physical quantities, in kilograms, of food consumed were taken from E.D. Dosayla, Income and Food Consumption (Summary of Nine Economic Surveys) (Quezon City: Office of the Secretary of Agriculture, Special Studies Division, 1975). These were converted into calories and grams of protein by means of factors from Food Composition Table for Use in East Asia (1972), prepared by Food and Agriculture Organization (FAO), Food Policy and Nutrition Division, and United States, Department of Health, Education, and Welfare, Nutrition Program.

Table 7.7. Weekly Diet of Low-Income Group, 1971

Food	Kilograms (1)	Calories (2)	Price (₱/kg) (3)	Cost (In pesos) (3 x 1)
Rice	2.00	7,320	1.16	2.32
Corn	.50	1,745	.91	.46
Wheat products	.20	728	1.93	.39
Roots and tubers	.40	400	.39	.16
Pork	.10	406	4.58	.46
Beef	.05	109	5.17	.26
Poultry	.08	194	5.30	.42
Eggs	.05	73	4.12	.21
Fish	.50	435	2.76	1.38
Fruit	.70	378	.65	.46
Vegetables	.70	133	.70	.49
Vegetable oil	.05	442	1.32 /a	.07
Sugar	.20	702	1.11 /a	.22
Dairy products	.10	325	2.61	.26
Total		13,390		7.56

/a These prices are from Bureau of Agricultural Economics, Prices Paid by Farmers, 1971 and 1972 (Quezon City, 1973), since no prices were published for these commodities in the NFAC study.

Source: E.D. Dosayla, Income and Food Consumption.

7.47 With an appropriate adjustment to reconcile the FIES data with the national accounts, the proportion of families who could not afford a minimum adequate diet in 1971 is estimated to have been about 44 percent. This result compares with the findings of a study by the Development Academy of the Philippines, which used similar methodology, that "Due to the extremely unequal distribution of income and consumption, perhaps two-thirds of the people are below the minimum (daily allowances)." Their conclusion was reached using assumptions slightly different from those used in

the Mission estimate above, <sup>1/</sup> and does not appear to agree with the results of food consumption surveys, but it helps to make the point that a large fraction of the Philippine population has difficulty in obtaining an adequate diet.

7.48 Taking together the results of the food consumption surveys and the family economic survey, it is reasonable to conclude that about 40-45 percent of Philippine families are undernourished as a consequence of low incomes; their effective economic demand for food is less than their biological need for food.

7.49 The Special Problem of Infant and Child Malnutrition: Because the incidence of inadequate incomes in relation to nutritional need is concentrated among larger families, the proportion of the population that is undernourished must be even larger than the 40-45 percent of Philippine families estimated as undernourished. More worrisome still, the incidence of undernutrition is concentrated among those susceptible to the greatest permanent damage from it: infants and children. This generalization is supported by the following kinds of evidence. In four community nutrition surveys carried out between 1965 and 1971, two in rural areas and two in low-income urban areas, the FNRC measured the adequacy of caloric intake by age group. <sup>2/</sup> It found that, although the caloric intake of adults was 81 percent of adequacy, the intake of toddlers (1-3 years) was only 64 percent of adequacy and the intake of older children (4-9 years) was only 69 percent of adequacy. Another finding with disturbing implications for fetal and infant nutrition is that pregnant women attained only 64 percent caloric adequacy and lactating women only 46 percent adequacy. A recent survey of the Tondo area of Manila found that 87 percent of the children had some clinical signs of malnutrition. The FNRC regional nutrition surveys mentioned earlier did not disaggregate caloric intake by age group. However, the blood chemistry studies done in the regional surveys indicate that, at least with respect to some nutrients, infants and children were in a worse

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<sup>1/</sup> Development Academy of the Philippines, Measuring the Quality of Life: Philippine Social Indicators (Manila 1975), p. 8. The DAP assumptions differ from this report's assumptions in three ways: (i) an FNRC-recommended model diet was used rather than the empirically-observed diet of low-income groups; (ii) it was assumed that families would spend no more than 60 percent of their income on food, whereas empirical observation shows that the very poorest group spends 69 percent of its income on food; (iii) no effort was made to correct the FIES data for the probable underestimation indicated by comparison with the national accounts. See Lucinda Abrera, "Philippine Welfare," in Development Academy of the Philippines, Measuring Philippine Welfare: Social Indicator Project

<sup>2/</sup> Carmen L. Intengan, "What is Protein Gap?," Philippine Journal of Nutrition 25 (January-March 1972), p. 10.

position than adults. 1/ The levels of hemoglobin, the iron-containing compound which carries oxygen to body tissues, were found to be "low" or "deficient" in 43 percent of the adults, but in 73 percent of the young children. Serum vitamin A was found to be "low" or "deficient" in 26 percent of the adults, but in 77 percent of the young children.

7.50 In order to identify the children with the greatest nutritional need, the National Nutrition Council (NNC) 2/ inaugurated in 1974 a program to weigh every pre-school child in the country; the program is known as Operation Timbang. 3/ The observed weight-for-age and weight-for-height measurements are compared with standards based on well-nourished, middle-class Filipino children. Weighed children are classified as severely undernourished, moderately undernourished, mildly undernourished, or normal, depending upon whether their weight is less than 60 percent, 60-75 percent, or greater than 90 percent of the standard. Of the 1.5 million pre-school children weighed by September 1975, 23 percent were found to have normal weights; 48 percent were mildly under-nourished; 24 percent were moderately malnourished; and 5 percent were severely malnourished.

7.51 The above results suggest that the majority of Filipino children do not get an adequate diet. There are currently 6.8 million Filipino children in the age bracket of 0-4 years. It may reasonably be assumed that at least half of them, approximately 3.4 million, are in need of some sort of nutritional intervention. But how can the estimate that about 40-45 percent of Philippine families are undernourished be reconciled with the above figures indicating much more extensive undernutrition among infants and children? It is clear that a complete description of the nutritional status of the Philippine population must consider distribution of food within families as well as between families. The observed facts can be explained along the following lines. Within the family, the father has priority at mealtime because he is the breadwinner and may be in an occupation, such as farming, which requires heavy physical labor. The mother also has priority because she may be pregnant or lactating, or may also be a breadwinner. Of the food available for the children, the larger share goes to the older children who can give voice to their needs and are better equipped physically to reach for food. Therefore, it is the younger children who suffer the greatest deficit.

7.52 The hypothetical situation described above can be aggravated by poor weaning practices and poor child spacing. A survey of body weights of children conducted in Bulacan province in Central Luzon in 1972 as part of the "Integrated Family Planning and Nutrition Program" demonstrates the influence of these latter factors. Weighed infants were found to be 93

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1/ Quiogue et al., "Summary Results," pp. 79-89.

2/ The National Nutrition Council is the agency charged with coordinating the Government's nutrition programs and for preparing a national nutrition plan.

3/ "Timbang" means "weighing."

percent of standard weight at six months of age, but only 86 percent of standard weight at nine months, and 80 percent of standard weight at 12 months. According to the authors, the data suggest that "growth progresses satisfactorily while the child is breastfeeding and the supply of mother's milk is adequate; but, after the sixth month, mother's milk alone is not sufficient to support the rapidly growing infant ... the poor performance of one-year olds is probably due to the complete loss of breast milk to supplement the meager weaning food." <sup>1/</sup> Traditional weaning foods used in the Philippines, such as rice gruel, are not nutritionally sufficient.

7.53 As for child spacing, the same survey found that the "deposed" child (one who is no longer nursed because the next baby has been born) was malnourished in 55 percent of the cases where another baby had arrived in 18 months or less; in 35 percent of the cases when the "child spacing interval" was 19-30 months; and in only 29 percent of the cases where the interval was 31 months or more. Undernutrition was found among 49 percent of the children in families with three pre-school children; 39 percent of the cases in families with two pre-school children; and 36 percent of the cases in families with one pre-school child. These facts indicate the close linkage between child nutrition and family planning.

7.54 The Problem of Dietary Imbalance - Vitamin and Mineral Deficiencies:

The only systematic evidence on vitamin and mineral adequacy in the Philippines comes from the FNRC surveys. The dietary phase of the survey found calcium and riboflavin consumption to be at one-third of recommended allowances, vitamin A at one-half, and thiamine at two-thirds. The intake of niacin and iron was found to be adequate. The biochemical phase of the survey found hemoglobin to be low or deficient in 51 percent of the subjects, and serum vitamin A to be deficient in 47 percent of the subjects. The authors attributed hemoglobin inadequacy in the presence of adequate average iron intake to deficient intake by some individuals and to intestinal parasitism, which was found in 88 percent of the subjects. Clinical examination revealed signs of vitamin A deficiency in 45 percent of the subjects and signs of riboflavin deficiency in 36 percent of the subjects.

7.55 The above results are readily understandable in view of the finding that consumption of the food group "green leafy and yellow vegetables" was only 26.5 percent of FNRC recommended allowances. This is the group that, according to an FNRC nutritionist, belongs to the "protective foods" and is "separated from other vegetables because they are better sources of vitamins and minerals." <sup>2/</sup>

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<sup>1/</sup> Ma. Minda Caldo, Victoria Santiago, and P.W. Engel, "Report of the Bulacan Province Nutrition and Family Planning Program" (Manila: USAID, 1972), p. 4.

<sup>2/</sup> Carmen L. Intengan, "Changes in Food Habits in Relation to Increased Productivity," Philippine Journal of Nutrition 25 (October-December 1972), p. 255.

### Programs to Improve Nutrition

7.56 Several departments of the Government have operated small-scale nutrition activities for many years. Before 1974, responsibility for coordinating these activities was lodged with the NFAC, which had many other responsibilities as well. In that year, however, the Government, which had become increasingly concerned about malnutrition, established an agency with specific responsibility for nutrition policy, the National Nutrition Council (NNC). At the same time, a private foundation, the Nutrition Center of the Philippines, was established for the purpose of involving the private sector in nutrition programs. Since the establishment of these two institutions, there has been rapid progress in formulating a wide-ranging effort to deal with nutritional problems, particularly infant and child malnutrition.

7.57 NNC is broadly analogous to POPCOM in that it is planning, coordinating, and reporting body, while operational activities are carried out by government departments. NNC has adopted a policy of encouraging greater involvement of local governments in nutrition programs. A Municipal Nutrition Committee, composed of the mayor and representatives of government departments, is to be organized in each municipality, and Barangay Nutrition Committee in each barangay. These units have the responsibility of developing programs to assist the malnourished children identified by Operation Timbang and of monitoring their progress.

7.58 Programs to Deal with General Caloric Inadequacy: As described earlier, there is a widespread problem of caloric inadequacy due to nutritional poverty. NNC has no programs specifically oriented toward this problem; however, the Government generally has programs, discussed elsewhere in this report, to raise incomes and to increase food production. These programs, while not usually described as nutrition programs per se, <sup>1/</sup> will have a significant influence on the nutritional status of the population through their effect on the relationship between incomes and food prices. As indicated in Chapter 5, demand for food is projected to grow at about 4.0 percent per year, or at about 1.2 percent per capita per year. But since the nutritionally deficient groups undoubtedly have a higher than average income-elasticity of demand for food, it is reasonable to suppose that their per capita demand for food will grow at a greater rate, perhaps

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<sup>1/</sup> The boundaries of nutrition policy are difficult to define precisely. Since nutritional status is determined primarily by incomes and food supply, any program that affects incomes or food supply (such as Masagana 99) will have nutritional consequences, although such programs are not ordinarily regarded as nutrition programs. Rather, nutrition programs are usually considered to be those which take the major features of income distribution and food supply as given, and from that starting point attempt to improve nutrition. Nutrition programs may involve minor modifications to the distribution of real incomes or food supply as, for example, in child feeding or the promotion of vegetable growing for local use.

1.5 to 2.0 percent per year, provided the distribution of income does not deteriorate. Reasonable success in the food production programs discussed in Chapter 5 would mean that this demand could be met. In this case, the problem of caloric inadequacy would be largely eliminated by 1985, but the question for nutrition policy remains what, if anything, should be done in the meantime.

7.59 The National Nutrition Council states that deaths, absenteeism caused by disease, accident proneness, and work inefficiency caused by malnutrition may cost the country as much as 2 billion pesos a year. Hence, a program to import larger amounts of food and supply it to needy families might be justified on cost-benefit grounds. <sup>1/</sup> However, the public finance and balance-of-payments implications of such a program would probably render it infeasible. There is also the question of whether such resources would be better utilized for investments in food production rather than for purchasing food itself. Finally, such a program would not deal effectively with all of the nutritional problems in the Philippines. On balance, a greatly expanded program of subsidized imports would not appear to be desirable. But there are other things that could be done to make food relatively cheaper. One would be to improve recovery rates in rice milling. Recovery rates in the Philippines are low, partly because of outdated equipment in many mills and because of the cultural preference for the highly polished white rice rather than brown rice, which is less heavily milled. Adoption of a statutory requirement that mills produce brown rice as the greater part of their output would lead to a larger supply of calories, because of higher recovery rates, and to an increased amount of vitamins and minerals, which are concentrated in that portion of the grain that is milled away in the production of polished white rice. Another possibility is the development of flours based on local foods, either as an extender for imported wheat flour or as a replacement for it. Banana, defatted coconut, and cassava are some of the foods being investigated in laboratories with financial support from the Government and USAID. Technological development is, of course, difficult to predict, but this work might eventually lead to a cheaper flour.

7.60 Programs to Deal with Infant and Child Nutrition: NNC has declared that the primary focus of the Government's nutrition policy will be on the cure and prevention of malnutrition among infants, pre-school children and pregnant and lactating women. This is a logical priority because this group stands to suffer the greatest permanent damage from malnutrition, and the costs of treating or preventing malnutrition among this group appear

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<sup>1/</sup> From Table 7.6, it can be seen that in 1973 and 1974 the caloric deficit of the approximately 14 million people in Group I was 250 calories per person per day, while the average deficit of the approximately 12 million people in Group II was 70 calories per person per day. To fill such a deficit would require the importation of an additional 430,000 tons of foodgrain annually. At current grain prices and exchange rates, such a program would cost about 1.3 billion pesos a year.

to be much less than the costs of failure to do so. A study was conducted recently in Cebu on the costs and benefits of preventing vitamin A deficiency, which reduces resistance to illness and may eventually cause blindness in children. It found that the benefits (increased lifetime earnings and reduced medical treatment costs) of prevention outweighed the costs of the most expensive intervention (public health intervention, including the promotion of home gardening and nutrition education) by 15 to 1, and outweighed the costs of the least expensive intervention (vitamin A capsules) by 640 to 1. 1/ Although no studies on the economics of protein-calorie malnutrition appear to have been done in the Philippines, a study in Santiago, Chile, estimated the rate of return to a program of infant feeding to be at least 20 percent. 2/ The programs that are particularly oriented to infant and child malnutrition include nutrition education, supplementary feeding, curative treatment for severe cases, and the development of low-cost weaning foods. Because of the close connection between malnutrition and poor child spacing, the Government's family planning program also has a significant impact on child nutrition.

7.61 Nutrition education takes place both within and outside the school setting. In the public schools, major progress has been made in recent years in bringing nutrition into the curriculum and in training teachers in nutrition education. Many schools outside cities now have garden plots whose produce, chiefly vegetables and roots and tubers, is consumed at school, providing a practical complement to classroom instruction. The Mothercraft Centers of the Department of Health's National Nutrition Service are the chief out-of-school settings for nutrition education. These centers teach mothers about the nutritional needs of infants and children and the preparation of an appropriate diet from local foods. They also provide supplemental feeding to pregnant and lactating women, and to infants and children from needy families. Only 252 of the country's municipalities have such centers, which would indicate that many more are needed. In addi-

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1/ Florentino S. Solon, Report of the Research to Determine the Cost and Effectiveness of Alternate Means of Controlling Vitamin A Deficiency (n.p., 1974) and Barry M. Popkin, "An Application of Benefit-Cost Analysis to Nutrition Program Planning" Department of Agricultural Economics, (Ithaca: Cornell University, 1974, processed).

2/ Marcelo Selowsky and Lance Taylor, "The Economics of Malnourished Children; An Example of Disinvestment in Human Capital," Economic Development and Cultural Change n. 22 (October 1973), pp. 17-30. The authors concluded that "The most practical remedy for infant malnutrition is a redistribution of income toward the infant and his family; the cost of not undertaking this redistribution now is massive disinvestment in early human capital formation and, perhaps, greatly increased distributional problems with a low-income, low productivity segment of the population in the future."

tion, workers of the Department of Social Welfare, the Bureau of Agricultural Extension, and other agencies are being trained in nutrition education and communication, and use is made of the mass media.

7.62 Supplementary feeding takes place primarily in schools, but also occurs in some other settings. Most of the food used in these programs comes from commodities channeled through USAID; the rest is locally donated. About 630,000 school children and 330,000 pre-schoolers are being reached by this program. The latter figure would suggest that only a small minority of the pre-schoolers in nutritional need are being reached and that the program should be expanded. NNC has decided that school feeding should be phased out over the next few years so that food can be re-targeted to pre-schoolers. Since donations of foreign food commodities have been decreasing, reaching most of the pre-schoolers in need will require greater mobilization of domestic food resources for this purpose and more involvement of local communities, which is recognized by current NNC policy.

7.63 As mentioned earlier, educational programs are teaching mothers how to prepare weaning foods for infants. However, these efforts cannot reach all of the target group, and in urban areas the required foods may be expensive or unavailable. Presently available commercial weaning foods are based on imported foods and are too expensive. Therefore, the Government and USAID are supporting efforts by the local food industry to develop a low-cost weaning food.

7.64 Programs to Deal with Vitamin and Mineral Deficiencies: The Government has two programs which are aimed in part at vitamin and mineral deficiencies. One is nutrition education, which attempts to inform the population about needs for vitamins and minerals and the foods in which vitamins and minerals can be found. The other is the promotion of growing vegetables and other nutritious foods on school, home, and community plots. These foods, which are expensive to transport and market because of their perishability and bulk, are relatively easy to grow for local consumption. The eventual establishment of a vegetable nursery in each municipality is planned. Technical assistance for the program is provided by the Bureau of Agricultural Extension.

7.65 One possibility to which the Government may be giving insufficient attention is the fortification of cereals with vitamins and minerals. Technology already exists for the fortification of cereals with vitamin A and iron, which are the two micro-nutrients which are least available in the Philippines. Such fortification is relatively inexpensive and can easily reach most of the population. The Department of Health does have a program to distribute iodinated salt in areas where goiter is a major problem, which has had encouraging results.

### C. Health Standards

7.66 The major health problems of the Philippines are communicable diseases and malnutrition. The high prevalence of the former is due to a lack of sanitary water supply and sewerage in the case of water-borne diseases, to crowded and unsanitary housing in the case of air-borne diseases, and to a lack of immunization in the case of diseases for which specific preventive treatment is available. The causes of malnutrition have already been examined. The promotion of better health in the Philippines will require better nutrition, as discussed in the previous section, expanded health care services, particularly in rural areas, and improved environmental sanitation.

#### Major Health Problems

7.67 The leading causes of death in the Philippines are pneumonia, tuberculosis, and gastrointestinal infections (Table 7.8). The leading illnesses are influenza, bronchitis, gastrointestinal infections, tuberculosis, and pneumonia. The seriousness of these diseases when they do strike is aggravated by a lack of access to medical services; about 22 percent of registered deaths, which are believed to be only about three-fourths of all deaths, are not medically attended. This figure is as high as 32 percent for well-served regions such as the Eastern Visayas and Mindanao. Resistance to disease is greatly diminished by deficiencies of vitamins (particularly A and C) and minerals, especially iron. Malnutrition and gastrointestinal infections often act synergistically in children, with the infection causing diarrhea which leads to further malnutrition.

7.68 A particular problem in the Philippines is the high rate of infant and child mortality. The recorded infant mortality rate is 68 per 1,000, and demographic life tables suggests that the true rate is about 80 per 1,000. Health statistics reveal that the leading causes of mortality in this age group are gastroenteritis, pneumonia, and tuberculosis. Of the total number of deaths in the Philippines, 23 percent are infant deaths, 17 percent are deaths of children aged one to four, and 4 percent are deaths of children aged five to nine. The infant mortality rate in the Philippines is about average for a country at its level of income; the child mortality rate, on the other hand, is characteristic of a much poorer country. The high child mortality rate is believed to be due to the prevalence of malnutrition.

7.69 There are some diseases which are not found nationwide but which are important locally. Notable among these are malaria in Mindanao and certain areas of Luzon and schistosomiasis, a snail-transmitted parasitic disease found in the Eastern Visayas and Mindanao. The prevalence of both of these diseases is due to local environmental conditions. Although they are not major causes of death, they do cause serious debilitation and result in economic losses.

Table 7.8 Leading Causes of Death and Illness, 1972

Cause	Percentage of Deaths	Recorded Cases of Illness (in thousands)
Pneumonia	17.1	96
Tuberculosis	10.4	137
Gastroenteritis and colitis	6.0	258
Heart disease	5.9	<u>b/</u>
Diseases peculiar to infancy	5.5	<u>b/</u>
Accidents	5.1	<u>b/</u>
Vascular disease	4.5	<u>b/</u>
Avitaminosis and other nutritional deficiency states	4.3	<u>b/</u>
Bronchitis	3.2	335
Influenza	<u>a/</u>	395
Malaria	<u>a/</u>	27

a/ Not a leading cause of death.

b/ Not defined as a notifiable disease in the reporting system of the Department of Health.

Source: Department of Health, Philippine Health Statistics, 1972 (Manila, 1974), pp.41, 178.

## Health Care Services

7.70 The average availability of health care services in the Philippines is greater than in many developing countries, but it is low in comparison with the developed countries. The ratios of physicians to population and hospital beds to population, for example, are, respectively, about one-third and one-fifth of those typically found in developed countries. The low average availability of services is seriously aggravated by their uneven distribution (Table 7.9). The availability of services in the Manila area appears to be as much as four times greater than that in such outlying areas as the Cagayan Valley, Bicol, the Eastern Visayas, and Mindanao. The regional distribution problem is largely an urban/rural distribution problem, as can be seen from the fact that it is the heavily rural regions that are less well served.

7.71 Most of the population cannot afford private medical care, which is available primarily to the urban middle classes. The task of providing health care services to the majority has therefore fallen upon the public system operated by the Department of Health. The core of this system is formed of the Rural Health Units (RHUs) in the rural areas and city health department clinics in urban areas. Cases requiring hospitalization are referred to city or provincial hospitals. Cases requiring more specialized care than is available in the provincial hospitals are referred to a regional hospital, of which there is one in each of the country's eleven health regions. At the apex of the referral system are specialized hospitals in Manila which are affiliated with university medical schools.

7.72 In principle, therefore, every Filipino has access to comprehensive public health care. In practice, there are serious deficiencies, stemming basically from inadequate funding. Urban clinics are usually overburdened, and drugs and other supplies are sometimes scarce. The deficiencies in the rural areas appear to be greater. Only about 500 of the approximately 1,500 RHUs occupy buildings designed for that purpose, with the remainder in general purpose municipal buildings or in rented quarters. A survey of RHUs done as part of project preparation for a World Bank population loan found that many lack electricity and a potable water supply, and more than 90 percent have inadequate clinical equipment.

7.73 Accompanying the deficiencies of infrastructure and supplies in the rural health care system has been a longstanding shortage of personnel. At the end of 1972, 23 percent of physicians' posts and 46 percent of nurses' posts in the Rhu system were vacant. This situation is due to a number of factors. First, there are the unsatisfactory working conditions due to supply shortages and, in the case of physicians, the need to devote much time to subprofessional tasks that ought to be delegated to paramedical workers, but are not because of the lack of support staff. A WHO-assisted team of consultants studying rural health services in Rizal province found

Table 7.9 Regional Distribution of Physicians and Hospital Beds, 1973

Region	Population per Physician	Population per Hospital Bed
Ilocos	2,094	750
Cagayan Valley	4,769	1,538
Central Luzon	3,861	1,403
Southern Luzon	1,889	337
Bicol	5,713	1,722
Western Visayas	3,776	1,187
Central Visayas	3,056	1,072
Eastern Visayas	6,250	1,678
Western Mindanao	7,165	2,377
Northern Mindanao	4,228	1,413
Southern Mindanao	4,776	1,688
Philippines	<u>3,222</u>	<u>797</u>

Source: Department of Health, National Health Plan, 1975-78, vol. 2. Tables 23 and 42.

that the greater part of the physicians' time was devoted to subprofessional tasks. 1/ Second, the salaries are very low; physicians' salaries, for example, are about half of what can be earned in urban private practice. Third, the lack of amenities in the rural areas compared with those in the urban areas is unattractive to many medical personnel. Fourth, Philippine medical education appears to be uncondusive to rural practice. 2/ All of the country's seven medical schools are located in urban areas, with five in Manila and two in Cebu.

7.74 These institutions emphasize high-technology, hospital-centered, curative medicine. Clinical medicine is taught almost entirely by faculty who have received advanced specialty training in North America, and the emphasis is on the pattern of diseases found in urban areas. The great majority of Filipino medical graduates go abroad for advanced training, and it is estimated that only about half return. This is because there is only a limited demand for specialty services in the urban areas, and physicians with such training find the relatively simple tasks of rural health care to be professionally less interesting as well as unremunerative. Remedies that have been proposed to deal with this situation include: the location of undergraduate medical training facilities in predominantly rural areas, such as Mindanao and Bicol, and differential fiscal treatment of medical schools according to the extent to which their graduates practice in the Philippines. 3/

7.75 The deficiencies at the basic level of the health care system have meant that simple and economical preventive treatments, such as immunizations or vitamin capsules, have been relatively neglected. Thus, these deficiencies, although caused by shortages of funds, are very uneconomical because they place greater burdens on curative services at the hospital level and on society at large.

7.76 The Department of Health has been cognizant of these problems, and has declared that the major thrust of its 1975-78 national health plan will be directed towards providing adequate health services to the rural population along with family planning and better nutrition. Programs included in the plan for the expansion and upgrading of rural health infrastructure include the following:

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- 1/ M. Subramanian, "Report on Study to Increase Efficiency of Health Services, in Rizal," (Manila: WHO Regional Office for the Western Pacific, 1974, processed).
  - 2/ This problem is discussed in Paulo C. Compos, M.D., "Reversing the Brain Drain," Far East Medical Journal, vol. 9 (September 1971), pp. 294-296.
  - 3/ Paul C. Compos, N.D., "Medical Education and National Development," Address before the Philippine Academy of General Practice (Manila, n.d., processed).

- (i) Establishment of Barrio Health Stations in barrios as satellites of existing RHUs, which are usually located in the poblacion.
- (ii) Construction of 150 new RHUs, and repair and renovation of 150 existing RHUs during each year of the period 1975-79.
- (iii) Provision of 200 jeeps a year for RHUs, for transportation of both health personnel and patients.

7.77 The Department of Health (DOH) has also recently taken two important steps relating to personnel for the rural health services. One is the redistribution of tasks among different levels of health workers, largely along the lines recommended by the WHO-assisted Rizal study. The First Level Worker will be a retrained midwife posted at the Barrio Health Station; her chief responsibilities will be normal deliveries, immunizations, routine family planning services (excluding initial pill prescription and IUD insertion), and health education in the barrio. There will be two types of Second Level Health Workers, both posted at the RHU. The RHU nurse will be responsible for the supervision of midwives, family planning, and routine laboratory tests. The sanitarian will be responsible for environmental health, including inspection of wells and latrines, technical guidance in the construction of such facilities, insect and rodent control, and promotion of environmental health education. The Third Level Worker is the physician, who is responsible for cases requiring fully professional care. This system was test-run in two rural municipalities in Rizal, and it was found that "the new system has shown its superiority in terms of community acceptance, performance, and efficiency." <sup>1/</sup> Implementation of the new system will require, among other things, recruiting and training new midwives for the Barrio Health Stations, and retraining existing RHU personnel; this training will be done at the Regional Training Centers and in the field training areas.

7.78 The second step is the adoption of a Rural Practice Program, which requires all newly graduated physicians and nurses to serve for six months in the rural health care system. This program has two objectives: to fill the manpower gap in the system, and to encourage young health professionals to consider rural health care service as a career. However, initial experience with the program indicates that the second objective will not be achieved unless working conditions are improved. <sup>2/</sup> Although the Rural Practice Program can be a logical complement to other measures to deal with the personnel problem, it cannot be a substitute for the

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<sup>1/</sup> M. Subramanian, "Report on Study to Increase Efficiency," p. 13.

<sup>2/</sup> In April 1975, the annual convention of the Philippine Medical Association was addressed by a recently graduated physician who had participated in the program. He cited supply shortages, absenteeism of regular personnel, and tempering of records to incorrectly show progress as discouraging problems encountered. "Rural Health Criticisms Aired," Manila Bulletin, April 25, 1975.

development of a career service based on good working conditions and more competitive salaries.

7.79 Implementation of DOH's plan for expanded rural services will require substantially increased funding. According to DOH projections, the operating budget for rural health services may have to increase from P 95 million in 1974-75 to as much as P 280 million in 1977-78. This would enable DOH to fill existing vacancies as well as the new posts created by the expansion of the system and to provide adequate operating supplies. DOH's share of the national budget decreased from 4.5 percent in 1970 to 3.4 percent in 1973 and an estimated 2.6 percent in 1975, and public spending on health as a proportion of GNP has decreased from 0.45 percent in 1970 to 0.40 percent in 1974. In view of the small portion of the budget going to health, it should be possible to accommodate an expanded program.

#### Improving Environmental Health

7.80 The DOH estimates that only 39 percent of the population has access to a potable water supply and only 32 percent has access to sanitary toilet facilities, with the rural areas less well served than the urban ones. Responsibility for construction of water supply and sewerage systems lies, of course, not with DOH, but with the Metropolitan Waterworks and Sewerage System in the case of Manila and local government or the Local Water Utilities Administration in the case of other cities. These agencies have programs for the expansion of municipal systems, but it will be many years before they reach the majority of the population. In the meantime, most of the population will have to rely on water supplies and toilet facilities not connected with such systems. The Environmental Sanitation Service of the DOH has the responsibility for inspection of such facilities and education about environmental health. DOH plans to increase the budget of this agency and to give more emphasis to environmental health in the overall health program.

7.81 There are two environmentally-related diseases of local importance that are the objects of special programs: schistosomiasis and malaria. Schistosomiasis, a debilitating parasitic disease transmitted by an aquatic snail, is believed to affect almost 500,000 people, principally in Leyte and Mindanao. There is no completely effective clinical treatment. Responsibility for controlling the disease lies with the National Schistosomiasis Central Commission (NSCC) of DOH. NSCC engages in epidemiological studies, testing of drugs and molluscicides, and health education related to schistosomiasis. However, the only effective method of controlling schistosomiasis is drainage of the vector's habitat followed by terminal mollusciciding; therefore, NSCC can accomplish little unless the Department of Public Works or the National Irrigation Administration agrees to undertake agro-engineering works in the affected areas.

7.82 Malaria, which was found throughout the Philippines thirty years ago, is found today only in the Cagayan Valley, Palawan, the Sulu Archipelago, and parts of Mindanao. About 4.6 million people live in areas where eradication measures are required, and surveillance is necessary in some

other areas. Responsibility for eliminating malaria lies with the Malaria Eradication Service, which devotes most of its resources to spraying operations, but which also engages in case detection and referral. Eradication has been hampered by difficult transportation in the affected areas, population movements between malarious and non-malarious areas, and the resistance of the parasite to some drugs.

#### D. The Education System

7.83 The Philippines enjoys a reputation for being a country with a relatively highly educated population. However, this generalization is subject to important qualifications. There appear to be considerable urban/rural and income class disparities in education. Furthermore, the unusually large enrollments have not been matched by comparable funding (Table 7.10), which has meant that quality has been lower than in countries with more restricted educational opportunities. Enrollments grew particularly rapidly during the 1960s, 1/ and widespread concern about quality and the relevance of the education system to national needs led to the appointment of a Presidential Commission to Survey Philippine Education in 1969. In 1970 the Commission issued its landmark report, Education for National Development, which contained a number of major proposals for reform. In general, the pace of reform and quality improvement has been slower than desirable, but should accelerate following the recent implementation of the longstanding reorganization plan for the Department of Education and Culture (DEC). Improved education is important not only because of its effect on labor productivity through imparting attitudes and skills, but also because of its effects on welfare in such areas as nutrition and family planning. 2/

#### The Quality of Elementary and Secondary Education

7.84 Formal education is divided into a six-year elementary cycle, a four-year secondary cycle, and higher education. The role of the public sector decreases with the level of the educational ladder, being greatest at the elementary level and least at the tertiary level. The provision of free elementary education is a Government responsibility mandated by the Constitution. The public elementary system, which enrolls 95 percent of the elementary students, is supported entirely by the national government. Since

1/ In the 1970-71 school year, elementary enrollment was 66 percent greater than a decade earlier; secondary enrollment, 177 percent greater; and enrollment in higher education, 116 percent greater. See Department of Education and Culture, Annual Report 1973-74, processed.

2/ There is substantial negative relationship between education and fertility. Furthermore, all of the fertility decline of recent years has taken place among women with at least some secondary schooling; fertility among women with no schooling or only elementary schooling is as high as it ever has been. See Peter C. Smith, "Educational Differentials in Overall and Marital Fertility, 1968-1972" Research Note No. 48 (Manila: 1975 processed).

Table 7.10. Comparison of Educational Indicators  
for Selected Countries

Indicator	Philippines	Korea	Thailand	Malaysia
Public education expenditure per capita (in U.S. dollars)	6	11	7	32
Percentage of GNP devoted to public education	2.5 <sup>a/</sup>	2.9	3.0	6.4
Percentage of Government budget devoted to education	14.9 <sup>a/</sup>	17.9	18.7	20.9
Ratio of primary enrollment to relevant age group (in percent)	104	97	87	90
Ratio of secondary enrollment to relevant age group (in percent)	46	51	21	33
Ratio of tertiary enrollment to population (in percent)	1.7	0.5	0.2	0.2

Note: If it is assumed that spending per student is the same in private as in public education, the proportion of GNP going to all education would be 2.9 percent; this would most likely be an underestimate. The ILO report suggests that this figure "approaches 4 percent" (p. 305); probably 3.5 percent is not far from the true value.

<sup>a/</sup> Department of Education and Culture (DEC) budget, plus estimated P130 million for school buildings from the Department of Public Works, as indicated by Budget Commission, Fiscal Year 1975 National Budget, p. 24.

Source: Figures for Philippines are estimates based on DEC data. Philippine financial statistics refer to 1973-74; enrollment statistics refer to 1970-71. Figures for other countries are from recent World Bank appraisal reports of education projects.

1960, elementary enrollment has been expanding at the rapid rate of 4 percent a year. This is due partly to a demographic trend of increasing numbers of children, and partly to an increasing enrollment ratio. Elementary enrollment can now be considered to be almost universal in the Philippines, with the exception of some tribal groups.

7.85 The rapid growth of enrollments has outpaced the availability of all educational inputs except for teaching staff, which has grown proportionately. The shortages of classrooms and textbooks are particularly severe. The nationwide classroom shortage is estimated to be about 40,000; the Department of Education and Culture (DEC) is coping with it by operating two shifts in many schools. The Government has an active schoolbuilding program, but at current rates of construction the classroom shortage will not be ended until the early 1980s.

7.86 The textbook problem is even more serious. A survey done as part of project preparation for a World Bank education loan found that the pupil/textbook ratio in the public elementary schools is 10:1, and that 79 percent of the textbooks are more than five years old. This situation has persisted for a number of years. Textbooks produced under the World Bank project will not become available in large quantities until 1977. Other teaching materials, such as simple science materials and audio-visual aids, are also in short supply. This situation has arisen because the majority of operating expenditures in the education sector (more than 90 percent of DEC's budget) has gone to salaries and other personnel expenses. The school building program has accounted for the second largest portion of expenditures in the sector. The portion of DEC's budget devoted to textbooks and other supplies has been a poor third. As a result of the shortage of textbooks and other educational materials, the teaching staff is handicapped in its work. Low quality education results from the reliance placed on learning by rote, and high drop-out and repeater rates occur at the upper grades of elementary education.

7.87 The solution to the problem of low quality lies in reducing enrollment growth by decreasing the number of repeating students, increasing the availability of educational materials, and retraining teachers to effectively use the increased supply of materials. In 1971 an important enrollment reform was instituted, namely a Continuous Progression Scheme under which all students will be passed on to the next grade. At the time of the Mission's visit it was unclear to what extent this reform has actually been implemented in practice. Although the implementation of the scheme requires improved curriculum and teaching, it is possible that some children completing the elementary cycle may be unprepared for the secondary cycle. This may seem unattractive, but it is probably preferable to the alternative of continuing to burden the elementary system with excessive enrollments. The projections in Technical Note II show that if continuous progress were completely enforced, enrollment growth would be greatly reduced. Such an enrollment policy would make it possible to improve the quality of elementary education over the next few years, which in turn should reduce the incidence of student

failure. Therefore, continuous progression should be strictly observed. Along with the enrollment policy, incremental resources allocated to elementary education should be devoted primarily to educational materials. Large classes and double shifts may be undesirable, but a minimally adequate supply of textbooks and other materials is by far the more critical need.

7.88 At the secondary level, the education system is characterized by greater diversity than at the elementary level. The distribution of youth of secondary school age by enrollment status is approximately as follows: 24 percent in public secondary schools; 28 percent in private secondary schools, many of which have religious affiliations; perhaps 5 percent in elementary schools; and about 43 percent out of school. In recent years, the ratio of public to private enrollment has increased, and in the 1980s a majority of secondary students will probably be in the public sector. Parents who can afford to send their children to a private secondary school usually do so; this fact has contributed to a lack of public pressure in favor of good public secondary schools. Most of the public school students are enrolled in general secondary schools supported by provincial or city governments and typically located in provincial capitals. A smaller number are enrolled in "barrio high schools" which have been started as self-help projects in rural communities that were previously without access to secondary education. About one-tenth of public secondary students are enrolled in vocational schools, which concentrate on either agriculture or technical training for industry.

7.89 Responsibility for support of the vocational schools lies with the national government, while the other public schools are supported primarily by local governments with some assistance from the national government. Tuition fees are a substantial source of revenue for the public secondary schools and provide the great bulk of funds for the operation of the private schools.

7.90 At the secondary as at the elementary level, the chief problem is the poor quality of education. In 1970 the Presidential Commission to Survey Philippine Education observed that "secondary education is widely believed to be the weak link in the educational ladder" and that studies on college freshmen had found weaknesses of preparation in language skills, mathematics, and science. <sup>1/</sup> It attributed the low quality to the relatively short duration of the secondary cycle (four years as compared with the six years found in most countries, including such neighboring Asian countries as Thailand and Korea), an unsuitable curriculum, and inadequate financing.

7.91 Regarding the duration of the cycle, the Presidential Commission recommended that secondary schooling be lengthened to five years, which would consist of a three-year common track followed by two years of schooling

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<sup>1/</sup> Presidential Commission to Survey Philippine Education, Education for National Development: New Patterns, New Directions (Manila, 1970), pp. 71, 73.

oriented either toward preparation for higher education or for technical training and employment; however this proposal was not accepted due to a lack of funds. The Commission felt that such an extension of the secondary cycle would remedy weaknesses in college preparation and the problem of students enrolled in vocational education before they were sufficiently mature to have made occupational choices.

7.92 The Commission's principal finding about the curriculum was that the traditional distinction between general and vocational secondary schools had not worked well. Students in the academic track who did not go on to higher education found themselves unprepared for the world of work, and the vocational schools did not perform their role well because of inadequate equipment and because the most qualified personnel were hired away by industry. For many students vocational schooling was a second-choice path to higher education; relatively few students actually took jobs in the fields in which they supposedly had been trained in school. The Commission accordingly recommended that the distinction between general and vocational schools be abolished.

7.93 This recommendation was adopted in DEC's secondary curriculum reform of 1973. In the new curriculum, all secondary students will study language, mathematics, science, and social studies, and in addition will take one "practical arts" course each year, with the possibility of other elective work in practical arts during the third and fourth years. The precise nature of the practical arts offerings (e.g., agriculture, fishing, industrial skills) will depend on the demands of the local community and the facilities available. The academic aspects of the curriculum have also been reformed so as to make them more relevant to the Philippine situation. <sup>1/</sup> Implementation of the curriculum reform should now proceed rapidly, following the carrying out of the longstanding DEC reorganization plan (discussed later in this chapter) in July 1975. Among other things, the reorganization abolished the Bureau of Vocational Education and established a new Bureau of Secondary Education to oversee all secondary education, private as well as public.

7.94 This admirable curriculum reform will have to be accompanied by an increased allocation of resources to secondary education if the objective of improving quality is to be achieved. Some commentators have held out the hope that curriculum reform is a costless way of upgrading quality, but this ignores the fact that it is one thing to design a curriculum, but another thing to teach it. In general, the public secondary schools suffer from the same shortages and deficiencies as the elementary schools; the pupil/text-book ratio, for example, is 8.5 to 1. Until a special national appropriation ended the anomalous situation last year, secondary teachers were actually paid less than elementary teachers due to the weakness of local government financial support. Another consequence of local government financing of

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<sup>1/</sup> For example, the new third-year social studies course, development and Progress, deals with economic and other aspects of development. Population and nutrition subject matter has been integrated into the curricula of several disciplines.

secondary schools is that there is much greater variation of quality among the public secondary schools compared to the relatively homogenous elementary system.

7.95 The problem of adequate financial support for the secondary system will be magnified, to the extent that tuition fees do not cover marginal costs, by an enrollment boom in years ahead. As shown in Technical Note II appended to this chapter, secondary enrollment will probably increase from about 2.2 million in 1975 to about 3.2 million in 1985. This will be due in part to demographic trends, but primarily to an increased enrollment ratio. Most of the recent increase in secondary enrollment has been in the public sector, with public secondary enrollment growing at about 8 percent a year versus 4 percent for the private secondary enrollment. In 1972-73 there were about 850,000 students in public secondary schools and 1,029,000 in private schools. By 1985 there could be about 1.8 million in public schools and 1.4 million in private schools. 1/

7.96 This prospect has significant implications for the Government's education budget. One option would be to permit such an expansion in enrollment while increasing allocations for secondary education at a slower rate, leading to a decline in quality. This would be undesirable, because low-cost education at some point becomes inefficient as it fails to accomplish its objectives and merely passes on the quality problem up to the next level or out of the system. A second option would be to restrict the growth of enrollments. This is the view taken by the ILO report, which concluded that, "in our view, it is difficult really to justify the expansion of any level of education in the Philippines at the present time." 2/ Enrollment restrictions could be accomplished by several means. One means could be increased tuition fees, which would restrain enrollment by students from poor families or whose parents are not highly motivated to provide education for their children; the exclusion of poor but able students could be offset by a loan scheme to some extent. Another means could be academic testing. A third means could be to retrench on the school building program and fail to provide secondary schools in areas not now served; this would maintain existing urban/rural disparities.

7.97 Yet another option would be to permit the prospective enrollment increase to take place and also to maintain or slightly increase the allocation per student in secondary education, so as to provide a minimally adequate supply of textbooks and other educational materials. This would probably necessitate increasing the share of education in the national budget from the current 17 percent to perhaps 19 percent by 1980, and would be the course favored by the Mission.

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1/ Although the Mission agreed with DEC's low projection of total enrollment in secondary schools, the DEC has assumed that only 40 percent will be in public schools, which seems too low on the basis of recent trends.

2/ ILO, Sharing in Development, p. 317. The authors indicate that this judgement is formed on strictly economic (as opposed to social or political) grounds.

### Rationalizing Higher Education

7.98 In 1971-72, there were about 648,000 students enrolled in higher education in the Philippines, including about 43,000 (7 percent of the total) in the public sector, and 605,000 (93 percent) in the private sector. Higher educational enrollment in the Philippines is about four times that of Korea and ten times that of Thailand, which are countries of roughly comparable populations and development levels (Table 7.10).

7.99 Public institutions of higher education are classified as state universities or state colleges. They are governed by boards of which the Secretary of Education is the chairman, but they are not under the effective control of DEC. The state universities and colleges include the University of the Philippines, which, in many academic fields, is the leading institution of the country, and some institutions designed to meet regional needs, such as Central Mindanao University, which offers agriculture and forestry. At the same time, this group also includes low-quality institutions whose existence (or in some cases, whose reclassification from high school to college) can be understood more as a consequence of congressional politics rather than as the result of any rational planning process. The Presidential Commission found that "with few exceptions, state institutions are inadequately financed, staffed, and equipped." 1/

7.100 The private education sector is characterized by similar diversity. Many private colleges are church-affiliated; others are profit-making enterprises. A few private institutions have competitive admissions standards and charge tuition fees high enough to permit the operation of a sound academic program, but most are open to enrollment by any student willing and able to pay a relatively low tuition fee. Private institutions have inadequate facilities and underqualified and overburdened faculty; only 28 out of about 600 such institutions are accredited by the Philippine Accrediting Association of Schools, Colleges, and Universities (PAASCU).

7.101 The combination of inadequate budgets and relatively unrestricted admissions results in a low per-student cost in most private institutions. The Presidential Commission found that the average cost per student in private colleges and universities was only half of the average cost at PAASCU member institutions, and one-fourth of the average cost at the University of the Philippines and a few elite private colleges. 2/ This means that private institutions necessarily concentrate on offering low-cost fields of study (e.g., liberal arts, commerce, business administration, and teacher training, as shown in Table 7.11), and that quality is unsatisfactory in fields requiring relatively high costs per student (for example, in engineering, a field in which many graduates fail the professional examination).

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1/ Presidential Commission to Survey Philippine Education, Education for National Development, p. 99.

2/ Ibid, p. 48.

7.102 The combination of the poor quality of education and rapidly expanding enrollments in the 1960s, particularly in fields not in short supply in relation to development needs led the Presidential Commission to forecast a large volume of educated unemployment in the 1970s and to recommend a cut-back in enrollments. Similarly, the ILO report found, on the basis of rate-of-return analysis, that most fields of higher education were overexpanded, and it recommended enrollment restraint. Before discussing the mechanisms suggested by the Presidential Commission (and endorsed by the ILO report) for accomplishing this objective, several points should be made.

7.103 First, the enrollment boom in higher education seems to have tapered off of its own accord. The most recent data available (which are not nearly as recent as would be desirable) show that enrollment in higher education increased at a rate of 10 percent a year from 1960-61 to 1967-68 (from 300,000 to 590,000), but at a rate of only 2-1/2 percent a year from 1967-68 to 1971-72 (from 590,000 to 648,000). This means that the enrollment ratio has remained constant or even declined slightly in recent years, and on this basis the Mission expects future enrollment growth to be slower than in the 1960s (Technical Note II). It is not clear whether these figures represent a genuine trend or a temporary fluctuation. One possible reason for the slow enrollment growth is that the modestly improved employment situation of recent years has increased the previously very low opportunity cost (in the form of foregone earnings) of higher education.

7.104 Second, the Presidential Commission's forecast of a large volume of educated unemployment in the 1970s has not materialized. The practical result of the overexpansion of higher education is that many office jobs in government and business that would be held by secondary school graduates in a country, such as Thailand or Malaysia, with a more elitist philosophy about higher education, are held in the Philippines by college graduates. In making such a comparison, it should be remembered that the secondary school graduate in most countries has had as many years of schooling as the Filipino with two years of college.

7.105 Third, although it is undoubtedly correct to argue, as do the Presidential Commission and the ILO report, that much of the large-volume, low-cost private education found in the Philippines is inefficient as investment, that says nothing about the value of such education as consumption. These are private resources, and the question of the alternative use of these resources should be considered in formulating public policy. If the alternative were merely some other form of private consumption, the public policy grounds for interfering with consumer's sovereignty would appear to be weak. But if the alternative would be to tax away these resources into the public sector or to somehow channel them into the private education sector for selected quality improvements, the rationale for public policy intervention would be strong.

7.106 The mechanisms proposed by the Presidential Commission and endorsed by the ILO report for the improvement and rationalization of higher education include: the establishment of a State College and Universities Board to ad-

Table 7.11. Enrollment in Private Colleges, by Field of Study, 1971-72  
(In thousands)

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Field of Study	Enrollment (In thousands)
Liberal arts and sciences <sup>a/</sup>	147
Commerce and business administration	245
Teacher training	84
Engineering	70
Medical sciences	33
Agriculture	4
Food, nutrition and dietetics	5
Nautical sciences	6
Total	<u>594</u>

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<sup>a/</sup> Includes law and foreign service and music and fine arts.

Note: Data was collected by Bureau of Private Schools. No data was available for public institutions, because responsibility of Bureau of Public Schools extends only up to secondary level. There were about 43,000 students enrolled in public institutions in 1971-72. Agriculture is offered primarily in the public sector.

Source: NEDA, Statistical Yearbook, 1975, p. 462

minister public higher education and a Bureau of Higher Education to oversee all of higher education; admissions examinations; promotion of accreditation; and scholarship schemes to enable poor but able students to pursue the more expensive programs of study such as engineering or medicine. At the present time, the implementation status of these proposals is as follows. The State Colleges and Universities Board has not, unfortunately, been created. The Bureau of Higher Education was established only in July 1975. A National College Entrance Examination (NCEE) has been developed by the Fund for Assistance to Private Education (FAPE), a private, non-profit foundation. This examination was given for the first time in the school year 1973-74; it has already been used for the purpose of restricting college admissions, and guidance counselors are supposed to take NCEE scores into consideration when advising students. Responsibility for administering the NCEE is being transferred to DEC following the implementation of the DEC reorganization. Relatively little has been done to implement suggestions that accreditation and quality in private higher education be promoted through fiscal measures such as taxes and subsidies. A small scholarship fund has been established, but its resources will have to be expanded if it is to make a sizable impact on equity in access to higher education.

7.107 In general, it is to be hoped that the Government's progress in rationalizing higher education will accelerate following the reorganization of DEC and the establishment of a Bureau of Higher Education with specific responsibility for higher education policy.

#### Administration of the Formal Education System

7.108 A longstanding observation about education in the Philippines is that the making and implementation of education policy in the Philippines has been handicapped by unsuitable organization. A major advance toward remedying this situation was taken with the reorganization of the Department of Education and Culture that was carried out in July 1975. The chief units, functioning largely independently, were previously: the Bureau of Public Schools, with responsibility for the public elementary system and for aiding and supervising the public secondary schools operated by local governments; the Bureau of Private Schools, with responsibility for supervising private schools from the elementary level through college; and the Bureau of Vocational Schools, with responsibility for vocational schools. These units have now been reorganized into bureaus of elementary, secondary, and higher education. Staff functions have been reorganized according to the common scheme for all Government departments developed by the Integrated Reorganization Plan. Regional offices intended to orient the school more closely to regional needs have also been established.

7.109 A significant feature of the reorganization is the establishment of an Office of Planning Services. Hopefully, this office will meet the need for a high-level, well-staffed unit to engage in ongoing policy analysis and planning. The Presidential Commission in 1970 identified planning as an area of weakness in the education system and recommended strengthening the planning function. Planning activity in the DEC has been

Table 7.12. Public Education Operating Expenditures, 1965-1974

Fiscal Year	Total Outlay (In millions of pesos)	Public School Enrollments (In thousands)	Index of Expenditures at constant prices (1965 = 100)		Expenditures as Percentage of Budget
			Total Outlay	a/ Outlay Per Pupil	
1965/66	656	5,972	100	100	29
1966/67	709	6,396	102	95	28
1967/68	762	6,652	104	94	26
1968/69	878	6,902	114	99	24
1969/70	993	7,421	122	98	24
1970/71	1,108	7,627	118	93	25
1971/72	1,255	8,044	117	87	22
1972/73	1,321	8,449	113	80	17
1973/74	1,496	n.a.	112	75 <sup>b/</sup>	17
1974/75	1,642	n.a.	92	59 <sup>b/</sup>	15

a/ Nominal expenditure reduced from current prices to constant prices by GNP deflator. A price index for the goods and services purchased by the education system would be ideal for this purpose but of course does not exist. The price of the major item, namely teachers' services, has risen less rapidly than prices in general because teachers' salaries have decreased in real terms. The extent to which real education spending has been eroded by inflation, therefore, is exaggerated somewhat by the above figures.

b/ Assumes enrollment growth at rate observed in previous years.

Source: NEDA, Statistical Yearbook 1975, pp 460-468; DEC, Annual Report 1973-74, p.17.

hindered by the dispersal of authority, since the operating bureaus have largely continued to do their own planning, 1/ and also by tardy and incomplete statistical information. 2/ The reorganization should deal with the former problem, and it is intended that the latter problem will be dealt with by the installation of a computerized Management Information System.

7.110 There is also a need to bring more people with high level managerial ability into DEC. In 1970, the Presidential Commission found a problem of "administrative in-breeding with otherwise qualified persons whose academic backgrounds are not in education excluded from the upper executive levels.... In view of the need for professional management in education, the policies of promotion by merit and recruitment of competent staff from the outside are proposed." 3/ Executives with broad experience might be able to play a useful role in managing a large enterprise such as the Philippine education system, and with the reorganization of DEC, it would be timely to consider the implementation of the Commission's proposal.

#### Financing the Educational System

7.111 It used to be a commonplace observation that education took one-third of the national budget in the Philippines. This was true in the mid-1960s, when the DEC budget was almost 30 percent of the national budget and the school building program (outside DEC) took a small amount more. Since then, public expenditures on education have increased substantially in nominal terms; however, when inflation is taken into account, the real level of spending on public education has decreased since 1969 (Table 7.12). The real level of spending per student has decreased even more, and today is perhaps 80 percent of what it was ten years ago. At the same time, the portion of the national budget going to DEC has decreased to 17 percent in recent years. The result has been the quality problems discussed in earlier sections.

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1/ A recent study by NEDA found that "Plans and programs are short-range and fragmented by sectors. There seems to be no articulation of the projects developed and implemented by these educational bureaus." NEDA, Education Sector Study (Manila, 1974), p. 13.

2/ The Presidential Commission pointed out that "there is a need for an efficient statistical and research service that will generate adequate, reliable, and timely baseline data for planning purposes" (Presidential Commission, Education for National Development, p. 61). However, statistics have remained seriously out of date. In DEC's Annual Report 1973-74, released in October 1974, the most recent year for which actual (as opposed to projected) public school enrollment statistics were available was 1970-71. Similarly, 1970-71 statistics were used as the base of DEC's enrollment projections, prepared in 1974, for the period 1975-85.

3/ Presidential Commission, Education for National Development, p. 184.

7.112 The principal recommendation of the Presidential Committee with respect to educational finance, although it was not adopted, was that financial responsibility for elementary and secondary schools should be decentralized to local governments. In view of the fact that the lack of local government support is the principal reason for the relative weakness of the secondary compared with the elementary schools, this recommendation may seem curious. Its stated rationale was to increase the portion of the national government's budget available for higher education and for innovation and quality improvement in the education system. There was also a general perception at that time of the need to reduce the share of the budget devoted to education in order to increase the share for infrastructure investment and for economic services; this consideration undoubtedly also influenced the Commission's thinking. It should be remarked, however, that the large share of education in the national budget was due less to an overgrown education system than to the small share of the public sector in the national economy, which in turn was a consequence of low rates of tax collection.

7.113 In recent years, the Government has substantially boosted spending on economic infrastructure; this strategy implicitly entailed sharp restraint on other sectors, including education. A further reduction in the share of the national government budget going to education would be highly undesirable because it would compound problems of quality and therefore increase educational inefficiency. Also, with the increase in tax collections in recent years, much of the force goes out to the proposition that spending in sectors such as education must be held back if infrastructure development is to be stepped up. In order to accommodate enrollment increases and provide for urgently needed quality improvements, real spending on operating the educational system should probably increase by about 10 percent a year over the next few years; this would bring the share of education in the budget to 19 percent by 1980, which would be a satisfactory level.

#### Training Manpower for Industry and Agriculture

7.114 The training of manpower for industry in the Philippines is carried out through: the vocational schools of the Department of Education; training courses for out-of-school youth and unemployed adults sponsored by the National Manpower and Youth Council (NMYC), a unit of the Department of Labor; recognized apprenticeship programs; and informal training programs in industry. NMYC, which is the agency with primary responsibility for manpower development, states that, at the present time, "The absence of an adequate and efficient reporting system prevents an intelligent assessment of the type, nature, and exact magnitude of training programs conducted by public and private agencies ..." <sup>1/</sup>; a Coordinating Committee on Manpower Development has recently been established to perform this function.

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<sup>1/</sup> National Manpower and Youth Council, Interim Manpower Plan (Quezon City, 1974), p. 137.

7.115        Approximate figures currently available for some types of training indicate that in 1973-74, the vocational schools of the Department of Education enrolled 111,000 students in the four-year secondary cycle and an additional 16,000 students in post-secondary training courses, generally lasting two years. However, the dropout rate from the secondary cycle is substantial, and a considerable number of vocational secondary graduates go on to college rather than obtain employment in a trade; NMYC, therefore, projects that the vocational schools will provide between 13,000 and 15,000 trade graduates each year in the 1970s. During the period 1970-72, NMYC using for the most part existing vocational schools and state colleges, provided training courses in industrial skills lasting from one to three months to 85,000 persons. However, only 58,000 of the trainees graduated from the courses, and 99 percent of these were trained as "semi-skilled operatives" while only one percent were trained as skilled craftsmen, technicians, or foremen.

7.116        A survey of the graduates of one year's courses found that fewer than half were employed in the occupations for which they had received training <sup>1/</sup>. In recent years, about 6,000 persons have been enrolled in apprenticeship programs recognized by the Department of Labor, with about 3,000 apprentices graduating annually. Thus, the vocational schools and the apprenticeship programs together may have been supplying about 16,000-18,000 skilled workers annually, while the briefer NMYC courses have been supplying perhaps 20,000 semi-skilled workers each year. There are no statistics available on training by private industry other than recognized apprenticeship programs, but such training is believed to be quite substantial. The Government encourages training by industry by permitting firms to deduct half of the costs of training programs from their taxable income.

7.117        An issue on which there has been some disagreement is whether there is a shortage of vocational and technical training in the Philippines. The Presidential Commission to Survey Philippine Education found that the education system has produced a predominantly literate population and a large professional class, but that vocational and technical training has been neglected in relation to the need for skills. The Commission apparently reached this conclusion on the basis of two surveys of Philippine industry. One showed that for each engineer, Philippine industry employed 1.8 technicians, 11 skilled workers, and 12 unskilled workers, compared with an international average of 5 technicians and 25 skilled workers for one engineer. The Commission concluded from these figures that more technical education was needed. Another survey revealed that industrial firms found

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<sup>1/</sup> Rony Diaz. "The Role of Vocational and Accelerated Training Programs", in University of the Philippines School of Economics and National Economic Council, Papers and Proceedings of the Workshop on Manpower and Human Resources (Manila, 1972). Typical rates were: machine trades, 42 percent; electricity, 39 percent; welding, 41 percent; garment trades, 30 percent.

it necessary to provide training for new workers because their schooling had not prepared them for industrial work, and that the firms planned to increase their employment of technicians and skilled workers. 1/

7.118 The Government, following the Commission's report, has moved to expand industrial training by establishing ten Regional Manpower Training Centers (RMTCs) and three Technical Institutes, as part of World Bank-financed education project which also receives support from the UNDP and the ILO. The RMTCs will provide suitable facilities for NMYC's training programs, which will include both full-time and part-time courses lasting two to six months. An important feature of these centers is that they will carry out local manpower studies to ensure that the courses offered are relevant to local needs. Mechanics, industrial electricity, sheet metalwork, welding, and boat building will be among the courses offered. When in full operation, the output of the centers will be 7,200 craftsmen per year. The three technical institutes will provide three-year post-secondary courses that will graduate 800 technicians annually in such fields as electronics, mechanics, civil construction, and chemical technology. 2/

7.119 The view that there are critical shortages of technicians and skilled workers was, however, recently challenged in the ILO report. The report characterized the evidence underlying the commission's view as generally unconvincing, which appears to be reasonable. The report also observed that the poor employment experience of vocational school graduates and NMYC trainees suggests that "not a single skill is in short supply." 3/ This is not the only possible explanation for the low employment rates; another possibility may be that inadequate training has produced unqualified graduates. Industrial firms have been dissatisfied with trade school graduates and attribute their insufficient preparation to poor methods of instruction and lack of equipment. 4/ But there is other evidence that

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1/ These surveys are discussed in Manual Alba and Thelma Magno, "Manpower Development Strategy and Investment in Education," in Papers and Proceedings of the Workshop on Manpower and Human Resources.

2/ A technician is a worker considered to be at an intermediate level between the engineer and the skilled worker or craftsman. The technician has more theoretical training than the ordinary skilled worker, and may work in such areas as use of complex equipment, process control, costing and estimating, and product testing. Jesus P. Gotidoc, "An Assessment of Industry Demand for Technicians and Skilled Workers", Philippine Review of Business and Economics, 8 (June, 1971), p. 68.

3/ ILO, Sharing in Development, p. 646.

4/ Jesus P. Gotidoc, "An Assessment of Industry Demand...", pp. 65-67.

supports the ILO's view. In 1973, unemployment rates among experienced workers were as follows: professional and technical workers, 2.0 percent; craftsmen and production-process workers, 5.0 percent; manual workers and laborers, 9.7 percent; all experienced workers, 2.4 percent. 1/

7.120 Thus, although skilled workers had a lower unemployment rate than unskilled workers, they did have an unemployment rate which was greater than that for the experienced labor force as a whole. Furthermore, the real wages of skilled labor have declined steadily during recent years, and the "skill margin" separating the wages of skilled and unskilled labor has decreased. It would thus appear that the proposition that "middle-level manpower" is in seriously short supply needs substantial qualification. One possibility may be that skilled workers are not in short supply, while the more highly trained technicians are.

7.121 A related issue is the relative role of industry and institutions outside of industry in providing industrial training. The Presidential Commission asserted that, "Skills that require basic scientific knowledge and familiarity with modern machines may best be provided in schools", whereas the ILO report suggested that "schools are inappropriate institutions for the preparation of specific skills." 2/ Since basic scientific knowledge has always been a part of the secondary curriculum, the real issue is that of more specific skills. Little work appears to have been done in the Philippines on the relative costs and effectiveness of schools versus industry as settings for the transmission of skills. Schools apparently have not done this job very well in the past, but that does not mean that they could not do a much better job in the future with increased financing and greater attention to the needs of industry. However, the promotion of more training within industry might be a less expensive proposition. NMYC assists private industry by such means as the training of in-plant instructors, and has stated that it will encourage private industry to take a greater share of the responsibility for training the country's manpower.

7.122 Employment statistics indicate that employment in manufacturing and construction, which are the major sectors absorbing skilled labor, has been growing by only 20,000 workers per year in recent years. However, manufacturing and construction could be absorbing about 100,000 new workers

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1/ Bureau of Census and Statistics, BCS Survey of Households Bulletin: Labor Force, May 1973, No. 38 (Manila, 1974), p. 16. In interpreting the 2.4 percent unemployment rate for all experienced workers, it should be remembered that a large proportion of the unemployed in the Philippines are new entrants to the labor force. Also, the rate is affected by the large number of agricultural workers, who had an unemployment rate of only 1.2 percent.

2/ Presidential Commission, Education for National Development, p. 85 and ILO, Sharing in Development, p. 320.

annually by 1980. This would create a major demand for trained manpower. Much of this manpower could be trained within industry, and there probably will not be a general need for new training facilities beyond the Regional Manpower Training Centers and the Technical Institutes now being developed. There may be specific needs for training facilities to serve the scientifically complex and faster growing industries such as the metals industries. It is likely that the manpower needs in such industries will be more at the technician level than at the skilled worker level.

7.123 The fact that the Philippines is the home of the leading center of rice research while its own rice yields are low by international standards suggests that there is a need for better agricultural training. There is wide agreement in the Philippines that agricultural extension is an area in need of substantial strengthening. Part of the problem is that extension work is fragmented among a number of different agencies which do not generally coordinate their activities. Another part of the problem is that the quality of the training of extension workers is inadequate. Although extension workers are required to have a B.S. degree in agriculture, many agricultural colleges are of low quality, and the better graduates are usually hired by the private sector. Some extension workers who have received good training in the natural sciences have not been well trained in farm economics and extension methodology. A recent study found that extension workers remain at the hiring level without promotion for an average of seven years, and that there is little in the way of career development or advancement in the occupation. <sup>1/</sup> Much of the extension staff should be retained through in-service programs and the organization of the extension services should be improved.

7.124 The training of farmers by means of short courses in training centers has been relatively neglected in the Philippines but the recently established Bulacan Farmers Training Center has demonstrated its effectiveness in disseminating modern rice technology. Such courses, properly designed, could be a means of training progressive farmers to bring better methods to their barrios and thereby supplement the work of the extension services.

7.125 In the area of higher agricultural education, there are 46 agricultural colleges and universities, most of which are in the public sector. The University of the Philippines at Los Banos has been developed into a national center of recognized quality in agricultural education and research. However, most of the agricultural colleges suffer from a lack of qualified faculty, library, equipment, and practical instruction. Some of the colleges are agricultural high schools which have been promoted to college status without sufficient upgrading of their facilities and

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<sup>1/</sup> L.V. Carino and O.F. Sison, "Agricultural Extension: Problems of Organization and the Profession" (Los Banos: University of the Philippines, 1973).

curricula. There are more than enough agricultural graduates, but not enough with the necessary expertise.

7.126 The Government has made a start on the task of improving the system by designating an institution to be developed as a regional center of quality agricultural education in each of the country's three major geographica areas. These institutions are the Central Luzon State University, the Visayas State College of Agriculture, and the Central Mindanao University. The Government has not yet formulated a coherent policy toward the remainder of the agricultural colleges, which are in need of consolidation through the upgrading of some and the reconversion to high school status of others. There is also a strong case for improving their coordination through the establishment of a National Board of Agricultural Education.

TECHNICAL NOTE I

Population and Labor Force Projections

Population Projections

1. On the basis of the 1970 census and the 1973 National Demographic Survey, the National Census and Statistics Office has constructed three projections of the Philippine population to the year 2000: high, medium and low (Table 7.I). The assumptions underlying the projections are as follows:

2. Base Population: The enumerated population of 36,684,486 on May 6, 1970, is estimated to be 36,851,955 on July 1, 1970; this mid-year figure is used as the base.

3. Fertility: The three projections differ chiefly with respect to their assumptions about fertility. Fertility may be summarized in the single statistic of the total fertility rate (TFR), which is the number of children born to an average woman who survives throughout the childbearing years. The high projection assumes that the TFR remains constant at the 5.8 births per woman estimated for the early 1970s. The medium projection assumes that the TFR falls at a moderate rate to 5.2 in the late 1970s, 4.6 in the late 1980s, and 4.2 in the late 1990s. The low projection assumes that the TFR falls rapidly to 4.5 in the late 1970s, 3.3 in the late 1980s, and 2.6 in the late 1990s, bringing the Philippines close to replacement level (the fertility level at which the population just replaces itself) in the year 2000. The evidence on fertility decline discussed in the chapter indicates that the high projection assuming constant fertility can be dismissed as a possible outcome. The Mission regards a combination of the medium and low projections as the most likely future course of fertility rates.

4. Mortality: The crude death rate of a population is a function of age-specific death rates and the age-structure of the population. The NCSO assumes the same pattern of decline of age-specific death rates for all three projections. The rate of mortality decline decreases as the normal biological life span is approached. It is projected that, during 1970-75, mortality will decline at the same rate as in the 1960s; during 1975-85, it will decline at half that rate; and during 1985-2000, it will decline in such a way that life expectancy increases one year in each five-year period. The NCSO regards the future trend of mortality as relatively certain and predictable, which appears to be reasonable. Because of differing age-structures resulting from varying fertility rates under the three projections, the resulting crude death rates diverge, being highest under the high-fertility assumption, due to infant mortality. Thus, the Mission believes that the population growth rate could be expected to decline to about 2.5 percent a year by 1985 and to be about 2.0 percent a year by the year 2000. At this time, the population would approach 80 million people.

Table 7.I Population Projections and Implicit Growth Rates  
to the Year 2000

Year	Population Projections (In millions)			Implicit Growth Rates (In percent)		
	Medium	Medium-Low	Low	Medium	Medium-Low	Low
1970	36.9	36.9	36.9			
1975	42.5	42.4	42.2	2.9	2.8	2.7
1980	49.1	48.5	47.9	2.9	2.7	2.5
1985	56.7	55.3	53.8	2.9	2.6	2.3
1990	65.0	62.3	59.6	2.8	2.4	2.1
1995	73.9	69.4	64.9	2.6	2.2	1.8
2000	83.4	76.7	70.0	2.4	2.0	1.6

Source: Medium and low projections are from NCSO, Age and Sex Population Projections for the Philippines by Province, 1970-2000. Medium-low projection is the average of these two.

### Labor Force Projections

5. The statistics of the National Census and Statistics Office (formerly the Bureau of Census and Statistics) for labor force and employment understate the time values by substantial amounts in some years. <sup>1/</sup> The published statistics are based on rates of labor force participation and employment of the working-age population as measured by periodic surveys, and on the assumed size of the working-age population. The underestimation of the labor force arises because the latter has not been revised to reflect the growth of the working-age population as indicated by the censuses of 1960 and 1970.
6. The Mission has, therefore, constructed a net set of labor force statistics (Table 7.II). The working-age population figures for 1960 and 1970 come from the censuses of those years. The figures for the intervening years are derived by interpolation; for 1956-59, by extrapolation backwards; and for 1971-74, from the projections of the NCSO. Labor force participation and employment rates are from BCS labor force surveys. <sup>2/</sup>
7. With these revised series, the Mission was able to make a projection of the labor force based on a projection of the population ten years of age or older, and an expected labor force participation rate (LFPR). The population projection used is the medium-low one. The choice of the medium or low projection would have altered the resulting series somewhat, but not greatly, because of the lag of 10 to 20 years between fertility change and the effects of fertility change on labor force size. For example, medium and low projections for the population ten years of age or older in 1980 coincide exactly, because all such persons were already living and presumably were counted in 1970, and for 1985, they differ by only 280,000.
8. From Table 7.II, it can be seen that the three-year moving average of observed LFPRs has hovered in the range of 49.2 to 49.8 percent within the last six years, with an average of 49.4 percent; 49.4 percent was also the figure actually observed for 1974. In the absence of any detectable trend upward or downward, or of any reason to believe that a strong factor influencing participation rates (such as increasing school enrollment rates during the 1960s) will emerge, it is assumed that this rate will prevail in the future.

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<sup>1/</sup> For example, the published labor statistics for 1960 imply a working-age population (defined as persons ten years or age or older) of 16,944,000 in that year, only 92 percent of the actual working-age population in 1960 as revealed by the census - 18,354,000.

<sup>2/</sup> As published in various issues of BCS, Survey of Households Bulletin, and NEDA, Statistical Yearbook 1975. The October series was used because the May series is affected by students working during their summer vacation. For the two years, 1964 and 1969, when no October survey was conducted, the May figures were used instead, reduced by 3 percent to offset the summer vacation factor.

Table 7.II. Labor Force, Employment, and Unemployment 1956-1974  
(In thousands)

Year	Working-age Population <u>a/</u>	Participation Rate <u>b/</u> (In percent)	Labor Force	Employed	Unemployed	Unemployment Rate (In percent)
1956	16,206	56.8	9,205	8,285	921	10.0
1957	16,719	56.6	9,463	8,791	672	7.1
1958	17,247	56.1	9,676	8,979	697	7.2
1959	17,791	55.1	9,803	9,225	578	5.9
1960	18,354	54.9	10,076	9,441	635	6.3
1961	18,934	55.5	10,508	9,835	673	6.4
1962	19,532	56.0	10,938	10,227	711	6.5
1963	20,149	56.4	11,364	10,841	523	4.6
1964	20,786	55.1	11,453	10,720	733	6.4
1965	21,443	55.0	11,794	11,063	731	6.2
1966	22,121	54.3	12,012	11,171	841	7.0
1967	22,820	53.1	12,117	11,184	933	7.7
1968	23,541	51.1	12,029	11,079	950	7.9
1969	24,285	49.2	11,948	11,147	801	6.7
1970	25,057	49.4	12,378	11,437	941	7.6
1971	25,901	49.2	12,743	12,068	675	5.3
1972	26,782	49.8	13,337	12,617	720	5.4
1973	27,700	49.4	13,683	13,026	657	4.8
1974	28,656	49.4	14,156	13,576	580	4.1

a/ The years of age or older.

b/ The labor force participation rate (LFPR) is defined as the proportion of the working-age population holding or seeking employment; three-year moving average.

Source: Mission estimates.

9. It should be noted that the use of an aggregate LFPR for the entire working-age population, rather than disaggregated LFPRs for various age-sex groups, is justified only if: (i) there are no marked trends in age- and sex-specific LFPRs; and (ii) there are no marked changes over time in the age and sex composition of the working-age population. As to the former, an inspection of age- and sex-specific LFPRs reported in the quarterly labor force surveys from 1971 through 1974 reveals no discernible trends. Regarding the latter, the sex composition of the population remains essentially constant. As projected, the age composition changes slightly. In particular, the proportion of teenagers, who have a low participation rate, goes down due to decreased fertility; and the proportion of older people, who also have a low participation rate, increases slightly, due to decreased mortality. However, the changes in the projection that would be made by using age-specific rates are so slight that, in view of the other uncertainties involved, it was decided to simply use the aggregate rate.

10. The assumed participation rate was applied to the working-age population figures for the years 1975, 1980, 1985, and 1990 (the years for which figures are available). The results are shown in Table 7.III. The series shows that, although the annual rate of growth of the labor force will decrease slowly from 3.2 percent in 1975-80 to 3.0 percent in 1980-85 and 2.8 percent in 1985-90, the absolute magnitude of the increment to the labor force will increase year by year. For the foreseeable future, the Philippine economy will have to generate 500,000 new jobs annually in order to keep unemployment from growing, and will have to generate 600,000 jobs annually if any tightening up of the labor market is to be achieved.

Table 7.III: Labor Force Projections

Year	Labor Force (In thousands)	Annual Growth Rate (In thousands)	Average Annual Increment (In thousands)
1975	14,650	3.2	496
1980	17,129	3.0	535
1985	19,802	2.8	587
1990	22,736		

Source: Mission estimates.

## TECHNICAL NOTE II

### Enrollment Projections

1. The Department of Education and Culture has prepared high and low enrollment projections for all three levels of education up to 1985. 1/ The Mission has also prepared its own enrollment projections, using recent population projections of the National Census and Statistics Office. The DEC and Mission projections are shown in Table 7.IV, and are based on the methodologies discussed below.

#### Elementary Enrollments

2. DEC's high projection for elementary enrollments comes from a second degree equation derived by least squares. Since quantities such as school enrollments are generally believed to grow linearly or exponentially, this projection lacks intuitive appeal; furthermore, it leads to an enrollment ratio of 133 percent in 1980, which runs counter to the announced, and highly desirable, policy of reducing the enrollment ratio. Nonetheless, the high projection appears to be the one being used for planning purposes. 2/ The low projection, on the other hand, is based on population projections of the Bureau of Census and Statistics (the predecessor of NCSO) together with the assumption that compulsory education at the first grade level is strictly enforced and that enrollment in each grade level by age will be normalized, with a resultant reduction in enrollment at each grade. Clearly, the low projection is the more reasonable one.

3. The Mission's projection is based on the assumption that the enrollment ratio is brought down to 100 percent by 1980. For 1980 and 1985, the Mission projection is lower than the DEC low projection, but shows an almost identical growth during the 1980-85 period. Depending on the vigor with which continuous progression is instituted, elementary enrollment will probably run somewhere between the DEC low projection and Mission projections.

#### Secondary Enrollments

4. The DEC high projection for secondary enrollment is derived using the same method as that used for the high elementary projection. The DEC

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1/ Republic of the Philippines, Department of Education and Culture, Division of Educational Planning, "Projections for the Ten-Year Development Plan for Education " (Manila, 1975).

2/ The high projection was given in response to an item concerning future enrollments on a Mission questionnaire to which NEDA responded.

low projection is based on the assumption that an enrollment ratio of 65 percent will be achieved by 1985. The Mission regards the latter projection as reasonable. The DEC high projection implies a rate of increase in the secondary enrollment ratio that is contrary to past experience and seems to be unreasonably high.

#### High Education Enrollments

5. DEC's projections for higher education enrollments are based upon its secondary enrollment projections, together with the assumption that past ratios of enrollment in college by graduating secondary school students and past continuation rates in higher education will persist. Since secondary enrollment ratios are expected to rise, projected higher education enrollment ratios will rise as well. The Mission forecast, on the other hand, assumes that the higher education enrollment ratio remains at the constant level maintained during the period 1965-70. This is in accordance with stated policy, which aims at restraining the growth of higher education leading to a degree by means of the National College Entrance Examination and the promotion of post-secondary technical training.

Table 7.IV School-Age Population and Enrollment, Actual and Projected, 1965-85  
(In thousands)

Category	Actual			Projected	
	1965	1970	1974	1980	1985
<b>Population by educational level and age group <sup>a/</sup></b>					
Elementary (7-12)	5,557	6,364	6,795	7,576	8,275
Secondary (13-16)	2,945	3,661	4,113	4,584	5,023
Higher (17-20)	2,412	3,075	n a	4,103	4,466
<b>Enrollment, actual and projected <sup>b/</sup></b>					
Elementary	5,816	6,969	7,257		
DEC high projection				10,099	11,252
DEC low projection				8,375	9,013
Mission projection				7,576	8,275
Secondary	1,169	1,715	1,637		
DEC high projection				3,117	4,050
DEC low projection				2,705	3,246
Mission projection					
Higher	509	638	n a		
DEC high projection				1,238	1,626
DEC low projection				1,137	1,364
Mission projection				861	938
<b>Ratio of enrollment actual and projected to relevant age group (in percent) <sup>b/</sup></b>					
Elementary	105	110	107 <sup>c/</sup>		
DEC high projection				133	129
DEC low projection				110	109
Mission projection				100	100
Secondary	39	47	40 <sup>c/</sup>		
DEC high projection				68	81
DEC low projection				59	65
Mission projection					
Higher	21	21	n a		
DEC high projection				30	36
DEC low projection				28	31
Mission projection				21	21

Note: Population figures refer to calendar years. Enrollment figures refer to school year beginning in that calendar year; for example, enrollment figures for school year June 1970-March 1971 are shown under 1970.

<sup>a/</sup> The basic source of data on population is NCSO, Age and Sex Population Projection for the Philippine by Province, 1970-2000. The NCSO data are disaggregated by five-year age groups (0-4, 5-9, 10-14, etc). The figures calculated here assume that the elementary group is 60 percent of the 5-9 and 10-14 NCSO age group; the secondary group is 40 percent of the 10-14 and 15-19 age groups; and the higher group is 75 percent of the 15-19 age group. For 1972, for which there was no NCSO projection, the figures are by interpolation. For 1965, the figures were derived by applying five-year survival probabilities for 1965-70 (NCSO, p. 5) to 1970 age groups.

<sup>b/</sup> Actual figures for 1965 and 1970 from NEDA, Statistical Yearbook, 1975 (Manila, 1975), p. 458. Figures for 1974-75 are unpublished preliminary estimates by NEDA; the estimate for secondary enrollment would appear to be on the low side. DEC projections are from DEC, Division of Educational Planning, "Projections for the Ten-Year Development Plan for Education" (Manila, 1975). Mission projections are based on the following assumptions about enrollment ratios: elementary ratio in 1975 is the same as the 1970-72 average, but is reduced to 100 percent by 1980 as a result of Government policy. Secondary ratio increases by 6 percent every five years. Higher education ratio remains constant as a result of Government policy.

<sup>c/</sup> NEDA estimates that the school participation rate, which is the proportion of children in the relevant age group who are enrolled in school, was 98 percent for children of elementary school age and 40 percent for children of secondary school age in 1974-75. This rate differs from the enrollment ratio because many students of secondary school age are enrolled in elementary school.

Appendix I

AGRARIAN REFORM

1. The Philippines has one of the highest tenancy rates in Asia. Over 40 percent of all farms are cultivated by tenants, compared to about 25 percent in Thailand and about 16 percent in the Republic of China. The rate of tenancy for rice farms is particularly striking in Central Luzon, where 75 percent of the rice area is tenanted, and in Southern Tagalog, where the rate is 70 percent. Existing data also suggest that as many as two-thirds of all tenant family incomes fall into the bottom 40 percent of the national income distribution. In the Philippines, as in other parts of Asia, the system of sharecropping often results in high rents (generally 50 percent of the harvest), unlawful ejections, and excessive interest rates charged by landlords, ranging anywhere from 50-400 percent. 1/ Partly as a result of these conditions, the Philippines has had a history of peasant unrest, primarily in Central Luzon. Consequently, there has been a long-standing commitment by the Government to a program of agrarian reform which would abolish sharecropping and provide greater security of tenure.

A. Land Reform Prior to 1972

2. Land reform measures date back to the early 1900s when the American colonial government purchased 160,000 hectares of tenanted land belonging to the church and attempted to promote homesteading and colonization. The colonial government was deterred from actively enforcing these measures, however, because of its interest in promoting the rapid growth of exports and its political dependency on the landlords. 2/ A Rice Share Tenancy Act was passed in 1933, but the legislation was circumvented by landlord interests and was never implemented. Following World War II, peasant unrest, supported by the armed Huk resistance, again made land reform a major issue. Republic Acts 1911 and 1400 were passed in 1954-55 which established a formula for crop sharing, promoted the resettlement of public lands, and provided for the expropriation of landed estates to provide "family size" farms for landless tenants. Due to a number of loopholes, including a land ceiling for

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1/ "Money lending is a source of revenue to many landowners that almost equals the rental share," Joe R. Motheral, "Land Tenure in the Philippines," Journal of Farm Economics, Vol. XXXVIII, No. 2 (May 1956), p. 467. However, this may not always be the case; depending on the tenant-landlord relationship, there may not be any interest charge for the loan. See the study by J.M. Manto and R.D. Torres, "Sources and Cost of Credit to Rice Farmers in Central Luzon" (National Food and Agriculture Council, Department of Agriculture, June 1974, Processed), p. 11.

2/ Harold D. Koone and Lewis E. Gleeck, Land Reform in the Philippines, (n.p., Agency for International Development, June 1970), p. 6.

individual landlords of 300 contiguous hectares, only 19,155 hectares were purchased between 1955 and 1962. 1/

3. In 1963 the Agricultural Land Reform Code (Republic Act 3844) was passed which shifted the emphasis of land reform away from expropriation and resettlement to a two-staged conversion of sharecroppers into leaseholders and leaseholders into owner-operators. The code's objectives were to: establish owner-cultivation and family-size farms as the basis for Philippine agriculture; provide a dignified, more independent existence for small farmers; increase productivity and farm income; and have labor laws applied equally to industry and agriculture. The code reduced the land ceiling from 300 to 75 hectares 2/ but provided no timetable for completion.

4. Although significant as landmarks in the legislative history of agrarian reform in the Philippines, the 1955 and 1963 acts had little if any impact on agrarian relations due to a lack of administrative and financial support and strong political opposition. By 1971, only about 50,000 sharecroppers, or about 5 percent of the tenant farms, had reached the leasehold stage. Of those sharecroppers who had become leaseholders, less than one-quarter had written contracts with fixed rents registered with the Government. 3/ The second stage of amortizing ownership had been attained by only 3,400 former tenants in 1971.

#### B. Agrarian Reform Since 1972

5. In 1972 the Government reaffirmed its commitment to agrarian reform. The entire country was declared a land reform area and a number of decrees were issued to accelerate the attainment of the objectives set forth in the 1963 Agrarian Reform Code. The first phase of the reform, the emancipation of tenants on rice and corn land, was outlined in Presidential

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1/ Donald E. Douglas, "An Historical Survey of the Land Tenure Situation in the Philippines," Solidarity, Vol. V, No. 7 (July 1970), p. 76. The author also adds that: "It is not exaggerating to state that some landowners made a proverbial 'killing' off the government through expropriation proceedings ...," p. 77.

2/ The land ceiling was again lowered in 1971 to 24 hectares.

3/ International Labour Office, Sharing in Development (Geneva, 1970), pp. 474-475. L.C. Panganiban writes that between 1964 and 1971 there were about 47,000 conversions to a leasehold agreement and that almost 70 percent of these were oral, in Land Reform Administrative Procedures in the Philippines: A Critical Analysis, (Madison: University of Wisconsin Land Tenure Center, 1971, processed), p. 32.

Decree 27. <sup>1/</sup> Although the entire country was declared a land reform area, according to the 1963 Agrarian Reform Code which remains the basic land reform law, sugar and tree crops such as coconuts were exempted. Presidential Decree 27 refers only to the emancipation of tenants on rice and corn land, leaving the status of those cultivating sugar and tree crops unclear.

6. In terms of regional distribution, the highest concentration of rice and corn tenants can be found in Ilocos and Central Luzon. Southern Mindanao (a major corn growing area), Central Luzon, and Ilocos have the largest tenanted areas. The largest number of landlords are located in Ilocos as is the highest percentage of landlords with holdings less than 7 hectares. For holdings between 7 and 49 hectares, the largest percentage of landlords can be found in Southern Mindanao.

#### Scope of the Program

7. One of the first difficulties encountered by the reform was determining its scope in terms of the number of tenants and landlords affected and hectares covered. When the reform was announced in October 1972, it was expected to cover about one million tenants and 350,000 landlords on about 1.8 million hectares of tenanted rice and corn land. In 1973, the Department of Agrarian Reform (DAR) reported there were about 1.1 million tenants, 221,000 landlords and about 1.3 million hectares. As of February 1975, the DAR indicated that the program would cover 956,000 tenants, 431,000 landlords and about 1.5 million hectares (Table I.1). <sup>2/</sup> The most significant change between 1973 and 1974 was a 119 percent increase in the total area for tenanted holdings of 7 hectares and below and a 40 percent decrease in the total area for holdings above 24 hectares. There could be many reasons for this shift in area, including statistical error, the change in the DAR definition of the category for size of holding from total farm size to tenanted rice and corn land, or illegal partitioning by some of the landlords.

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<sup>1/</sup> Presidential Decree 27 established: (a) "family size" farms of either 5 hectares rainfed or 3 hectares irrigated for the former tenants; (b) landlord retention of not more than 7 hectares, provided the landlord is cultivating the land; (c) a fixed formula for the valuation of the land and for amortization; and (d) the requirement that all former tenants become full-fledged members of a recognized farmers' cooperative.

<sup>2/</sup> It is believed that corn represents about 10 percent of the area under the reform.

Table I.1: Scope of Land Reform by Size of Tenanted Holding  
(As of February 1975)

Size of Tenanted Holding (In hectares)	Hectares	Tenants (In thousands)	Landlords
100 and above	207.4	90.7	2.1
50 - 99.9	88.8	44.0	1.6
24 - 49.9	102.6	60.3	5.9
7 - 23.9	426.8	229.3	47.1
7 and below	<u>693.3</u>	<u>531.9</u>	<u>374.4</u>
Total	1,518.9	956.2	431.1

Source: Department of Agrarian Reform.

#### Implementation of the Land Transfer

8. Operation Land Transfer is being carried out under the overall direction of the DAR and consists of two main operations, the issuance and distribution of "Certificates of Land Transfer" and the transfer of titles to former tenants. The Certificate of Land Transfer is not a deed or title to the land. It is merely verification that the tenant is the tiller of the land he claims to be cultivating. Although the intention in 1972 was to transfer titles for all 1.5 million hectares, in 1974 the Government indicated that tenanted holdings of 7 hectares and below would be exempted from the land transfer. There are 374,000 landlords with tenanted holding below 7 hectares, and the average size tenanted holding of each landlord is less than 2 hectares.

9. Implementation of the land transfer program during the first year proceeded at a fairly rapid pace but has since slowed considerably (Table I.2). Administrative difficulties have arisen primarily as the result of the long delay in issuing rules and regulations for the DAR field teams. While financing has been less of a problem than in the past, landlord opposition remains a major obstacle. The emphasis of the 1972 reforms on the transfer of ownership has focused attention on another problem--incomplete records of land titles and land rights. Lacking sufficient data, the Government has been attempting to undertake simultaneously the identification of the tenants and landlords, the sketching and mapping of individual farm parcels, and the distribution of certificates. In the Republic of China, which is often cited as an example of a successful land reform program, registration of the land and information about its value, ownership

Table I.2. Progress of Philippine Land Reform

Item	December 1972	December 1973	December 1974	November 1975
<u>No. of Land Transfer Certificates Issued</u>				
Number of tenants	423	144,538	189,121	207,991
Number of certificates	423	207,417	268,541	293,994
Hectares covered	682	259,348	337,025	365,931
Number of provinces	4	54	64	64
<u>Land Valuations Received by DAR</u>				
Number of landowners	--	--	210	993
Number of tenants	--	--	13,554	37,194
Hectares covered	--	--	17,335	50,106
Number of provinces	--	--	27	39
<u>Land Valuations Received by Land Bank</u>				
Number of landowners	--	--	140	754
Number of tenants	--	--	6,381	27,860
Hectares covered	--	--	9,711	39,693
Estimated cost (thousands of pesos)	--	--	59,135	254,606
Number of provinces	--	--	19	34
<u>Landowner Compensation Paid by Land Bank</u>				
Number of landowners	--	--	88	593
Number of tenants	--	--	3,177	16,410
Hectares covered	--	--	5,799	31,325
Cost (thousands of pesos)	--	--	35,886	202,203
Number of provinces	--	--	12	31

Source: Department of Agrarian Reform.

and cultivator were available in government records which had been up-dated in 1945, four years before the implementation of the land reform program. 1/

10. The original target date for the completion of the land transfer (including the processing of landlord compensation and the beginning of amortization payments) was December 1977. In retrospect, this target was overly optimistic in view of the many administrative problems which have been delaying the program's implementation. If the Government were to significantly accelerate the pace of implementation, a more realistic objective for December 1977 might be the completion of the first part of Operation Land Transfer, the issuance and distribution of the Certificates of Land Transfer and, in addition, a national cadastral survey. While tenant amortization and landlord compensation will be taking place simultaneously with the delivery of certificates, this phase will probably take considerably more time to implement. The majority of the landlords and tenants, however, could possibly be covered by 1980.

11. A separate issue is the registration and enforcement of a leasehold system. This aspect of the reform will cover over one-half of the tenants and, in the long term, will probably prove to be the most difficult to enforce. It is not clear how many (if any) of these tenants have been registered by the DAR, but efforts should be made to implement the leasehold system as the availability of the field staff permits.

12. Identification of Tenants and Landlords: The identification of tenants and landlords and a survey of the parcels is being carried out by field teams from the DAR and the Bureau of Land Acquisition, Distribution and Development. As of July 1975, almost all tenants on holdings above 24 hectares had been identified and their parcels surveyed. Initially, it was expected that the landlords and tenants would cooperate in verifying the boundaries of the parcels, but due to landlord opposition, the DAR field teams have often had to proceed on the basis of the tenant's description of the land. Discrepancies between the Bureau of Land's maps and the land titles have been found and a substantial number of cases are being delayed due to resurveying.

13. When the identification and mapping procedures are completed by field teams of the DAR and the Bureau of Land, the tenant can fill out an application for farm ownership provided he does not already own 3 hectares of agricultural land. If the tenant's claim to the land is not disputed, or if and when the dispute is resolved by the Court of Agrarian Relations, the DAR issues a Certificate of Land Transfer.

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1/ Beginning around 1900 under the Japanese, cadastral surveys were conducted in the Republic of China every ten years. Consequently, the transfer of land titles in 1953 (the third phase of the land reform program) could be carried out in one year. "It was largely due to a cadastral system that 1949 land reform legislation was quickly and effectively implemented," A.Y.C. Koo, Land Reform in Taiwan, (n.p., Agency for International Development, June 1970), p.4.

14. Although Presidential Decree 27 called for the establishment of "family size" holdings of 3 hectares irrigated or 5 hectares rainfed, this proved to be infeasible. Consequently, the practice has been to allocate estates among tenants on the basis of existing occupancy. Another aspect of the reform which has been altered with implementation has been the condition that landlords could retain up to 7 hectares. For tenanted holdings above 24 hectares a policy of zero retention for the landlords has been enforced; however, for those landlords with holdings below 24 hectares, this practice is being modified. The lack of authoritative guidelines has also resulted in the need for clarification regarding such problems as: (a) the definition of rice and corn tenants for holdings where mixed farming is being practiced, and (b) the status of home lots which are not contiguous to the cultivated land or are rented from a different landlord.

15. The Government is proceeding with the identification of tenants and landlords on holdings of 7 to 24 hectares, <sup>1/</sup> but it is not clear whether the Government will exercise the option provided by Letter of Instruction No. 143 (October 31, 1973) of exempting those landlords who are completely dependent on the land for their livelihood from having their land transferred. The DAR undertook a landlord identification survey to determine the number of absentee owners in the 7 to 24 hectare range and their financial dependence on the land. The results indicate that about 96 percent of the landlords are absentee, 75 percent of these have never cultivated their land, and 70 percent are entirely or almost entirely (70-100 percent) dependent on the land for their income. However, the survey does not indicate how many of these absentee landlords are actually heads of households.

16. Land Valuation: The 1972 reforms established that the valuation of the land, using a method similar to that employed in the Republic of China, would be 2.5 times the average production for three normal crop years prior to October 1972, at the official price of ₱ 35 per cavan. <sup>2/</sup> As of December 1, 1975, the land valuations received by the DAR covered about 37,000 tenants and 50,000 hectares. Initially, valuation was to be undertaken voluntarily by the landlords and tenants through a Landlord-Tenant Production Agreement. As discussed below, in practice, many landlords have been boycotting the valuation procedure and, consequently, the responsibility has been given to the Barrio Committees on Land Production.

17. Organizationally, the Barrio Committees on Land Production are made up of the barrio captain and a DAR official, as well as elected representatives of the tenants, owner-cultivators, landlords and the barrio

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<sup>1/</sup> Letter of Instruction 221, November 16, 1974, and DAR Circular 23, December 13, 1974.

<sup>2/</sup> In practice, land valuations have been ranging from ₱ 6,000 to ₱ 12,000 for irrigated land and ₱ 4,000 to ₱ 6,000 for rainfed, which would mean the price being used is substantially higher than ₱ 35 per cavan. It has been suggested that a negotiated price may be replacing the official price.

Samahang Nayon. The barrio committees determine the average production for each holding based on the data received from the DAR field teams, interviews with farmers, landlords, rice thresher operators, rice millers, and others, and by holding public hearings. As of December 1, 1975, some 3,000 barrio committees had been organized out of a total of about 9,500.

18. The delay in the valuation procedure raises the question of responsibility for recording rental payments dating from October 1972, when Presidential Decree 27 was issued, until the time the tenant begins his amortization payments. In theory, this rent should be credited toward the purchase of the land. However, the landlord is unlikely to be cooperative and the tenant may or may not be in a position to keep his own records. <sup>1/</sup> While some tenants who have been issued certificates have stopped paying their rents, others are making rental payments without being able to credit them toward amortization.

19. Certificates of Land Transfer: The issuing of Certificates of Land Transfer proceeded at a fairly rapid pace during 1973, but beginning in 1974, the pace slowed considerably. By the end of 1973, certificates had been issued to about 144,000 tenants; by December 1975, the number of tenants covered was only about 208,000 or 50 percent of those on holdings above 7 hectares. The decline in the number of certificates issued was due in part to landlord resistance; the difficulties created by inadequate records of ownership, yields, and tenancy; and administrative bottlenecks. There are indications, for example, that from 40 to 60 percent of the certificates which have been issued have not been delivered to the respective tenants; some 30 percent of these pending certificates are believed to be for holdings below 7 hectares which are exempt from the land transfer, but other certificates have been delayed by incorrect land use classification, misspelled names, or legal disputes.

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<sup>1/</sup> Hugh L. Cook, evaluating the effects of the 1954-55 reforms, observed that: "Spot checks in which the author participated showed that only a small percentage of the tenants even know the law, that they keep no records of production or consumption credit received from the landlord, and that they merely turn over the crop at the end of the year according to the landlord's records and begin to borrow again." "Land Reform and Development in the Philippines," Land Tenure, Industrialization and Social Stability (Milwaukee: The Marquette University Press, 1961), p. 173.

20. The DAR is attempting to correct the errors in the distribution of certificates and to streamline Operation Land Transfer by: (a) issuing the certificates simultaneously with the land valuations and the amortization schedules, and (b) instituting a receipt system to verify and document their delivery to the tenants. Land titles are also being required before the Bureau of Land's map sketching operation begins in order to ensure greater accuracy. These measures should eventually help to improve administrative efficiency in handling individual cases, but in the short run, they are resulting in even greater delays and are partly responsible for the slowdown in the implementation of the program.

21. Transfer of Land Titles: With administrative problems and landlord resistance causing serious delays in the implementation of the land reform program, it is not surprising that the compensation and amortization payments have also been proceeding more slowly than originally expected. The 6,000 hectares covered in 1974 were far below the Government's target of 100,000 hectares. Although the number of landlords receiving compensation is still quite small relative to the total, considerable progress was made during 1975. At the end of 1974, compensation covered about 88 landlords, 3,000 tenants, and approximately 6,000 hectares. By the end of November 1975, the number of landlords covered had increased to nearly 600, the number of tenants to nearly 17,000, and the area covered to about 31,000 hectares. This stage of the agrarian reform program is largely dependent on the progress of land valuations and the settlement of legal disputes over tenancy rights and ownership. In one province alone, it was estimated that as many as 30 percent of the titles may have been registered in the name of deceased persons.

#### Implementation of the Leasehold System

22. The majority of the tenanted rice and corn holdings are less than 7 hectares in size. In this category there are about 56 percent of the tenants, 87 percent of the landlords, and 46 percent of the reform area. The original intention was to convert these tenanted holdings to freehold status, but in 1974 the Government indicated that holdings of 7 hectares and below would be exempt from the land transfer operation and would be placed under a leasehold system. The advantage of a leasehold status over sharecropping is the security of tenure and the legal establishment of a fixed rent. The basic law for the leasehold system is the 1963 Agrarian Reform Code which sets the maximum rent at the equivalent of 25 percent of the average normal harvest, after deducting production costs, for the three crop years preceding the date of the contract.

23. Experience with other land reform programs indicates that rent reductions do not readily lend themselves to enforcement. 1/ Inexperience

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1/ "Because of all the avenues for evasion, tenancy laws are either show-pieces full of loopholes or bulky and extremely complicated documents that would be incomprehensible to the tenants even if they were literate." Gunnar Myrdal, Asian Drama, Vol. II ((New York: Pantheon, 1968), p. 1324.

with legal procedures on the part of many tenants, the structure of rural society and problems with registration and the supervision of rents are complicating factors which would make the implementation of a leasehold system extremely difficult. It would undoubtedly impose severe demands on the DAR administrative staff and the Court of Agrarian Relations and would require a relatively large and permanent field staff.

### C. The Distributive Impact of the Program

24. The rationale for land reform has been based on two major premises: that land reform would help raise productivity by providing the incentive of ownership to former sharecroppers, and that it would have a beneficial impact on the distribution of income in rural areas. The implications of a change in tenure status for farm productivity are not clear, but there is some evidence to suggest that it may have little, if any, effect on output. For example, surveys conducted in Central Luzon indicate that there is little or no difference in productivity between a tenanted and an owner-cultivated farm. 1/ The real constraint on productivity in rice and corn areas is the supply of supporting services and access to irrigation. Thus, significant changes in yields will depend primarily on improving access to production inputs. 2/ As part of the reform program, the Government has decreed that a prerequisite for transferring land titles to tenants is their membership in a recognized farmers' cooperative, which will provide marketing facilities, credit, and other production inputs. 3/

#### Amortization and Tenant Incomes

25. Presidential Decree 27 established that the value of the land would be equivalent to 2.5 times the average harvest of three normal crop years preceding the date of the decree, October 1972. Payments are to be made in 15 equal annual installments at an interest rate of 6 percent. On a comparative basis, in the Republic of China, the terms for amortization were 20 equal semi-annual installments at an interest rate of 4 percent:

- 1/ See the study by Mahar Mangahas, Virginia A. Miralao, and Romana P. de los Reyes, Tenants, Lessees, Owners: Welfare Implications of Tenure Changes, (Manila: Institute of Philippine Culture, July 1974).
- 2/ Kenneth Parsons writes that: "Land reform, which provides only land to the tiller, is of minor significance without access to markets and adequate credit." "Land Reform and Agricultural Development," in Land Tenure, ed. Kenneth H. Parsons, et. al. (Madison: University of Wisconsin Press, 1956), p. 10.
- 3/ "The Egyptian experience also illustrates the crucial importance of supporting land reform by programs of government assistance through cooperatives, community development programs and supervised agricultural credit. It is one of the few instances in which a distribution of land was followed by a vigorous attempt to provide guidance to new land owners on the scale needed." Philip M. Raup, "Land Reform and Agricultural Development," in Agricultural Development and Economic Growth, ed. Herman M. Southworth and Bruce F. Johnston (New York: Cornell University Press, 1967), p. 286.

in Japan, the terms of payment were 30 annual installments at an interest rate of 3.2 percent.

26. While a change in tenure status per se would probably not affect farm productivity, it could have a significant impact on the incomes of individual tenants. Assuming there is no difference in productivity, and that incomes are affected only by changes in annual payments for the land, the income of a sharecropper who had become an amortizing owner could be increased by as much as 80 percent in terms of present value over a 30-year period. 1/ (Table I.3). To put it another way, an amortizing owner's income in real terms could be double that of a sharecropper's after 15 years. For the sharecropper who had become a leaseholder with a rental payment of 25 percent of the net harvest, there could be an immediate 50 percent increase in income. 2/

27. Implementation of the present land reform (including both the transfer of titles and the enforcement of rent reductions) could benefit between 6 and 7 million people, or almost one-quarter of the entire rural population. The above calculations of potential increases in tenant income from land reform make a strong case for pressing forward with the present program. However, these calculations do not take production into account. There is very little detailed and current information available on the agricultural conditions of tenanted rice and corn farms -- that is, the extent to which they are covered by supporting services, their average yields, and the amount of area irrigated. If the productivity of the farms could be raised through improved supporting services, the long-term impact of the reform would be even more significant.

#### Landlord Compensation

28. The landlords were originally offered several different modes of payment under the 1972 reforms:

- (a) a cash payment of 10 percent and the balance in 25-year, tax-free Land Bank bonds at 6 percent interest;
- (b) payment of 30 percent in preferred shares of stock issued by the Land Bank and the balance in 25-year, tax-free Land Bank bonds at 6 percent interest;
- (c) full guarantee of the tenant's amortization payments in 15 equal annual installments;

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1/ See Technical Note.

2/ For a discussion of what the redistribution of income might mean in terms of increased consumption, see the study by M.R. Laforteza and T.M. Reyes, "How Some Rice Farmers Used Their Increased Incomes," National Food and Agriculture Council, Special Studies Division Paper No. 74-28 (September 1974, processed).

Table I.3. Estimated Net Incomes of Land Reform Beneficiaries  
(In pesos)

Year	1.0 Hectare Farms - Rainfed			2.5 Hectare Farms - Rainfed			2.5 Hectare Farm - Irrigated		
	Share-cropper	Leaseholder	Amortizing Owner	Share-cropper	Leaseholder	Amortizing Owner	Share-cropper	Leaseholder	Amortizing Owner
<u>Current Prices</u>									
1975	560	840	708	1,750	2,625	2,213	2,585	3,877	3,076
1980	884	1,325	1,355	2,778	4,167	4,269	4,138	6,207	6,183
1985	1,406	2,108	2,399	4,402	6,602	7,516	6,617	9,926	11,141
1990	2,226	3,338	4,451	6,967	10,451	13,934	10,548	15,821	21,095
2004	8,018	12,026	16,035	25,341	38,011	50,681	39,096	58,643	78,191
<u>Constant 1975 Prices a/</u>									
1975	560	840	708	1,750	2,625	2,213	2,585	3,877	3,076
1980	616	923	944	1,935	2,903	2,974	2,882	4,324	4,307
1985	682	1,023	1,164	2,136	3,203	3,647	3,211	4,816	5,406
1990	752	1,128	1,504	2,355	3,532	4,709	3,565	5,347	7,129
2004	916	1,374	1,832	2,894	4,342	5,789	4,466	6,698	8,931
<u>Present Value Over Thirty-Year Period b/</u>									
	14,536	21,803	25,941	45,613	68,419	81,433	68,960	103,439	121,996

a/ Deflation rate of 7.5 percent.

b/ Discount rate of 10 percent.

Source: See Technical Note attached to this appendix.

- (d) payment through annuities or pensions with insurance;
- (e) exchange arrangements for government stocks in government-owned or controlled corporations or private corporations where the Government has holdings.

29. Virtually all landlords have opted for a cash payment of 10 percent with the balance in Land Bank bonds. Fully guaranteed by the Government and transferable, the Land Bank bonds can be used as payment for goods under Japanese Government reparation payments or as collateral for loans in amounts up to 80 percent of their value. The loans, which carry an interest charge of 12 percent, can be granted by public sector lending institutions specifically for the purchase of stock or assets of government-owned or controlled corporations.

30. Landlord opposition to the reform has been due primarily to the compensation package with its small cash payment and the uncertainty of the Land Bank bond's value over a 25-year period. If a parcel of land were valued at P 6,000, for example, using the 10 percent cash payment formula and a discount rate of 10 percent, the present value of a P 5,400 bond including interest payments would be P 3,240, or 60 percent of its face value; at a discount rate of 15 percent the present value of the bond would be P 2,106, or about 40 percent of its face value.

31. In May 1975, the Government announced that the compensation package would be amended for landlords with holdings between 7 and 24 hectares. They would receive 20 percent in cash and an additional cash payment up to 10 percent for their children's education, insurance or housing. It was expected that this increase in the cash portion would mollify some of the landlord dissatisfaction with the land reform.

32. Compared to the rental payments landlords would receive without the reform, their loss of income from the land reform could be substantial. For the landlord whose land is transferred, the present value of the compensation payments over a 25-year period would be about one-quarter of the present value of the rental income (assuming a 50 percent rental payment) without the reform. 1/ For a landlord with a leasehold arrangement, the present value of rental income over 25 years would be about 60 percent of what it could be under a sharecropping arrangement. Due to the Government's compensation package, however, it is interesting to note that landlords in the 7 to 24 hectare range would probably be better off financially for the first five years than the landlords with holdings below 7 hectares who would retain their land under a leasehold system. 2/

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1/ See Technical Note.

2/ For landlords in the 7 to 24 hectare range whose land had been transferred, the present value of their compensation payments after five years would be about 50 percent higher than the present value of the incomes of landlords with a leasehold arrangement.

33. On a comparative basis, the form of compensation adopted in the Philippines differs from that in the Republic of China, for example, where 70 percent of the compensation was made in commodity bonds at an interest rate of 4 percent and the remaining 30 percent was paid in stocks of Government-owned industry. The stocks were invested in fixed proportions in four public corporations. The result was that 40 percent of the total compensation was ultimately invested in industry and business.

34. In Japan, the land reform became virtually confiscatory. Originally, land valuation was based on 40 to 48 times the rental value in 1938, but from the time the land was valued until the tenants actually bought it from the Government in 1950, rice prices in Japan increased 40 times. By 1950, due to inflation, the yen was worth only about one two-hundredths of its 1938 value. Consequently, the tenants paid only about 2.5 percent of the estimated value of the land. <sup>1/</sup> At the same time, the landlords received their total compensation in 30-year bonds at 3.2 percent interest.

D. Financing the Land Transfer and the Role of the Land Bank

35. Financing the transfer of ownership, including collecting amortization payments from the former tenants, is one of the main functions of the Land Bank of the Philippines (LBP). Created under the 1963 Agrarian Reform Code, the LBP has become the central financial institution for the land reform program. During the 1960s, the LBP was lacking in capital and organization; its bonds sold on the open market at a 20-40 percent discount. In July 1973, the Government increased the authorized capital of the LBP to P 3 billion and expanded its powers. <sup>2/</sup> As of December 31, 1974, the paid-up capital of the LBP was about P 800 million, which was received from the Government in the form of cash, government securities, real estate properties, and other assets. Under the 1973 charter, its main functions were defined as:

- (i) financing the transfer of ownership of farm lands covered by the Government's agrarian reform program;
- (ii) directing landlord investment into industry or other productive endeavors; and
- (iii) extending financial and technical assistance to the agricultural sector.

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<sup>1/</sup> Chao Kang, Economic Effects of Land Reform in Taiwan, Japan and Mainland China (Madison: University of Wisconsin Land Tenure Center, November, 1972, processed), p. 4.

<sup>2/</sup> Presidential Decree 251, July 21, 1973.

36. The LBP is responsible for collecting amortization payments from about 425,000 tenants, financing compensation for some 57,000 landlords, and directing landlord investments into productive uses. As of December 1, 1975, it had begun compensation payments in the amount of about ₱ 202 million to 593 landlords on behalf of some 16,400 former tenants. The most immediate problem facing the LBP in terms of the land reform program is the collection of amortization payments. Problems have arisen over the distribution of the Farmers' Undertaking to Pay the Land Bank, which is a document containing the tenant's amortization schedule. This document is supposed to be issued by the LBP simultaneously with payments to the landlords and the amortization payments are to begin one year later. In reality, the distribution of the Farmers' Undertakings is being delayed and is resulting in increasing arrears for the former tenant. As of February 10, 1975, only about 450 Farmers' Undertakings had been received by the former tenants and returned to the LBP out of a total of about 4,400 tenants who should have received them.

37. The LBP may also have difficulties arranging for the collection of payments from the former tenants. To meet this problem, the LBP has arranged for 21 private development banks and 34 rural banks to act as its agents. The payments are supposed to be guaranteed by the Samahang Nayons, but the number of tenants actually joining these barrio associations appears to be relatively small. Although the LBP itself provides the overall guarantee for the land transfer, if the collection rate is allowed to fall much below 70 percent, this could create serious financial difficulties.

38. An important link with amortization collections will undoubtedly be the LBP's responsibility for guaranteeing financial support for the reform beneficiaries to increase their productivity and incomes. Although the Masagana 99 and Masaganang Maisan programs to supply supervised production credit to rice and corn farmers have not been tied directly to the land reform, it is likely that, in the future, there will be a need to ensure that the reform beneficiaries receive this form of Government support. It is not known how many tenants are actually covered by these programs, but there are estimates that about 40 percent of the tenants are cultivating irrigated farms. For the LBP these types of programs may be essential to maintaining a reasonable collection rate.

39. In order to finance the transfer of holdings over 7 hectares, <sup>1/</sup> the LBP will be required to make initial cash payments of about ₱ 1.2 billion. Interest payments on the bonds will amount to about ₱ 277 million a year over most of the 25-year period. On the other hand, the LBP will be receiving ₱ 1.8 billion in a capital subscription from the Government as well as amortization payments in the amount of about ₱ 417 million each year. With earnings of 10 percent on its cash balance, deposits and other forms of borrowing, the LBP should not have difficulties financing the land transfer.

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<sup>1/</sup> See Technical Note.

40. The total asset value of the 826,000 hectares being transferred is about ₱ 5.8 billion (US\$773 million). For most of the medium and small-scale landlords, their land has been their only earning asset and they have no experience with investments in productive activities unrelated to their land holdings. The Government is anxious to see that as much as possible of the compensation paid to former landlords is channeled back into productive investments rather than being consumed. To provide financial and technical assistance to the landlords, the LBP has undertaken a program of short-term lending and project identification to channel landlord resources into industry or other productive ventures. The LBP will grant loans in amounts up to 80 percent of the bond's face value for investment in an approved project. Assuming that even 25 percent of the landlords use their bonds as collateral for such loans, this would mean an additional cash requirement of about ₱ 921 million. The LBP has set up a program to identify acceptable projects for investment but lacks, at the present time, the staff and network of regional offices required to carry out the program. Over a period of time, it may be possible to expand the technical and administrative capacity of the LBP to assist the landlords, but consideration should also be given to the demand which the reform beneficiaries may place upon the institution. In the short run, the LBP might coordinate its efforts with the rural banks, the Development Bank of the Philippines, and other banking institutions which, over the years, have gained considerable experience in financing a wide range of projects.

TECHNICAL NOTE

A. Estimating Net Income of Tenant Incomes

41. Estimates of the land reform's impact on tenant incomes were based on typical farm budgets prepared for a 1.0 hectare rainfed farm with an initial yield of 1.6 metric tons/hectare, a 2.5 hectare rainfed farm with an initial yield of 2.0 metric tons/hectare, and a 2.5 hectare irrigated farm with an initial yield of 2.5 metric tons/hectare. The following assumptions were used to calculate the net farm income for sharecroppers, leaseholders, and amortizing owners over a 30-year period:

- (i) Yields were assumed to be the same for sharecroppers, leaseholders, and amortizing owners. Production was increased by 2 percent per year. Cropping intensity was assumed to be 100 percent for the rainfed farms and 130 percent for the irrigated farm.
- (ii) The inflation rates used were 8 percent in 1976 and 7.5 percent from 1977 to 2004.
- (iii) The farmgate price of rice for 1975 was assumed to be ₱ 1,000/metric ton.
- (iv) Production costs were assumed to be 30 percent of the gross value of production.
- (v) The cost of hired labor was based on the maximum of 40 man-days/month and a total of 480 man-days/year of family labor. Water charges were assumed to be ₱ 25 for the wet season and ₱ 35 for the dry season in 1974.
- (vi) Annual payments in rentals and amortization were deducted to give net income. For the sharecropper, rental payments were assumed equal to 50 percent of net production; for the leaseholder, 25 percent of net production; and for the amortizing owners, payments were based on 2.5 times the gross production in 1975 valued at ₱ 1,000/metric ton of paddy, and paid in 15 equal annual installments at 6 percent interest.
- (vii) A discount rate of 10 percent was used to calculate the present value of the loss of income to landlords. The model farm budget for the 1.0 hectare rainfed farm was used and the land was valued at ₱ 4,000. The initial cash payment was assumed to be 30 percent of the land value and the remaining 70 percent was paid in Land Bank bonds with a 6 percent interest rate and a maturity of 25 years. It was also assumed

that a loan with a 10 percent interest charge was made to the landlords which was equivalent to 80 percent of the value of the bonds and that there was a 15 percent return on the investment made with this loan.

B. Financing the Land Reform

42. Estimates of the LBP's ability to finance the transfer of 826,000 hectares were based on the following assumptions:

- (i) Holdings of 24 hectares and above (10 percent cash and 90 percent bonds) were transferred over a four-year period:

<u>Year</u>	<u>Hectares</u>
1975	50,000
1976	100,000
1977	200,000
1978	49,000

Holdings of 7 to 24 hectares (30 percent cash and 70 percent bonds) were transferred over a three-year period:

<u>Year</u>	<u>Hectares</u>
1978	151,000
1979	200,000
1980	76,000

- (ii) The value of the land was set at P 7,000/hectares in 1974 prices.
- (iii) The Government's capital subscription to the Land Bank were assumed to be P 800 million in 1974 and it was assumed that an additional P 200 million was paid by the Government annually from 1975 to 1979.
- (iv) It was assumed that earnings by the LBP on the current cash balance were 10 percent.
- (v) The estimated collection rate of tenants' amortization payments was 70 percent.
- (vi) It was assumed that the bonds held by the landlords were redeemed at the end of the 25-year period.

Appendix II

THE ROLE OF ENERGY IN THE PHILIPPINE ECONOMY

1. Imported petroleum provides more than 90 percent of the Philippines' total energy requirements. Because of this extreme dependence, the sharply increased costs of petroleum crude since 1973 have had a major impact on the Philippine economy. The most visible impact has been in the balance of payments. According to the trade statistics of the Central Bank of the Philippines, imports of petroleum crude and products were about 69 million barrels in 1973 and total payments for these imports were about US\$187 million f.o.b., or 12 percent of the value of all imports. The volume leveled off in 1974 due to the restriction of supplies in the early part of the year and the effects of substantially higher prices for oil and oil-intensive products. Nevertheless, the value of petroleum products in 1974 rose to about US\$650 million, the equivalent of 21 percent of total imports in that year. This US\$460 million rise in payments accounted for 30 percent of the total increase in import payments in 1974. This increase was a major factor in the sharp deterioration of the Philippines' external trade account (from a surplus of about US\$270 million in 1973 to a deficit of about US\$420 million in 1974) both directly, and indirectly through its effects on the prices of imported petroleum-based chemical products. As a percentage of GNP, petroleum imports rose from 1.8 percent in 1973 to 4.5 percent in 1974.

2. The high cost of petroleum imports and the prospect of their rapid growth to meet the demand for energy has spurred the Government to reassess energy policies in the Philippines. In 1974 a new energy plan was introduced. Although petroleum exploration is being stepped up, the plan assumes that commercial quantities of oil will not be discovered in the Philippines. Thus, the main objective is to reduce the country's dependence on imported petroleum to 76 percent of total energy needs by 1985 and to 70 percent by the 1990s. These are very ambitious goals given the present dependence on petroleum products. This objective is to be accomplished by: (a) accelerating the development of nuclear, hydroelectric, and geothermal power sources and reducing the dependence on oil-fired thermal plants; and (b) achieving savings in other sectors, particularly in transportation and industry, which use 80 percent of all energy consumed, by conservation measures and improvements in energy efficiency. The question is to what extent the Philippines can reduce its dependence on imported petroleum during the next decade or so.

3. According to an analysis of trends in energy use during the coming decade, total consumption of energy would probably grow at about 9 percent a year if GNP increases by 7 percent a year in real terms during 1975-85. By 1980, for example, consumption may be about 16 million tons of oil equivalents, and in 1985 about 28 million tons (Table II.1). The present consumption is about 10 million tons.

4. Given the limited natural energy base of the Philippines and the long periods of time required to develop alternative energy sources, this demand for energy will have to be met mainly with imported petroleum, at least until the mid-1980s, even if the program for developing alternatives

Table II.1. Actual and Projected Domestic Consumption of Energy

Source	Energy Consumption (In millions of tons of oil equivalent)						Average Annual Increase (In percent)	
	Actual			Projected			1960-73	1973-85
	1960	1965	1970	1973	1980	1985		
Petroleum products (net imports)	2.62	4.51	8.15	9.18	14.72	23.20	10.1	8.0
Hydroelectric	0.29	0.41	0.50	0.61	0.99	2.92	6.0	13.9
Coal	0.10	0.07	0.03	0.04	0.10	0.10	-6.8	7.9
Geothermal	...	...	...	...	0.19	0.81	--	--
Nuclear	...	...	...	...	...	0.64	--	--
Total	3.01	4.99	8.68	9.83	16.00	27.67	9.5	9.0

Note: The following conversion factors were used to compile this table:

1 million tons of oil =  $7.530 \times 10^6$  barrels of oil;

1 million tons of oil =  $1.430 \times 10^6$  tons of coal;

1 million tons of oil =  $.400 \times 10^4$  gigawatt hours.

The last is the estimated conversion ratio of a modern power station.

Source: Estimate based on information supplied by the Petroleum Institute of the Philippines, the National Power Corporation, and the Central Bank.

is fully implemented. On the whole, the substitution possibilities are very limited in the short and medium-term, or until about 1980. While greater efficiency and conservation in energy use may be feasible in some cases, this will be of little significance by itself, and the scope for saving energy by curtailing its luxury uses is limited. Significant changes in the use of petroleum products are likely to occur only through incorporating energy-saving technology in some sectoral investments. Such changes are unlikely to be effective prior to 1980. Consumption of petroleum products is likely to increase by 8.5 percent a year during 1974-80, and by 1980, imports would be about 110 million barrels (including petroleum products), or 93 percent of the total energy consumed in the Philippines. Thereafter, the Government's program to accelerate the development of hydroelectric, geothermal, and nuclear power should begin to show results. By 1985, consumption could approach 180 million barrels, or 89 percent of total energy consumption. Even if this noteworthy target is achieved, however, the Philippines' substantial dependence on petroleum as a source of energy will continue for at least another decade.

5. There are reasonable prospects for discovering petroleum in the Philippines, and the Government has been promoting more oil exploration during the past few years. However, even if commercial fields were discovered in the near future, the Philippines would still have to import the bulk of its petroleum needs until the mid-1980s. Using the current World Bank staff projections for the price of petroleum crude, <sup>1/</sup> the value of petroleum imports would rise to about US\$1.7 billion f.o.b. in 1980, for example. As the analyses in Chapters 8 and 11 of the main report indicate, it will require a number of years for the Philippine economy to complete a reasonably smooth transition to a point where these higher costs have been fully absorbed. Essentially, it involves increased investments in the export sector, in import-replacing industries and in alternate sources of energy. Before we consider the latter program, it may be worthwhile to review the past trends in energy production and consumption in the Philippines.

#### Energy Sources and the Petroleum Sector

6. The Philippines has only limited known natural energy resources. These include hydroelectric, coal, natural gas, and geothermal energy. The hydroelectric potential is currently estimated in the range of about 4 - 7 <sup>2/</sup> gigawatts (GW), of which 582 megawatts (MW) is being utilized and 300 MW is under construction. Coal reserves are estimated at 44 million tons, but the coal is geologically young with a low heating value. Production has been

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<sup>1/</sup> World Bank, Price Forecasts for Major Primary Commodities, Report No. 814 (Washington, July 1975).

<sup>2/</sup> The International Atomic Energy Agency in 1973 estimated the potential of hydropower on Luzon and Mindanao to be 3.7 GW, while M. Lechuga in an article entitled "Actual and Potential Utilization of Hydroelectric Power in the Philippines" (Manila, n.d.) estimated the potential of hydropower to be 6.7 GW.

declining and is currently about 50,000 tons a year. This trend is likely to be reversed with the increased cost of petroleum, but the contribution of coal to energy supplies is expected to continue to be quite small for the foreseeable future. Reserves of natural gas are presently estimated at 250 million cubic feet. There is no commercial production at present, but plans are being made to develop this resource. Geothermal energy is estimated at about 1.3 GW and strenuous efforts are now being made to develop the Tiwi and Leyte geothermal fields.

7. Since 1960 the consumption of energy has increased at an average rate of almost 10 percent a year, and in 1973, 9.8 million tons of oil equivalents were consumed (Table II.1). Two aspects of the Philippines' use of energy over the past decade are worth noting: first, the extreme and growing dependence on petroleum, which accounted for 87 percent of energy consumption in 1960 and 93 percent by 1973; second, the rapid growth of energy consumption relative to GNP. During the 1960s, when GNP in real terms was increasing at about 5 percent a year, the elasticity of energy consumption with respect to GNP was about 2.2. Since 1969 the growth in petroleum imports has slowed down appreciably because of the sluggish growth in the economy during 1970-72, and the effects of the higher oil prices since late 1973. (The elasticity of energy consumption was only 0.7 during 1970-73, for example. <sup>1/</sup>) In 1973, petroleum crude accounted for about 98 percent of imports, and oil producers in the Middle East provided 85 percent of the Philippines' crude oil requirements (Table II.2).

Table II.2: Net Imports of Petroleum Products

Category	1960	1965	1970	1973	1974
<u>Volume</u> (in millions of barrels)					
Exports	...	2.5	8.2	0.9	0.3
Imports	19.7	36.5	69.6	71.0	68.2
Crude	14.0	34.0	67.5	69.5	61.8
Other products	5.7	2.5	2.1	1.5	6.4
Net imports	19.7	34.0	61.4	69.1	67.9
<u>Value</u> (in millions of US dollars, c.i.f.)					
Exports	...	6	17	16	17
Imports	74	91	142	228	653
Crude	27	71	124	208	573
Other products	47	20	18	20	80
Net imports	74	85	125	212	636

Source: Petroleum Institute of the Philippines and the Central Bank.

<sup>1/</sup> The elasticity calculation is sensitive to short-term fluctuations in energy consumption and output growth, but the relatively high average elasticity of 1.7 for 1960-73 as a whole is typical of a range of lower income countries.

9. Only very limited oil exploration activity has been undertaken in the Philippines in the past. The Oil Exploration and Development Act, decreed in 1972, introduced a service contract arrangement for local and foreign interests willing to engage in exploration. The new contract arrangements provide substantial incentives for investors and this has helped increase the interest of foreign companies in exploration in the Philippines. Twelve service contracts, covering an area of about 6.7 million hectares, have been awarded, mostly offshore in the Sulu Sea area. In addition, the Philippine National Oil Company has itself been engaged in onshore exploration in the Cagayan Valley. The twelve service contracts signed by the Petroleum Board involved expenditure commitments of around US\$100 million. This exceeds the total amount spent on petroleum exploration in the last twenty years. Only two wells have been drilled so far and both have been dry. At present only one offshore rig is active, but hydrocarbon tests have been encouraging. A few small rigs are also operating onshore in the Visayas.

10. The prospects for an oil discovery in the Philippines are believed to be good. Significant amounts of seepage have been observed in many onshore areas. Present offshore drilling activity ranges from an area near the coast of Borneo along Palawan to the Calamian Group. However, even if an oil discovery is made in the near future, production of crude in commercial quantities could not occur until the mid-1980s. <sup>1/</sup> In view of the probable future dominance of petroleum as a source of energy in the Philippines, and the apparently reasonable prospects for discovering oil, methods to accelerate the rate of exploration should be examined. Currently, there appears to be a shortage of drilling equipment, but a more concerted exploration program would require enlarging the supply of technical skills and risk-taking capital available in the Philippines.

11. Four refineries presently produce almost all of the refined petroleum products needed in the Philippines. The refining and marketing operations of the petroleum industry have been dominated by subsidiaries of the major international oil companies. In January 1974, however, the Government, through the recently established Philippine National Oil Corporation, purchased Exxon's shares in the Bataan refinery (whose rated capacity is 116,000 barrels a day, or 41 percent of the national total), along with all of Exxon's marketing operations. This gives the Government a substantial direct role in petroleum refining and distribution. The total rated capacity is about 284,000 barrels a day, but in 1973 actual production was about 175,000 barrels a day (excluding refinery losses and fuel). In view of the projected increase in petroleum use, the current refining capacity would only meet demand up to about 1977. The Government is therefore confronted with some major decisions about expanding the domestic refining industry. One option is to import a larger proportion of petroleum needs in the form of refined products and rely less on expanding domestic

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<sup>1/</sup> In fact, oil was struck off Palawan's north shore in early 1976, reportedly in economic quantities.

refining capacity. Another is some relatively minor expansion in existing plants, which would provide sufficient refining capacity until about 1980. A third option is a major increase in refining capacity, perhaps coupled with large investments in the petrochemical industry.

Trends in Energy Consumption

12. A breakdown of total energy use among the major consuming sectors is not available, although there is data about the consumption of petroleum products. An analysis of these data provides a good guide to the patterns of total energy consumption, in view of the dominant position of petroleum. As Table II.3 indicates, the road transport sector is the main user of petroleum, accounting for 33 percent of refinery output in 1973. The other transport modes accounted for about 8 percent in that year (almost half of which was exported). The electric power and industrial sectors accounted for about 19 percent and 29 percent, respectively. By product, about 43 percent of output was fuel oil, primarily for power and industry; 25 percent was motor gasoline; and 20 percent was diesel oil for automotive and other uses.

Table II.3: Consumption of Petroleum Products, 1973  
(In millions of barrels)

Sector	Motor Gasoline	Diesel Oil	Fuel Oil	Other	Total
Transportation	16.3	6.9	1.9	2.0	27.1
Road	16.3	5.4	...	...	21.7
Other <u>/a</u>	...	1.5	1.9	2.0	5.4
Electric power	...	0.4	11.4	...	11.8
Industry	...	4.0	13.7	1.4	19.1
Others	...	1.4	0.9	5.0	7.3
Total <u>/b</u>	16.3	12.7	27.9	8.4	65.3

/a Includes sales to international carriers, bunkering, and US military sales.

/b Excludes refinery fuel and losses during refining.

Source: Philippine National Oil Company.

13. The subsequent analysis of trends in the transport, power, industry and other sectors suggests that consumption of refined petroleum products could increase from about 65 million barrels in 1973 to about 150 or

160 million barrels a year by 1985. After taking account of refining losses, this would imply imports of about 170-180 million barrels of petroleum crude and products. As indicated above, the proportion that is imported as crude will depend on the forthcoming Government decisions about the refining and petrochemicals industries in the Philippines; for the purposes of the balance of payments exercise in Chapter 11 of the main report, imports of petroleum crude in 1985 are assumed to be about 150 million barrels.

14. Transport Sector: The Government recognizes that the future growth in petroleum consumption will depend heavily on the pattern of development in transportation. This, in turn, depends on pricing policies in the sector and future modal development, including urban mass transit systems.

15. There is little scope for energy substitution during the next decade within any transport mode, except for a continued switch to smaller automobiles. The railway system, which is located on Luzon, is very small and accounts for less than 10 percent of freight and passenger traffic. The traffic volumes are not sufficient to warrant the heavy capital costs involved in electrifying the railways. The bulk of the passenger and freight traffic in the Philippines will continue to be carried by road transportation, so the consumption of petroleum products will be closely tied to the growth in traffic volumes. The latter will be affected by changes in petroleum prices and gasoline taxation, and by the present policy of discouraging imports of large automobiles. A plausible rate of growth for the vehicle fleet may be 8-9 percent a year; assuming that possible improvements in the designed efficiency of vehicles are offset by increased congestion in urban areas, consumption of automotive fuels would probably increase by about the same rate. This would mean consumption of about 45 million barrels in 1980 and 70-75 million barrels in 1985.

16. Power Sector: The power sector currently accounts for about one-fifth of total petroleum consumption in the Philippines, and it is the main focus for the Government's efforts to reduce dependence on imported petroleum. As the more detailed analysis of the power section in Appendix III indicates, 80 percent of the current supply of electric power comes from oil-based thermal or diesel power plants. The rest is from hydropower plants.

17. Due to the large cost increases in oil-based power production, the alternatives of using hydroelectric, coal, nuclear and geothermal energy have become more attractive. The Government has, therefore, reformulated its power development program, putting more emphasis on local energy sources and nuclear power. Based on the demand considerations set out in Appendix III on the power sector, it is estimated that some 5,270 MW of additional capacity are required during the next ten years. The extent to which the National Power Corporation (NPC) will be able to increase the nonthermal component while meeting this demand is not yet certain. It may be possible to reduce the oil-based power component to almost half by 1985. This assumes the commissioning of a 600 MW nuclear power plant, 12 geothermal units with

a combined capacity of 745 MW, and 16 hydroelectric power plants with a combined capacity of 2,070 MW.

Table II.4. Actual and Projected Capacity of  
Generating Facilities

Type of Power	Amount (In megawatts)		Composition (In percent)	
	1974	1985	1974	1985
Thermal/Diesel	2,517	4,372	80.6	52.1
Hydroelectric	607	2,677	19.4	31.9
Geothermal	...	745	...	8.9
Nuclear	...	600	...	7.1
Total	3,124	8,394	100.0	100.0

Source: 1974 based on data supplied by the National Power Corporation (NPC); 1985 is Mission projection as described in Appendix III.

18. If this program is achieved, there would be a savings of 29 million barrels of oil annually by 1985 compared to an all-thermal program. This would represent a foreign exchange savings of about US\$620 million a year by 1985, or about 4 percent of the projected value of imports. If this program were implemented, consumption of petroleum products would probably grow at about 10 percent a year up to 1980 and then decrease to 2 percent a year. The sector would be consuming about 32 million barrels in 1980 and perhaps 36 million by 1985 since most of the hydroelectric, geothermal and all of the nuclear plants would be built after 1980.

19. Industrial Sector: The industrial sector consumes directly about 29 percent of the output of the petroleum industry. But, in addition, it uses about 40 percent of the output of the power sector, so that perhaps as much as 35 percent of petroleum imports are, in effect, used by industry. Within manufacturing, the light consumer goods industries, including food, beverages, and textiles, account for about 35-40 percent of the fuel and electricity consumed. The intermediate goods industries, particularly the chemicals, cement, and other non-metallic minerals industries, account for much of the remainder.

20. Substitution possibilities in the industrial sector are far more rigidly constrained by technology than those in the power sector, and the progress of technological adaption is difficult to foresee. Little direct substitution production methods can be expected apart from the use of energy-saving measures such as the use of the direct reduction process in

the proposed steel mill in place of the traditional blast furnace process, and the use of bagasse as a source of energy in sugar mills. Indirect substitution through changes in the pattern of industrial demand and output, and in the regional location of industry to areas such as Mindanao and the Visayas, where hydroelectric and geothermal energy is available, will perhaps be more important responses to the energy crisis.

21. If, in fact, output in manufacturing and mining does grow at an average of 8-10 percent a year during the next decade as described in Chapter 6, direct consumption of petroleum products in the industrial sector could reach 30 million barrels by 1980 and perhaps 50 million barrels by 1985. The outcome could be affected by Government decisions on the future development of the petrochemical industry. Major investments in petrochemicals in the 1980s, for example, could mean larger imports of petroleum in place of previously imported petroleum-based chemical products.

APPENDIX III

THE POWER SECTOR IN THE PHILIPPINES

1. The Philippine power sector, unlike that of most other countries in Asia, consists of more than 400 utilities, both public and private, most of which are very small. The National Power Corporation (NPC) dominates the public utilities while the Manila Electric Company (MECO) is the largest private utility. As a bulk supplier of electricity, NPC generates power and delivers it to small utilities and large industries, primarily those in rural areas. MECO serves the greater Manila area, and generates and distributes power to retail consumers; it also supplies some small utilities in bulk. In 1970 there were 335 privately owned and 121 municipally owned utilities, about half of which purchased power from NPC or MECO and distributed it to consumers. The other half, located in more isolated areas, had self-generating plants and provided substandard yet very costly services. A significant amount of power is also self-generated by private industry.

Power Sector Development Policy

2. In the early 1970s, the fragmented ownership of power generation and distribution facilities was becoming an increasingly important obstacle to the coordinated development of the power sector on the main islands of the Philippines. The Government, therefore, declared in Presidential Decree 40 (November, 1972) that the total electrification of the country was a national policy objective which should be achieved by establishing island grids, integrating generating systems, and consolidating electric distribution franchise systems. NPC was made responsible for the construction of national grids, the development of all future generation supplying the grids, and, ultimately, for owning and operating all generating facilities. MECO, presently the largest generating as well as distributing company, will eventually become only a distributing utility; negotiations for transferring the bulk of MECO's generating and transmission plant to the Government began in August 1975.

3. The National Electrification Administration (NEA), established in 1969, has initiated a vigorous program to provide electricity throughout the country by 1994. The strategy is to establish electricity cooperatives which will improve the supply in rural areas, integrate the small utilities, and extend services to remote areas. The Power Development Council (PDC), formed in 1970, was given responsibility for coordinating the sector and promoting its systematic development. Presidential Decree 40 expanded PDC's role to make it more effective in the planning and implementation of the electrification program and in the redirection and reorientation of the various sectors of the industry towards national development goals. Due to a lack of budgetary and human resources, however, PDC only sets basic guidelines and policies and does not play a direct role in coordinating the programs and operations of the major public utilities.

4. Presidential Decree 40 clearly defines intrasectoral responsibilities, in particular those of NPC and NEA, and, if properly implemented, will lead to better coordination in the development of the sector. However, it

has imposed tremendous managerial, financial, and technical burdens on NPC; starting from only one-fifth of today's generating plant, NPC will have to develop generation capacity to cover all future demand in the country. The Government amended NPC's charter in January 1974, raising NPC's authorized capital and the ceiling on its indebtedness; it also gave NPC more authority and independence. Continuing and timely Government support is essential if NPC is to carry out its mandate.

5. Concurrent with these changes in the organization of the sector, the Government decided to diversify energy sources for power generation. About 80 percent of the electric generation is presently dependent on imported oil. In view of the increased cost of petroleum and the uncertainties of future supply, the Government decided to accelerate the development of nuclear power and indigenous hydro and geothermal energy. The initial findings of geothermal explorations at Tiwi and Los Banos, Southern Luzon, are encouraging. High pressure steam sufficient to produce 40 megawatts (MW) of electric power has been found and the capacity of the fields is estimated at several hundred megawatts. NPC has entered into a contract with Philippine Geothermal, Inc., a subsidiary of Union Oil of California, for the supply of up to 500 MW of steam. Exploration of another geothermal field recently began on the island of Leyte. A feasibility study of nuclear power has been completed by Electrowatt of Zurich for the International Atomic Energy Agency, and NPC has concluded negotiations with United States Export-Import Bank for financing the first 600 MW unit, which NPC hopes to bring into operation in 1982. The likely impact of NPC's power development program to reduce dependence on imported oil is discussed below.

#### Demand and Supply of Electric Power

6. Information about the generating capacities and energy production of NPC and MECO is readily available, but a complete analysis of past trends in the Philippine power sector is hampered by a lack of data about the capacities and production of the small utilities and privately owned plants. The Mission estimated the capacity of the utilities and the consumption of electricity for each region in 1974 (Table III.1). The results showed that the total installed capacity in the Philippines was about 3,100 MW, of which 49 percent was owned by MECO, 21 percent by NPC, about 20 percent by private industries, and the remaining 10 percent by NEA and small utilities. Energy consumption was estimated at about 12,000 gigawatt hours (GWh).

7. The lack of comprehensive data on past trends, particularly private generation by industries, hinders to some extent a discussion of the Philippines' future power requirements. However, the Mission has estimated probable future trends in demand for each region (Table III.1).

8. The Luzon Grid: About 90 percent of the power supplied in Luzon is provided by NPC and MECO. In October, 1975, the installed capacity in Luzon for NPC and MECO was about 2,330 MW, with an energy capability of about 10,600 GWh. There was an excess capacity of energy (2,000 GWh in 1975), and peaking capacity was slightly more than adequate, with a reserve of 30 percent in 1975.

9. The power consumption in Luzon grew rapidly in the 1960s, averaging about 13 percent per annum, but slowed to about 8 percent in the early 1970s. Demand forecasts prepared by 1973 by the International Engineering Company and by MECO forecast a growth rate of 9.5 percent per annum for the rest of the decade for the NPC/MECO grid. However, the oil crisis and the subsequent economic recession had a stagnating effect on electricity demand, and, although NPC's provincial demand showed a moderate increase, power consumption in the Manila area in 1974 experienced an unprecedented decline. The latest demand forecast prepared by NPC and MECO predicts that consumption will increase at an average rate of 8.2 percent per year during 1974-75; provincial demand is estimated to rise 14 percent per annum, while demand in the Manila area is expected to grow 6 percent annually. These forecasts are based on planned industrial development outside of the metropolitan area, the historical growth pattern, the future economic outlook, and the planned expansion of the transmission grids. The estimate in general appears to be reasonable, although the forecast for the Manila area might be on the conservative side.

Table III.1 Estimated Installed Electric Capacity and Consumption, 1974

Region and Owner	Installed Capacity (In megawatts)	Energy Consumption (In gigawatt hours)
<u>Luzon</u>	<u>2,246</u>	<u>8,849</u>
National Power Corporation	501	1,979
Manila Electric Company	1,517	5,969
Other /a	228	900
<u>Visayas</u>	<u>387</u>	<u>1,405</u>
National Power Corporation	2	5
Other /a	385	1,400
<u>Mindanao</u>	<u>487</u>	<u>1,671</u>
National Power Corporation	152	421
Other /a	335	1,250
<u>Philippines</u>	<u>3,120</u>	<u>11,924</u>
National Power Corporation	655	2,405
Manila Electric Company	1,517	5,969
Other	948	3,550

/a Includes small utilities and self-generation by private industries. Utilities are estimated to represent about 30 percent and industries 70 percent.

Source: National Power Corporation and Mission estimates.

10. NPC has proposed a very ambitious program for the next 10 years in order to satisfy the estimated demand. Its program, together with MECO's ongoing projects, would increase by three times the installed capacity in Luzon--raising it from 2,246 MW in 1974 to 6,286 MW in 1985. The program clearly reflects the Government's policy of rapidly reducing the dependence on imported oil. It includes two 600 MW nuclear power projects (to be commissioned in 1982 and 1985) as well as ten geothermal units of 55 MW each.

11. If implemented on schedule, such a program would provide more than sufficient capacity to meet the projected demand, with an excess of about 40 percent above the adequate reserve level, and would enable NPC to retire more than 1,300 MW of oil-fired thermal plants by 1985. This program, however, is very costly as well as quite optimistic in estimating construction schedules, particularly for geothermal and nuclear plants. The Mission has revised this program to more closely reflect NPC's projected demand; this smaller program would require ₱ 6.6 billion in 1975 prices (or 23 percent) less than NPC's program for the period 1975-1985. Even assuming that the higher fuel cost of ₱ 150 million per year associated with the Mission's program would continue to accrue until 1995, the NPC program would be more costly than that of the Mission by ₱ 4.6 billion at 1975 prices, 1/ including capital, fuel, and operating cost (Annex A). This is mainly due to the high capital cost of the nuclear projects and the overplanting proposed in the NPC program. Careful consideration will need to be given to the relative cost and benefits of pursuing the nuclear program of the country in the future.

12. The Mindanao Grid: The existing generating capacity in Mindanao is relatively small; NPC has an installed capacity of only 152 MW. Data on the capacities of other utilities and self-generation capacity of private industries is incomplete, but the information that is available indicates that consumption of electric power from all sources, with an installed capacity of about 490 MW, was about 1,670 GWh in 1974 (Table III.1).

13. NPC has forecast its own demand to increase by an average of 28 percent per annum during the next ten years; the forecast is based on transmission expansion programs to connect small utilities to the grids and on information obtained from the Board of Investments (BOI) on prospective industrial development (Annex B). The forecast assumes that NPC would absorb the load of existing utilities and industries and, in effect, phase out a large part of their generation plant. This demand forecast appears to be reasonable in view of the potential industrial developments of an energy-intensive nature in Mindanao. 2/ NPC intends to meet this rapid growth

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1/ A present value of ₱ 3.7 billion at a 10 percent discount rate.

2/ These industrial developments include the following proposed projects: the Kawasaki iron ore sintering plant (1977), a ferro-silicon plant (1977), an integrated steel mill at Cagayan de Oro (1979), the expansion of the Iligan steel mill, four activated carbon projects, a cement plant, a pulp and paper plant, an expansion of the wood processing industry, and a bauxite processing plant.

in demand by first installing 144 MW of diesel plants before 1980; second, completing major installations on the Agus River and a base-load thermal plant between 1979 and 1984; and, later, by developing the Pulangui River and potential geothermal fields. A large installation of diesel power is required to stabilize the supply provided by the exclusively hydroelectric generation of the present system and to meet a rapid demand increase in the near future before other sources of generation became available. The program envisages an increase in NPC's installed capacity in Mindanao from 152 MW in 1975 to 1,366 MW in 1985, or ninefold in 10 years (Annex B).

14. The Visayas Grid: The present power supply in the Visayas depends almost entirely on private utilities and on self-generating industries, which have an aggregate installed capacity of about 390 MW. Demand is constrained by supply and daily blackouts are common. This situation will continue for some time and growth in energy consumption will be largely determined by the rate of capacity increase. NPC has launched a major generation development program, starting with diesel plants and proceeding to thermal and geothermal plants; the program would add 943 MW during the next 10 years (Annex C). Until 1980, however, almost 90 percent of the 418 MW planned new capacity would be diesel power, which is intended to serve the large loads of the mining sector in Cebu and Negros. The program is considered very ambitious since NPC has virtually no existing plant in the Visayas. However, even if the program were successfully implemented, the result would be a growth in total capacity of only about 13 percent a year, and this includes a moderate growth of 4 percent per annum in the capacity of private utilities and industries.

15. The Total Program: Presidential Decree 40 declared that all major development of future power generation will be carried out by NPC as discussed above; the inefficient plants presently owned by small utilities and industries will rapidly phase out as NPC's grids are expanded. However, NEA and some industries will continue to install their own generating facilities in areas where power from NPC will not be available in the near future or where utilization of process heat of some industries makes self-generation attractive. Generation by small utilities and industries, therefore, will still represent a fair portion of total generation at the end of the forecast period. Assuming that generation by such small utilities and self-generating industries will decrease from the present level of 30 percent to 15 percent in 1985, the overall growth in the consumption of electricity will increase by 10.7 percent per annum during 1974-85. Estimates of the sector's growth by region and by utility are shown in Table III.2. The high growth rates expected in Mindanao and the Visayas are due to the present low rate of electrification and to the Government's policy of dispersing industries. Per capita consumption of electricity in 1985 would reach 700 kilowatt hours (KWh) in Luzon, 580 KWh in Mindanao, and 560 KWh in the Visayas.

Table III.2 Actual and Projected Generating Capacity and Energy Production, 1974 and 1985

Region and Utility	Actual 1974	Projected 1985	Average Annual Growth Rate 1974-75
<u>Energy Production</u> (in gigawatt hours)			
<u>Philippines</u> (total)	<u>11,924</u>	<u>36,527</u>	<u>10.7</u>
Luzon	8,848	21,048	8.2
Visayas	1,405	6,980	15.7
Mindanao	1,671	8,499	13.3
<u>Installed Capacity</u> (in megawatts)			
<u>By Region</u>			
Philippines (total)	3,120	8,516	9.5
Luzon <u>/a</u>	2,250	5,097	7.7
Visayas	387	1,537	13.3
Mindanao	487	1,882	13.1
<u>By Utility</u>			
Philippines (total)	3,120	8,516	9.5
NPC	655	6,632	23.4
MECO <u>/b</u>	1,517	425	--
Other <u>/c</u>	948	1,459	4.0

/a Projections for Luzon are based on the development program worked out by the Mission and assume the retirement of 157 MW of old thermal plants.

/b MECO's major generating plants will be transferred to NPC.

/c Generating capacity of small utilities and industries has been assumed to increase at a rate of 4.0 percent per annum in each region.

Source: National Power Corporation and Mission estimates.

16. An overall growth rate of 10.7 percent would give an electricity of power consumption to GNP of about 1.5, assuming GNP growth rates of 7.0-7.5 percent. Countries at a stage of development similar to that of the Philippines normally have elasticities of between 1.5 and 2.0. Korea, for instance, uses an elasticity of 1.6 to project its electric power demand. The project growth rate of about 11 percent for the Philippines, although acceptable for system planning purposes, may be somewhat low.

Some Implications of the Program

17. The impact of the programs proposed in each of the three major areas of the Philippines are significant. Production of electricity would increase by about 11 percent per annum; installed capacity would almost triple, reaching about 8,500 MW in 1985. Besides the large increase in capacity, there would simultaneously be notable changes in the composition and sources of supply of electric power. If the program were implemented as proposed, the thermal/diesel component of installed capacity would fall from 81 percent of the total in 1974 to 53 percent by 1985 (Table III.3). This reduction would be compensated for by increases in power from hydroelectric, geothermal, and nuclear sources. However, there are financial and technical uncertainties in developing capital-intensive hydroelectric and nuclear sources and, particularly, in securing sufficient steam for planned geothermal installations. If any of these are delayed, the difference in power supply would have to be made up by oil-fired thermal plants if requirements are to be met.

18. The proposed program would also dramatically change the distribution of electricity production among suppliers. In agreement with Government policy, all major generating facilities would be constructed and owned by NPC except for the Malaya 2 project, which is currently being built by MECO but will be transferred to NPC after completion. Assuming only marginal increases in generating capacity by small utilities and self-generating industries, NPC's share of installed capacity would increase from one-fifth in 1974 to more than three-quarters by 1985 (Table III.2). The physical and financial implications of the program for NPC are discussed below.

Table III.3. Actual and Projected Sources of Electric Power, 1974 and 1985

Source	Installed Capacity (In megawatts)		Percentage Share	
	1974	1985	1974	1985
Thermal/Diesel	2,513	4,494	80.6	52.8
Hydropower	607	2,677	19.4	31.5
Geothermal	...	745	...	8.7
Nuclear	...	600	...	7.0
Total	<u>3,120</u>	<u>8,516</u>	<u>100.0</u>	<u>100.0</u>

Source: National Power Corporation and Mission estimates.

19. Implementation Capacity. The development program discussed above is a very ambitious target for NPC. Since its inception in 1936, NPC has built only six power plants. In order to meet the above projections, it will have to implement more than seventy power projects in the next ten years, including nuclear and geothermal ones. Because its construction activities in the past were sporadic, NPC relied heavily on temporary staff, even for highly professional positions such as senior engineers, in order to avoid high administrative costs during slack periods. This policy, although prudent in the past, has resulted in managerial and supervisory capability being too thinly spread over diversified activities.

20. NPC recognizes the technical and managerial burden that will be imposed by this much larger program and it has taken a number of steps to improve its implementation capacity. Regional offices have been established in Luzon, Mindanao, and the Visayas; salary scales and merit systems have been improved to make NPC more competitive with private industry; arrangements have been made to transfer engineers from other Government agencies to NPC, particularly for the newly organized Nuclear and Geothermal Division; qualified engineering consultants have been employed to meet the immediate needs for priority projects; and scholarship and training programs have been undertaken for NPC staff, although in an unorganized manner. These measures have proved effective in securing young engineers and skilled workers and should allow NPC to meet technical and managerial requirements from its own resources. However, much remains to be done to transform NPC from a project-executing entity to a well organized operating utility. The division of authority and responsibilities between the head office and regional offices emphasizes project execution, with little consideration given to planning or operation. NPC personnel, while experienced in construction works, lack experience in investment programming and in financial and organizational matters; in fact, experience is most lacking in the crucial managerial skills associated with sound public utility administration. The Bank has suggested, and NPC has agreed, that the organization of the head office be reviewed, authority and responsibility of each work unit be redefined, and a comprehensive training program be established. Since educated and skilled manpower is available in the country, measures to improve NPC's capability as discussed above should help NPC meet the requirements for the power sector. In the short term, however, there will be a shortage of qualified managerial staff.

#### Financial Implications

21. The Mission estimates that the modified NPC program outlined above would require investment outlays for generating and transmission facilities, including the acquisition of MECO plants, of about US\$6.1 billion (P 48.9 billion) in current prices (Annex D). In 1975 prices, the proposed program would require outlays of about US\$4.2 billion (P 31.6 billion), compared to actual expenditures by NPC of about P 1.5 billion in 1975 prices during 1967-75.

21. The financial implications of such an investment program are considerable. NPC currently has the largest corporate asset base in the Philippines, ₱ 2.7 billion at current prices at the end of 1975; by the end of 1985, the asset base will be ₱ 53.9 billion at current prices, or ₱ 24.9 in 1975 prices (Annex G). Because of its large size, the high foreign exchange component, and the limited funds available domestically, the major portion of the funds required for this program will have to be borrowed abroad. It is estimated that 64 percent will be borrowed, correspondingly roughly to the estimated foreign cost. NPC will require a significant increase in its equity in order to obtain such financing. A minimum equity contribution in addition to internal cash generation would be about ₱ 11.5 billion in current prices, (including ₱ 2.3 billion to finance NPC's acquisition of MECO's plants) or about one-quarter of the total cost of the program during the period. NPC's debt/equity ratio would then be about 58/42 (excluding revaluation reserve) and debt-service coverage would become adequate provided that finance for the second and subsequent nuclear units could be obtained on better terms than those for the first.

22. If tariffs are set at a level that would earn NPC an 8 percent rate of return on currently valued net fixed assets in operation, net cash generation would probably be able to contribute about 14 percent of the construction costs, including interest during construction. The financing plan based on these assumptions would be as follows:

Table III.4 Financing Plan: FY 1976-85 /a

Category	Billions of Pesos	Billion of US Dollars	Percent of total
Internal cash generation	19.1	2.5	39.0
Less: Debt service and working capital requirements	<u>13.0</u>	<u>1.7</u>	<u>26.6</u>
Internal funds available for investment	6.1	0.8	12.4
Borrowings	31.3	4.2	64.1
Equity	<u>11.5</u>	<u>1.5</u>	<u>23.5</u>
Construction expenditure	<u>48.9</u>	<u>6.5</u>	<u>100.0</u>

/a Annex E shows a detailed funds flow statement and annexes F and G show forecasted income statements and balance sheets.

23. An equity contribution of ₱ 11.5 billion would have to be provided by Government. In addition, NEA is estimated to require ₱ 1.2 billion (US\$160 million) through 1980, excluding any operating subsidies which may be required to keep cooperatives viable until break-even is achieved. This would put a significant financial burden on the Government. However, if the revenue projections shown in Chapter 10 are realized, an equity contribution of this magnitude would be possible. Additional funds may be able to be raised from the sector by changing tariffs and tariff structures. An increase in the rate of return of net fixed assets in operation from 8 percent to 10 percent would yield additional cash generation of ₱ 3 billion; the additional tariff increase required would average about 6 percent on currently forecast tariffs. Another ₱ 2.8 billion could be generated if the tariffs on Mindanao were raised to the levels on Luzon through the 10-year forecast period; the Bank has suggested that a tariff study be made to explore this possibility. Better control of receivables could yield about an additional ₱ 1 billion over the 10-year period.

24. About ₱ 31 billion (US\$4.2 billion), or 64 percent of the total capital requirement at current prices, would have to be borrowed, primarily from foreign sources. NPC has already arranged about ₱ 8 billion (US\$1.1 billion) of foreign financing in the past year, including ₱ 5 billion (US\$0.69 billion) from the United States to finance its first nuclear project.

#### Power Pricing Policy

25. Comprehensive tariff studies of the power sector in the Philippines have never been made, since the way in which the sector was organized in the past precluded such a study. Large disparities exist in the tariff levels among regions and suppliers. NPC, by its charter, has three different tariffs for its Luzon, Mindanao and Visayas regions. Tariffs on Mindanao are much lower than those on Luzon--3.08 centavos (4.1 US mills) compared to 9.5 centavos (12.6 US mills) per KWh in 1975. Small utilities selling electricity to final users also have a wide range of operating costs depending on such factors as the size of operation, load density, and source of energy. Therefore, a residential consumer of a utility purchasing cheap power from the NPC's hydroelectric system on Mindanao would have to pay only ₱ 0.12 per KWh, while another residential consumer of a small self-generating utility would have to pay as high as ₱ 0.50 per KWh. However, there are no apparent cross-subsidies between different categories of consumers except that NPC and NEA benefit from tax and duty exemptions and the lower financing costs of official aid available to them. The World Bank has suggested that a comprehensive study be made of the power sector's costs and tariffs on a marginal cost basis to enable the Government to make decisions on its power pricing policy with full knowledge of the consequences of these decisions.

**Annex A System Development Program for Luzon**

Category	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Demand Forecast</b>											
Peak Demand (MW)	1,486	1,586	1,757	1,892	2,073	2,180	2,352	2,550	2,767	2,998	3,253
Energy (Gwh)	8,609	9,236	10,394	11,202	12,322	13,001	14,078	15,266	16,564	17,957	19,659
<b>Development Program</b>											
<b>NPC Forecast</b>											
Dependable Capacity (MW)	1,934	1,934	2,201	2,609	2,672	2,724	2,978	3,750	3,802	4,482	5,304
Available Energy (Gwh)	10,615	10,615	12,350	15,100	16,660	17,001	17,636	20,130	23,403	25,140	27,200
Plant Additions	<u>Malaya 1 (T)</u> 310 MW		<u>Bataan 2 (T)</u> 150 MW	<u>Malaya 2 (T)</u> 380 MW	<u>Geo 3/4</u> 110 MW	<u>Geo. 5</u> 55 MW	<u>Kalayaan 1 (H)</u> 150 MW	<u>Kalayaan 2 (H)</u> 150 MW	<u>Tabu (H)</u> 400 MW	<u>Abulog I (H)</u> 200 MW	<u>Abulog I (H)</u> 200 MW
			<u>Pantabangan (H)</u> 100 MW	<u>Geo 2</u> 55 MW			<u>Geo 6</u> 55 MW	<u>Geo 7/8</u> 110 MW	<u>Magat (H)</u> 300 MW	<u>Geo 9/10</u> 110 MW	<u>Nuclear II</u> 600 MW
			<u>Geo 1</u> 55 MW					<u>Nuclear I</u> 600 MW			
<b>World Bank Forecast</b>											
Dependable Capacity (MW)	1,934	2,077	2,147	2,218	2,617	2,669	2,969	3,125	3,477	3,887	4,029
Available Energy (Gwh)	10,615	11,115	11,908	13,248	16,247	16,590	16,479	17,156	18,502	21,222	22,358
Plant Additions	<u>Malaya 1 (T)</u> 310 MW	<u>Bataan 2 (T)</u>	<u>Pantabangan (H)</u> 100 MW	<u>Geo 1</u> 55 MW	<u>Malaya 2 (T)</u> 330 MW	<u>Geo 4</u> 55 MW	<u>Malaysan 1/2 (H)</u> 300 MW	<u>Geo 5/7</u> 165 MW	<u>Tabu (H)</u> 400 MW	<u>Nuclear I</u> 600 MW	<u>Abulog I (H)</u> 200 MW
					<u>Geo 2/3</u> 110 MW				<u>Geo 8</u> 55 MW		<u>Geo 9</u> 55 MW

**Comparison of Present Value**  
(<sup>T</sup>n billions of pesos in 1975 constant prices)

Discount Rate (in percent)	NPC Development Program				World Bank Development Program			
	Capital	Fuel	O/M	Total	Capital	Fuel	O/M	Total
0	34.7	15.8	2.8	53.3	28.1	16.5	2.6	47.2
10	20.1	9.9	1.7	31.7	15.8	10.2	1.6	27.6
15	15.9	8.2	1.3	25.4	12.5	8.4	1.3	22.2

Notes: 1/ Geo = geothermal  
T = thermal  
H = hydroelectric

2/ "Capacity" of each project refers to installed capacity

Source: NPC and Mission estimate

Annex B. System Development Program for Mindanao  
National Power Corporation

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<u>Satisfiable Demand Forecast</u>											
Energy (Gwh)	570	1,057	1,090	1,545	2,070	2,874	3,318	4,350	5,321	6,081	6,570
<u>Development Program</u>											
Installed Capability (MW)	152	152	234	298	588	633	733	883	1,033	1,183	1,428
Available Energy (Gwh)	1,077	1,077	1,164	1,545	3,093	3,309	3,775	4,825	5,768	6,713	7,969
Plant Additions			<u>Agus VI (H)</u> <u>No. 5, 50 MW</u> <u>Diesel 1-2,</u> <u>32 MW</u>	<u>Diesel 3-6,</u> <u>64 MW</u>	<u>Agus II, (H)</u> <u>180 MW</u> <u>Diesel 7-9,</u> <u>48 MW</u> <u>DLPCC<sup>a/</sup></u> <u>62 MW</u>	<u>Agus VII (H)</u> <u>45 MW</u>	<u>Agus I (H)</u> <u>100 MW</u>	<u>Thermal 1</u> <u>150 MW</u>	<u>Agus III (H)</u> <u>150 MW</u>	<u>Agus V (H)</u> <u>150 MW</u>	<u>Pulangui II (H)</u> <u>200 MW</u> <u>Pulangui IV (H)</u> <u>45 MW</u>

<sup>a/</sup> Generating facilities of Davao Light and Power Company (DLPCC) of 62 MW will be connected to the grid in 1979.

Note: H = hydroelectric

Source: NPC and Mission estimate

Annex C. System Development Program for the Visayas  
National Power Corporation

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<u>Satisfiable Demand Forecast</u>											
Energy (Gwh)	7	7	379	1,123	1,936	2,293	2,798	3,527	3,890	4,326	4,819
<u>Development Program</u>											
Installed Capacity (MW)	2	2	104	309	363	420	495	670	740	845	945
Available Energy (Gwh)	8	8	590	1,758	2,065	2,412	2,905	3,771	3,955	4,494	5,020
Plant Additions			<u>Cebu (D) II</u> 50 MW <u>Bohol (D)</u> 11 MW <u>Aklan (D)</u> 11 MW <u>Panay (D)</u> 30 MW	<u>Cebu (D) II</u> 90 MW <u>Sipalay (D)</u> 108 MW <u>Panay (D)</u> 7 MW	<u>Sipalay (D)</u> 54 MW	<u>Panay (D)</u> 7 MW <u>Cebu (T)</u> 50 MW	<u>Tongonan (G)</u> 75 MW	<u>Cebu (T)</u> 50 MW <u>Tongonan (G)</u> 75 MW <u>Jalaur (H)</u> 50 MW	<u>Boro (H)</u> 60 MW <u>Wahig (H)</u> 10 MW	<u>Cebu (T)</u> 75 MW <u>Ulet (H)</u> 30 MW	<u>Valencia (G)</u> 100 MW

Notes: D - Diesel  
T - Thermal  
H - Hydroelectric  
G - Geothermal

Source: NPC and Mission estimate

Annex D

Investment Requirements <sup>a/</sup> of the National Power Corporation, FY76-85  
(In millions of pesos)

Region	Current Prices <sup>b/</sup>			1975 Prices		
	Generation <sup>c/</sup>	Transmission <sup>c/</sup>	Total	Generation	Transmission	Total
Luzon	31,302	3,267	34,569	19,651	2,192	21,843
Mindanao	7,831	981	8,812	4,998	917	5,915
Visayas	4,223	1,338	5,561	2,946	914	3,860
Total	<u>43,356</u>	<u>5,586</u>	<u>48,942</u>	<u>27,595</u>	<u>4,023</u>	<u>31,618</u>

<sup>a/</sup> Including interest during construction.

<sup>b/</sup> Assumed inflation rate of 8 percent per annum.

<sup>c/</sup> Including transmission lines associated with generating plants.

Annex E. Funds Flow Statement of the National Power Corporation FY1976-85  
(In millions of Pesos)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	TOTAL
<u>Internal sources of funds</u>											
Operating income	207	352	462	638	873	1,095	1,387	1,678	2,370	3,202	12,264
Depreciation	154	194	228	322	446	567	754	1,000	1,448	1,729	6,842
Total	361	546	690	960	1,319	1,662	2,141	2,678	3,818	4,931	19,106
<u>Operational requirements</u>											
Increase/decrease - working capital	-9	195	83	47	191	109	298	225	586	423	2,148
Interest charged - operations	13	38	55	152	266	474	568	729	1,398	1,490	5,183
Debt repayments	44	56	155	594	619	723	658	622	746	861	5,078
Total	48	289	293	793	1,076	1,306	1,524	1,576	2,730	2,774	12,409
<u>Internal funds available for investment</u>											
	313	257	397	167	243	356	617	1,102	1,088	2,157	6,697
<u>Capital Investment</u>											
Proposed project	...	160	233	314	247	...	...	...	...	...	954
Other construction	3,187 <sup>a/</sup>	2,419	2,827	4,174 <sup>a/</sup>	4,496	5,743	4,791	4,923	4,690	4,231	41,481
Interest during construction	145	222	368	511	684	821	1,035	1,166	718	837	6,507
Total	3,332	2,801	3,428	4,999	5,427	6,564	5,826	6,089	5,408	5,068	48,942
<u>Balance to be financed</u>											
	3,019	2,544	3,031	4,832	5,184	6,208	5,209	4,987	4,320	2,911	42,245
<u>Sources of financing</u>											
Loans	891	1,907	2,339	3,332	4,497	4,303	4,232	3,149	3,449	3,238	31,337
Equity	2,156	750	692	1,442	668	1,928	1,029	1,861	892	89	11,507
Total	3,047	2,657	3,031	4,774	5,165	6,231	5,261	5,010	4,341	3,327	42,844
<u>Cash increase/decrease</u>											
	28	113	0	-58	-19	23	52	23	21	416	599
<u>Cash at beginning of year</u>											
	38	66	179	179	121	102	125	177	200	221	221
<u>Cash at year's end</u>											
	66	179	179	121	102	125	177	200	221	637	637
<u>Debt service coverage</u>											
	1.8	1.7	1.2	0.8	0.8	0.8	0.9	1.1	1.3	1.5	1.1
<u>Internal cash ratio</u>											
	6.5	3.8	4.8	1.4	1.6	1.9	2.5	3.8	2.4	4.0	12.4
<u>Annual contribution to construction</u>											
	9.4	9.2	11.6	3.3	4.5	5.4	10.6	18.1	20.1	42.6	13.7

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a/ Includes P1516 million in 1976 and P804 million in 1979 for acquisition of MECO power plants, both assumed to be financed by equity.

Source: National Power Corporation

Annex F. Income Statement of the National Power Corporation, FY1976-85

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Revenues</b>										
Sales increase (percent)	--	31.3	19.1	21.3	9.6	14.5	13.9	9.2	2.6	8.1
Energy sales (Gwh)	7,862	10,325	12,298	14,922	16,357	18,727	21,339	23,309	23,911	25,857
Average price per Kwh	16.11	19.72	22.23	23.99	26.50	27.96	30.28	31.80	36.34	40.20
Energy revenue	1,267	2,036	2,734	3,580	4,335	5,236	6,461	7,412	8,690	10,394
Other revenue	...	...	...	...	...	...	...	...	...	...
<b>Total</b>	<b>1,267</b>	<b>2,036</b>	<b>2,734</b>	<b>3,580</b>	<b>4,335</b>	<b>5,236</b>	<b>6,461</b>	<b>7,412</b>	<b>8,690</b>	<b>10,394</b>
<b>Operating expenses</b>										
Fuel	852	1,410	1,932	2,473	2,831	3,353	4,035	4,411	4,472	4,996
Operation	54	80	112	147	185	221	285	323	400	467
Depreciation	154	194	228	322	446	567	754	1,000	1,448	1,729
<b>Total</b>	<b>1,060</b>	<b>1,684</b>	<b>2,272</b>	<b>2,942</b>	<b>3,462</b>	<b>4,141</b>	<b>5,074</b>	<b>5,734</b>	<b>6,320</b>	<b>7,192</b>
<b>Operating income</b>	<b>207</b>	<b>352</b>	<b>462</b>	<b>638</b>	<b>873</b>	<b>1,095</b>	<b>1,387</b>	<b>1,678</b>	<b>2,370</b>	<b>3,202</b>
<b>Other income (net)</b>	<b>...</b>	...	...	...	...	...	...	...	...	...
<b>Net income before interest</b>	<b>207</b>	<b>352</b>	<b>462</b>	<b>638</b>	<b>873</b>	<b>1,095</b>	<b>1,387</b>	<b>1,678</b>	<b>2,370</b>	<b>3,202</b>
<b>Interest</b>										
Charged to construction	145	222	368	511	684	821	1,035	1,166	718	837
Charged to operations	13	38	55	152	266	474	568	729	1,398	1,490
<b>Net income</b>	<b>194</b>	<b>314</b>	<b>407</b>	<b>486</b>	<b>607</b>	<b>621</b>	<b>819</b>	<b>949</b>	<b>972</b>	<b>1,712</b>
<b>Allocations of net income/dividends</b>	<b>...</b>	...	...	...	...	...	...	...	...	...
<b>Retained earnings</b>	<b>194</b>	<b>314</b>	<b>407</b>	<b>486</b>	<b>607</b>	<b>621</b>	<b>819</b>	<b>949</b>	<b>972</b>	<b>1,712</b>
<b>Financial indicators</b>										
Rate base	2,607	4,393	5,776	7,977	10,918	13,697	17,359	20,988	29,589	39,986
Rate of return (percent)	7.9	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Operating ratio (percent)	83.7	82.7	83.1	82.2	79.9	79.1	78.5	77.4	72.7	69.2
Average gross revenue - plant (percent)	33.5	35.0	36.3	35.3	31.8	30.5	29.7	27.9	23.6	21.0

Source: National Power Corporation

Annex G. Balance Sheets of the National Power Corporation  
(In millions of pesos)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>Assets</b>										
<u>Fixed assets</u>										
Plant in service	4,839	6,809	8,255	12,042	15,251	19,050	24,450	28,766	45,000	53,903
Less: Depreciation	1,283	1,580	1,934	2,411	3,049	3,860	4,923	6,318	8,271	10,661
Operating plant	3,556	5,229	6,321	9,631	12,202	15,190	19,527	22,448	36,729	43,242
Work in Progress	2,602	3,839	6,386	8,278	11,479	15,483	17,452	21,200	12,694	12,378
Investments	42	42	42	42	42	42	42	42	42	42
<u>Current assets</u>										
Cash	66	179	179	126	111	125	177	200	221	637
Inventories	121	171	207	301	381	476	612	720	1,126	1,348
Receivables	411	544	697	862	1,003	1,159	1,379	1,555	1,787	2,056
Subtotal	598	894	1,083	1,289	1,495	1,760	2,168	2,475	3,134	4,041
Other	64	64	64	64	64	64	64	64	64	64
<u>Total assets</u>	6,862	10,068	13,896	19,304	25,282	32,539	39,253	46,229	52,663	59,767
<b>Equity and Liabilities</b>										
<u>Equity</u>										
Paid in capital	3,115	3,865	4,557	5,999	6,667	8,595	9,624	11,485	12,377	12,466
Retained earnings	443	757	1,164	1,650	2,257	2,868	3,697	4,646	5,618	7,330
Revaluation reserve	1,065	1,368	1,807	2,332	3,123	4,118	5,352	6,932	8,747	11,605
Total equity	4,623	5,990	7,528	9,981	12,047	15,591	18,673	23,063	26,742	31,401
<u>Long term debt</u>										
Debt due	1,892	3,743	5,928	8,666	12,544	16,124	19,698	22,225	24,928	27,305
Total debt	1,892	3,743	5,928	8,666	12,544	16,124	19,698	22,225	24,928	27,305
<u>Current liabilities</u>										
Payables	317	305	411	623	653	795	853	912	964	1,032
Bank overdraft	0	0	0	5	9	0	0	0	0	0
Total	317	305	411	628	662	795	853	912	964	1,032
<u>Other liabilities</u>	7	7	6	6	6	6	6	6	6	6
<u>Contributions</u>	23	23	23	23	23	23	23	23	23	23
<u>Total equity and liabilities</u>	6,862	10,068	13,896	19,304	25,282	32,539	39,253	46,229	52,663	59,767
<b>Memorandum Items</b>										
Average gross plant / consumers (in thousands)	0	0	0	0	0	0	0	0	0	0
Average gross plant /gwh (in thousands)	481	564	1,633	680	834	916	1,019	1,141	1,542	1,426
Increase in gross plant (percent)	77.6	40.7	21.2	45.9	26.6	24.9	28.3	17.6	56.4	19.8
Debt/net plant (percent)	53.2	71.6	93.8	90.0	102.8	106.1	100.8	99.0	67.9	63.1
Debt - debt + equity (percent)	29.0	19.2	44.0	46.5	51.0	50.8	51.3	49.1	48.2	46.5
Current ratio	1.9	2.9	2.6	2.1	2.3	2.2	2.5	2.7	3.3	3.9
MW installed	913	1,317	1,556	2,373	2,530	3,005	3,495	3,770	4,925	5,580
Net plant/kw (in thousands)	3,895	3,970	4,062	4,059	4,823	5,055	5,587	5,954	7,458	7,749
Debt percent of debt + equity excluding revaluation	34.7	44.7	50.9	53.1	58.4	58.4	59.6	57.9	58.1	58.0

Source: National Power Corporation