5.7 Social Needs

The social sectors are defined here as those providing basic social services to people and their community. This section deals with social services in health, nutrition, family planning, education, social welfare, community development, manpower training and employment development. More details are contained in Appendix I.

5.7.1 Present conditions of social services

(1) Health, nutrition and family planning

Health facilities

The Department of Health (DOH) is the agency responsible for health promotion in the Philippines. The Region IV office of DOH maintains health services delivery directly and through its provincial health offices. The government hospitals are maintained by these regional and provincial health offices, and the Batangas City Regional Hospital is maintained by the Region IV office as the medical service center of the Region. The National Nutrition Council (NNC) is the agency responsible for nutrition development and Population Commision (POPCOM) is the executing agency of family planning.

There were 183 hospitals in CALABARZON in 1988, composed of 50 governmental and 133 private hospitals (Table 5.6). The share of government hospitals, 27.3% in the Region, is lower than the national average of 33% and the average of the Region IV of 35%. The bed capacity in the Region is estimated to be 5,797, of which government hospitals supply some 40%, again lower than the national average of 54%.

The population per bed is estimated at 1,026 in the CALABARZON region, which is higher than 672 for the Country as a whole as well as 767 for the Region IV. This ratio varies within the Region: 1,252 in Cavite, 1,302 in Rizal, 869 in Batangas, 931 in Laguna and 1,032in Quezon (Table 5.6).

The other health facilities in the Region consist of 1,005 barangay health centers, and 192 rural health centers. There were 536 physicians and 1,433 nurses/midwives in the CALABARZON provinces in 1988.

Health conditions

According to 1989 statistics, Region IV registered the fifth lowest birth rate of all the regions at 21.8 per 1,000 population, compared with the national average of 23.2 per

1,000 population. In the CALABARZON region, the birth rates are ranging from 17.5 in Cavite and Laguna to 28.9 in Rizal.

Ten leading causes of morbidity are common for the Philippines and Region IV, but different for the CALABARZON provinces. Upper respiratory tract infection is ranked the first in Cavite, Laguna and Rizal, and nutritional anemia, hypertension and parasitism are among the major causes of morbidity in these provinces. Composition of causes of morbidity in Batangas and Quezon generally follows that of the Country and Region IV.

Region IV ranked the forth lowest in crude death rate among 13 regions with 4.1 per 1,000 livebirths in 1989, lower than the national average of 4.4. The crude death rates in the CALABARZON region are ranging from 2.8 in Laguna to 5.9 in Quezon in 1989.

Infant mortality rate in Region IV was the seventh highest with 26.1 per 1,000 livebirths in 1989, compared with 25.5 in the Country. The rate varies in the CALABARZON region between 14.3 for Rizal and 35.4 for Cavite in 1989.

Maternal death rate in Region IV ranks sixth of all the regions with 0.7 per 1,000 livebirths. The rate in the CALABARZON region except is estimated to be lower than that of Region IV and the national average.

The ratio of underweight children below seven years is higher in the CALABARZON region than the Country. It ranges from 15.5% in Batangas to 22.8% in Rizal in 1989. Availability of potable water is relatively high in the Region, as indicated by ratios of households having these facilities generally above 80% of households. The major water supply facilities in the Region are of Level I consisting of point source, usually protected springs or well with no distribution system.

(2) Education

Education system

The education system in the Philippines consists of formal education and non-formal education. The formal education is divided into the four levels: pre-elementary for 2 years; elementary for 6 years; secondary for 4 years; and tertiary for 2 - 4 years.

The Department of Education, Culture and Sports (DECS) is lodged with the primary responsibility for education, and its Region IV office is the agency with the responsibility for education in the CALABARZON region. CALABARZON is divided into seven

divisions: Batangas, Cavite, Laguna, Rizal, Batangas City, Cavite City, Lipa City and San Pablo City. In each division, there is a division office of DECS to supervise the educational development in the division. The construction of school buildings is handled by the Department of Public Works and Highways.

The Department of Labor and Employment (DOLE) is responsible for informal education through the National Manpower and Youth Council (NMYC). The Department of Agrarian Reform (DAR) and Department of Agriculture (DA) are also involved in non-formal education for the rural poor.

Education facilities and enrollment

There are 2,261 schools in the Region, consisting of 1,773 elementary, 424 secondary and 64 tertiary schools (Table 5.7). The population per school at elementary and secondary levels is estimated to be 2,389 and 9,447 respectively, much higher than the national average and the average in Region IV. These are particularly high in Cavite, Laguna and Rizal which are undergoing rapid population increase.

The student/teacher ratios are estimated at 34 for elementary and 38 for secondary schools. The corresponding national averages are 31 and 30. Only Batangas has a smaller ratio at elementary level than the national average. At secondary level, all the CALABARZON provinces are worse-off than the national average.

Education performance

Major efforts of the Philippine government in education have been directed primarily at improving the elementary education. As a result, both participation rates and cohort survival rates at the elementary level improved steadily to attain 87,8% and 64.0% respectively in 1987. This performance is generally ranked high among ASEAN countries.

Participation rates of the divisions in CALABARZON are higher than the average for Region IV, except the divisions of Batangas, Lipa City and San Pablo City. All divisions in the Region attained cohort survival rates higher than the national average, although divisions of Laguna, Rizal and San Pablo City fall behind the Region IV average. Drop out ratios are below 1% in the CALABARZON divisions except Laguna, Rizal and San Pablo City, as compared with the average 1.5% for Region IV.

The number of pupils in elementary schools in CALABARZON increased from 684,829 in 1986 to 750,694 in 1988 at 4.7% per annum. This growth is faster than that in Region IV, which is 4.0% per annum in the same period.

About half of secondary schools in the CALABARZON region are private. This implies that accessibility to secondary education by the poor may be comparatively more limited in the Region.

The enrollment at tertiary, vocational and non-formal education is much higher in the Region due to recent urbanization and industrialization. Most serious concern here, however, is weak linkage between tertiary education and job opportunities.

According to DECS Region IV, non-formal education in the Region is more efficient due to positive attitude of recipients. Programs of non-formal education cover agricultural extension, family planning, applied nutrition, cooperatives, farmer's associations, community organization , and health and environmental sanitation. Methods applied in these programs range from the use of full-time workers to the use of posters, leaflets, radio and television programs.

(3) Social welfare

Social welfare programs

The Department of Social Welfare and Development (DSWD) is the Government's primary welfare agency responsible for providing interventions/opportunities to uplift the living conditions of distressed and disadvantaged individuals, families, groups and communities and enable them to become self-reliant and actively participate in national development. DSWD has three attached agencies, : the Population Commission, the National Council for the Welfare of Disabled Persons, and Council for the Welfare of Children.

There are four provincial offices and four city offices in the CALABARZON region under the DSWD Region IV office . In addition, the contributions of NGO's to social welfare activities are found to be relatively important and the coordination between the Government and NGO's are well established.

The programs in the CALABARZON region carried out by DSWD include family welfare, community welfare, child and youth welfare, women's welfare, disables persons welfare, and emergency assistance program. These programs are implemented by the regional, provincial and city offices of DSWD. Based on interviews and site surveys, these programs are designed to fit the specific conditions of each site.

Active participation of people is most essential in any social welfare program, while DSWD provides only supportive services such as lending of initial capitals, training, advice and consultation. Communities and families are important social units. To utilize these indigenous systems effectively, social welfare programs are designed as community or family based and thus mostly small.

Social welfare performance

In 1989, a total of 520,100 recipients were served by the social welfare programs, corresponding to 204% of the planned number. This is much higher than the performance rate of 156% for Region IV. The performance rate is particularly high (312%) in Rizal due to the high performance for socially disadvantaged women and victims of calamities and social disorganization.

According to the Region IV office, the CALABARZON region has a heavy load of children related cases, especially those concerning under-weight pre-schoolers. Also, the incidence of economically needy/unemployed family heads represents a major portion in the outreach for this category, while victims of recent typhoons make up most of the rest.

(4) Manpower development

Organizations

The Department of Labour and Employment (DOLE) is the primary policy, programming, coordinating and administrative entity of the Philippine Government for the development of employment and labour. Its responsibilities include (1) promotion of employment and manpower development, (2) improvement of terms and conditions of work through standard setting for labour and employment, and (3) maintenance of industrial peace through harmonious and cooperative labour-management relations. The Regional Employment and Manpower Development Committee (REMDC) was creatd to resolve the critical need for an inter-agency coordinating committee to correct growing imbalances between manpower supply and demand.

Performance

The unemployment rate in CALABARZON was 7.7% during 1985-89 on an average, one of the highest in the Country. Several factors contribute to this, including large in-migrant population, unemployment of out-of-school youth, rural-origin intra-region migration into the suburbanization areas around Metro Manila, and people dislocated by development activities.

The maintenance of industrial peace in the Philippines since the institution of the new administration has been difficult for labour officials. The number of strike notices for 1988-89 was 2,286, of which 502 materialized. These incidences are not particularly high in CALABARZON, but the further promotion of industrial peace is important to attract more investments into CALABARZON.

The formal education does not satisfy specific needs of industries. Manufacturing enterprises usually employ secondary school graduates or those of higher qualifications, and train them for 2-4 weeks for specific works.

5.7.2 Main development issues in social sectors

(1) Overall issues

As described above, levels of social services appear generally better in the CALABARZON region than the national average or the average in Region IV by most macro indicators. Incidence of poverty, however, is still fairly widespread in the Region and the ratio of underweight children is higher. These are mostly rural phenomena.

Recently, the population pressure due to in-migration from Metro Manila and other provinces are causing additional social problems in urbanized areas and their surroundings and tend to aggravate existing social problems in rural areas as well. For instance, the population per school is already much higher in CALABARZON at both elementary and secondary levels than the national average and the average in Region IV. Also the imbalance in distribution of education and health services in rural and urban areas tends to be pronounced.

To solve these social problems, a coherent approach consistent with economic development is required. For instance, improving rural access roads would facilitate the delivery of social services to remote rural areas, and will contribute to enhancing living standards in such areas by increasing marketability of agro-products. These combined effects would improve the social status of the people more effectively in the long run rather than just providing better physical facilities for social services.

(2) Health

A fundamental problem in the health sector has been the small budget allocation by the Government and concentration of health expenditure in urban areas. For the period from

1976 to 1985, the health sector received only 5% of the total public expenditure. Recent policies and strategy, therefore, emphasize efficient and accessible quality services with particular focus on the poor, the underserved/unserved and high-risk groups.

Following these national policies and strategy, the development policy of health sector in Region IV puts special stress on primary health care on community base. The basic concept of the primary health care is to prevent health problems through participation of recipients rather than to try to solve them after they occurred.

In carrying out various programs, coordination of public and private health services would be increasingly more important, including cooperation with NGO's. At the same time, programs need to be adopted to improve the skills and competence of health manpower to respond to all health needs and to reach out to high risk areas.

(3) Education

Main development issues in the CALABARZON education sector are be the following:

1) How to meet the rapidly expanding demand for education services due to urbanization and industrialization;

2) How to establish better linkages between the economic sectors and secondary/tertiary education; and

3) How to effectively resolve the imbalance in the provision of education services between urban and rural areas and between the rich and the poor for balanced regional development.

The rapid population increase is applying pressure on existing education facilities, and this situation would become worse as the Region's development accelerates. School buildings, classrooms, textbooks and other materials/facilities are already insufficient. Inadequate quality of education is another concern. The lack of sufficient budget allocation by the Government is claimed to be the most essential constraint.

More active participation of the private sector in the education will be essential to solve these problems in the future. The private sector education will be directed primarily to meeting varying requirements by industries and the urban rich. Then the education

expenditure by the Government should be channelled increasingly more to serving the urban poor and the rural people.

The present secondary and tertiary education is not geared well with the increasing and varying demand for industrialization and agro-modernization. Unemployment of the out-of-school youth is increasing partly due to weak linkages between the education and the economic sectors and also due to excessive degree consciousness of the people. Key issues here are (1) how to improve curricula to respond to the manpower requirements for industrialization and agro-modernization and (2) how to establish better demarcation between formal education and vocational training in view of meeting a widening range of requirements for development and also of providing sufficient motivation to individuals receiving education.

There are differences in accessibility to higher education between urban and rural areas. The larger share of private schools at higher education level in the CALABARZON region causes variance in accessibility to such education between the rich and the poor. Accessibility to secondary education should be improved equally over the Region by providing more facilities and improving physical accesses. To improve accessibility to tertiary education, a fundamental solution should be to enhance the overall income levels of the people in the Region.

(4) Social welfare

Social welfare activities in CALABARZON suffer from the insufficient number of trained social workers necessary for a large number of programs by DSWD. The relatively small budget allocation also hampers the program implementation. The most fundamental constraint, however, is a people's attitude to expect government services rather than initiating self-reliant activities. This is due primarily to severe economic conditions they face. Thus, the promotion of social welfare would have to go hand in hand with economic development.

(5) Employment development and manpower training

Main development issues in CALABARZON for manpower development are (1) how to complement the formal education to provide training in skills necessary for industrialization, (2) how to ensure sufficient employment opportunities for growing labour force, and (3) how to maintain industrial peace.

5.7.3 Objectives, strategy and measures in social sectors

(1) Health

Objectives and strategy

The health sector, led by DOH, has adopted policies and strategy aiming at the promotion of effective, efficient and accessible quality services with particular focus on the poor, underserved/unserved and high risk groups. Following this, and given the small budget allocation, the health sector policy of Region IV focuses on the promotion of primary health care on community base as well as overall upgrading of the quantity and quality of health services.

On the basis of these policies as well as existing conditions, objectives and strategy for health development in CALABARZON are set as follows.

1) To upgrade continuously the level of health and nutrition conditions by improving health facilities and manpower, promoting the primary health care on community base, and addressing to area specific health problems;

2) To ensure equal accessibility to health services for all the people by intensifying health services to depressed areas, improving access to existing major hospitals as well as their facilities and functions, and encouraging the involvement of the private sector in health service delivery;

3) To strengthen CALABARZON's roles as a regional health center of Region IV by establishing a regional hospital with upgraded facilities and functions, and improving health information network and mobile health services connected to other provinces; and

4) To enhance the financial and institutional capacity by improving the Government administration system, increasing budget allocation, and encouraging the involvement of NGO's and indigenous systems.

Measures

Priority programs and projects of DOH consist of the programs and projects to upgrade general health services such as immunization, maternal and child health care, family planning and nutrition program, to cope with specific health problems such as malaria,

leprosy and drug abuse, and to develop of health facilities and manpower, and special priority projects.

The special priority projects identified are (1) the upgrading of the Batangas regional hospital, and (2) the family health care development project. Profiles of these projects are contained in Attachment K.

These programs and projects will be complemented by institutional measures. First, the supervision, monitoring and evaluation system of DOH should be improved to account for program/project accomplishment, including continuous assessment and sustenance of the primary health care program. For this, a more effective health information system needs to be established.

Second, linkages with related agencies should be improved. The role of private hospitals in health service delivery is already large in CALABARZON and expected to increase further. The accessibility to private hospitals should be improved by establishing medical fares consistent with public health services and insurance systems. Also, indigenous systems and NGO's should be involved in the health development in CALABARZON with various roles.

(2) Education

Objectives and strategy

In line with the national education policy of DECS, objectives for education in Region IV have been set as (1) expansion of opportunities for education, (2) provision of adequate education in terms of manpower, facilities and materials, and (3) satisfaction of needs for socio-economic development.

Based on these as well as existing conditions, objectives and strategy for education sector in CALABARZON are set as follows.

1) To upgrade continuously the level of education by improving manpower, facilities, curricula and materials especially at the elementary and secondary levels, developing research capabilities of education staff and field personnel, and promoting complementary programs among all the institutes at the tertiary level;

2) To ensure equal accessibility to education for all the people by intensifying education services to the depressed area, improving the services in rapidly urbanizing areas, encouraging private education services to complement government schools, and strengthening scholarship and financial assistance programs for qualified students; and

3) To strengthen linkages with economic sector by gearing the elementary education to the development of basic skills, knowledge and value for social development, attaining better balance at the secondary level between academic knowledge and technical education for productive activities, adjusting the tertiary level curricula to respond to the manpower requirements, and encouraging non-formal education for practical skills for self-reliant livelihood development.

Measures

Priority programs of DECS cover all the education levels corresponding to the strategy outlined above. In addition to programs to improve public education at the elementary, secondary and tertiary levels, programs to expand education opportunities include the education service contract (ESC) for secondary level, the assistance to private secondary education (GASTPE), and scholarship for tertiary level students. Also, non-traditional courses are offered at technical/vocational level to train quality middle level technical/vocational students for industrial fishery and agricultural development.

These programs will be complemented by institutional measures. First, the administrative capacity of DECS should be enhanced to effectively implement all the education programs. Especially, the monitoring and evaluation function needs to be improved to assess program implementation, particularly for the "Bayan Ko Muna Bago Sarili" program and programs at tertiary level.

Second, linkages with related agencies should be strengthened. Involvement of indigenous systems, NGO's and other agencies will be encouraged by organizing a network of these organizations at tertiary level and technical advisory committees in all provinces in CALABARZON.

(3) Social welfare

Objectives and strategy

The envisioned CALABARZON regional development will affect social and psychological conditions of local people through both economic opportunities to evolve newly and social transformation. Programs of social welfare initiated by DSWD are expected to provide care, protection and rehabilitation to the socially disadvantaged and displaced, as a part of the overall development.

With this aim, objectives of social welfare in CALABARZON are set as follows.

1) To strengthen the self-reliance of the socially disadvantaged and displaced people by providing skills training and other supports for their self-employment and livelihood development;

2) To take special care of depressed children and victims of calamities by providing the day care services, community-based protective services, emergency shelters and other social welfare services; and

3) To improve the implementing capacity of related institutes and organizations by increased budget allocation, manpower development, coordination with other agencies and the involvement of NGO's.

Measures

Priority programs of DSWD for CALABARZON consist of the following. The self-employment assistance (SEA) aims at providing capital assistance to economically needy and socially disadvantaged individuals for the establishment of income generating projects. The practical skills development is to provide skills training to socially disadvantaged and economically needy individuals. It is supported by the establishment of training centers and the provision of training equipment.

The day care service aims at pre-school children below 6 years old for their care, protection and rehabilitation to ensure their social adjustment. A day care center will be established in every municipality. The protective service child placement provides community-based services to children with special needs due to neglect and abuse and temporary shelter facilities when necessary. The core shelter assistance is to provide typhoon-resistent "core" house units to victims of calamities.

(4) Manpower development

Objectives and strategy

Objectives and strategy for manpower development, labour and employment in CALABARZON are set as follows.

1) To expand wage employment opportunities by re-training workers with adequate training facilities to meet industrial requirements, and strengthening the apprenticeship program;

2) To create more employment in indigenous resource-based cottage industries by establishing markets for their products, developing adequate technology, and providing common service facilities;

3) To promote self-employment by coordinating efforts of government agencies and NGO's, improving credit and financing systems to support self-help activities, and facilitating marketing with improved roads, more market outlets and better product design and quality;

4) To develop skills needed for agro-modernization by improving the literacy ratio of farmers, promoting labour-intensive farming technology, and strengthening adequate science and technology manpower; and

5) To ensure workers welfare by enforcing labour standards such as wages, working hours and various compensations, and promoting industrial peace through organization of workers, mobilization of the workers' organizations toward self-reliance, and active workers' participation in labour decision-making.

Measures

Proposed development measures for manpower development, labour and employment sector of CALABARZON consist of programs proposed by the Regional Employment and Manpower Development Committee (REMDC), special priority programs and institutional measures. The programs proposed by REMDC cover training of industrial workers, supports for indigenous resource-based cottage industries, livelihood skills development, and other training, guidance and apprenticeship programs. The special priority programs consist of the Southern Tagalog manpower training and employment program and the

integrated regional livelihood development program. Profiles of these programs are found in Appendix K.

Table 5.1 Information of Main Rivers in the Study Area

River	Station Code	Catchment Area (sq.km)	Annual Ave. Discharge (cub.m/s)	Specific Discharge (cub.m/s/sq.km)	Annual Runoff (mcm/yr.)	Runoff Depth (mm)	Runoff Ratio
I. Laguna Lake basins							
1. Marikina river (Sto.nino)	407	499	30.31	0.06	958.2	1,920	0.89
2. Marikina river (San Rafael)	409	282	16.60	0.06	525.6	1,864	0.86
3. Arangilan river (San Cristobal R.)	413	87	0.64	0.01	20.1	232	0.13
4. Mabacan river (Bay R.)	415	46	1.21	0.03	38.3	833	0.38
5. Paputok river (Prinza R.)	416	8.5	0.95	0.11	29.9	3,522	-
6. Sta. Cruz river	417	103	4.74	0.05	149.6	1,453	0.63
7. Balanac river (upper)	418	116	8.72	0.08	275.2	2,373	0.82
8. Mayor river (Romero R.)	421	45	1.64	0.04	51.9	1,153	0.52
II. Taal Lake basins							
1. Ilang-ilang river	422	60	0.83	0.01	26.2	437	0.22
2. Panaysayan river (Rio Grande)	423	29	1.00	0.03	31.8	1,095	0.54
3. Balsahan river	424	22	1.35	0.06	42.9	1,949	-
4. Maragondon river	425	260	21.73	0.08	689.0	2,650	-
5. Palico river (Lian R.)	426	158	7.35	0.05	232.9	1,474	0.67
6. Molino river (Obispo R.)	427	51	2.07	0.04	65.5	1,284	0.61
7. Dacanlao river	428	40	2.22	0.06	70.1	1,753	0.84
8. Pansipit river	429	644	13.99	0.02	441.7	686	0.34
III. Quezon basins							
1. Agos river (Banugao, Infanta)	430	879	117.14	0.13	3,742.3	4,257.5	-
2. Maapon river (Sampaloc, Sampaloc)	431	88	5.78	0.07	182.3	2,071.5	0.91
3. Ibia river (Ayaas, Tayabas.)	432	15	1.80	0.12	56.9	3,790.8	-
4. Dumaca-A river (Alsam, Ayaas, Tayabas)	433	54	6.36	0.12	200.8	3,719.3	-
5. Dumaca-A river (Lakawan, Tayabas)	434	74	10.52	0.14	211.5	2,857.6	-
6. Morong river (Morong, Sariaya)	435	12	0.67	0.06	21.2	1,764.3	0.78
7. Sariaya river (Tumbaga, Sariaya)	436	6	0.28	0.06	8.9	1,485.9	0.66
8. Hibanga river (Mamala, Sariaya)	437	5	0.18	0.04	5.6	1,114.9	0.49
9. Lagnas river (Lagalag, Tiaong)	438	54	0.84	0.02	25.4	470.1	0.20
10. Bulakin river (Bulakin, Tiaong)	439	10.5	1.15	0.11	36.3	3,454.0	-

Table 5.2 Estimated Run-off Depth in Sub-basins

	Basin Name	Total Area (sq.km)	Ave.runoff depth (mm)	Total runoff vol. (mcm)		Basin Name	Total Area (sq.km)	Ave.runoff depth (mm)	Total runoff vol. (mcm)
1	Marikina R.	572.6	1,670	956	17	Small basin 3	36.9	1,350	50
2	Taytay	126.3	1,460	184	18	Looc R.	69.9	1,310	92
3	Morong R.	112.0	1,560	175	19	Lian R.	254.4	1,260	321
4	Tanay R.	68.2	1,540	105	20	Ermita R.	166.3	1,250	208
5	Pililla	83.2	1,450	121	21	Molino R.	161.3	1,250	202
6	San Antonio R.	297.9	1,440	429	22	Dacanlao R.	199.1	1,180	235
7	Small basin 1	50.6	1,450	73	23	Pansipit R.	656.0	690	450
8	Pangil R.	105.0	1,450	152	24	Small basin 4	59.5	990	59
9	Sta.Cruz	623.2	1,550	966	25	Small basin 5	23.8	1,150	27
10	Los Banos	248.9	1,370	341	26	Kalumpong R.	675.4	1,230	831
11	San Juan R.	212.7	1,190	253	27	Rosario R.	343.8	1,320	454
12	San Cristobal	413.7	1,140	472	28	San Pablo	246.3	1,390	342
13	Small basin 2	111.1	1,330	148	29	Bolbok R. (Malaguin R.)	496.8	1,340	666
14	San Juan (Metro Manila)	115.7	1,450	168	30	Laguna lake	900.0	-	3,200 *
15	Cavite north	649.4	1,230	799	31	Taal lake	240.0	-	>8,000 *
16	Maragondon R.	366.6	1,370	502					

* estimated lake water volume

Table 5.3 Roads in CALABARZON, 1989

Province	Area	Road by Administration (km.)				Total
		National	Provincial	City/Mun.	Barangay	
Cavite	Cavite City	10	-	56	10	75
	Tagaytay City	40	-	24	68	132
	Trece Martires City	47	-	13	74	135
	Districts	207	430	80	584	1,300
Sub-total		304	430	173	736	1,642
Laguna	San Pablo City	39	-	-	82	121
	Districts	307	252	147	563	1,269
Sub-total		346	252	147	645	1,390
Batangas	Batangas City	73	-	28	139	239
	Lipa City	34	-	16	161	211
	Districts	415	1,099	233	1,935	3,682
Sub-total		522	1,099	277	2,235	4,133
Rizal		254	67	143	792	1,256
Quezon		692	355	273	1,869	3,189
Total		2,118	2,203	1,013	6,277	11,610

Source: DPWH, Region IV

Table 5.4 National Roads by Surface Type in CALABARZON, 1988

Province	Concrete		Asphalt		Gravel		Earth		Total	
	km	%	km	%	km	%	km	%	km	%
Cavite	54.9	18.1	235.1	77.3	13.9	4.6	-	-	303.9	100
Laguna	142.6	41.2	121.0	35.0	82.5	23.8	-	-	346.1	100
Batangas	52.5	10.0	384.5	73.7	74.7	14.3	10.2	2.0	521.9	100
Rizal	123.6	49.8	97.7	39.4	26.7	10.8	-	-	248.0	100
Quezon	197.7	28.6	39.8	5.7	414.6	59.9	40.0	5.8	692.1	100
Total	571.3	27.1	878.1	41.6	612.4	29.0	50.2	2.4	2,112.0	100

Source: DPWH Region IV

Table 5.5 Telephone Densities, Number of Telephones and Main Telephone Lines

(a) With respect to Number of Telephones

Region	No. of Telephones (per 100 person)	Population (x 1,000)	Population Share (%)	No. of Telephones	Telephone Share (%)
NCR	8.13	7,768	12.9	631,183	75.5
Region 1	0.38	4,214	7.0	16,021	1.9
Region 2	0.06	2,903	4.8	1,801	0.2
Region 3	0.52	6,000	10.0	30,948	3.7
Region 4	0.57	7,899	13.1	45,267	5.4
Region 5	0.16	4,293	7.1	6,928	0.8
Region 6	0.56	5,556	9.2	31,107	3.7
Region 7	0.74	4,531	7.5	33,386	4.0
Region 8	0.07	3,302	5.5	2,185	0.3
Region 9	0.25	3,127	5.2	7,796	0.9
Region 10	0.20	3,526	5.9	6,929	0.8
Region 11	0.39	4,732	7.0	18,495	2.2
Region 12	0.14	2,871	4.8	3,977	0.5
Philippines	1.38	60,722	100.0	836,023	100.0

(b) With respect to Number of Main Lines

Region	No. of Main Telephone Lines (per 100 person)	Population (x 1,000)	Population Share (%)	No. of Main Telephone Lines	Main Telephone Line Sahre (%)
NCR	5.73	7,768	12.9	445,009	67.5
Region 1	0.68	4,214	7.0	28,680	4.4
Region 2	0.22	2,903	4.8	6,498	1.0
Region 3	0.63	6,000	10.0	37,719	5.7
Region 4	0.49	7,899	13.1	38,581	5.9
Region 5	0.17	4,293	7.1	7,450	1.1
Region 6	0.43	5,556	9.2	23,972	3.6
Region 7	0.61	4,531	7.5	27,510	4.2
Region 8	0.14	3,302	5.5	4,500	0.7
Region 9	0.20	3,127	5.2	6,350	1.0
Region 10	0.21	3,526	5.9	7,490	1.1
Region 11	0.44	4,732	7.0	20,948	3.2
Region 12	0.13	2,871	4.8	3,850	0.6
Philippines	1.09	60,722	100.0	658,557	100.0
CALABARZON					
Cavite	0.80	1,076	23.6	8,442	25.0
Laguna	0.90	1,289	28.2	11,639	34.5
Batangas	0.30	1,432	31.4	4,327	12.8
Rizal	0.38	768	16.8	2,882	8.5
Quezon	0.45	1,427	23.8	6,470	19.2
Total	0.57	5,992	100.0	33,760	100.0

SOURCES: POPULATION - NSO POPULATION PROJECTION DATA FOR 1989
TELEPHONE DATA - DOTC STATISTICS AS OF 1989

NOTE: The number of main telephone lines is assumed to be equal to the present capacity of exchanges.

Table 5.6 Number of Hospitals and Bed Capacity

Area	1987 Population	Hospitals						Population Per Bed
		Government		Private		Total		
		Number of Hospitals	Bed Capacity	Number of Hospitals	Bed Capacity	Number of Hospitals	Bed Capacity	
Philippines	56,461,352	581	46,330	1,173	40,491	1,754	86,821	650
Metro Manila	7,203,430	32	11,525	155	13,262	187	24,787	291
Region IV	7,549,512							
CALABARZON	5,756,251	49	2,716	145	3,698	194	6,414	897
Cavite	1,022,000	10	871	18	582	28	1,453	703
Laguna	1,238,906	8	455	36	633	44	1,088	1,139
Batangas	1,378,108	12	645	43	1,035	55	1,680	820
Rizal	822,417	4	170	18	744	22	914	900
Quezon	1,294,820	15	575	30	704	45	1,279	1,012

Area	1988 Population	Hospitals						Population Per Bed
		Government		Private		Total		
		Number of Hospitals	Bed Capacity	Number of Hospitals	Bed Capacity	Number of Hospitals	Bed Capacity	
Philippines	57,769,365	579	46,236	1,187	39,707	1,766	85,943	672
Region IV	7,779,592	83	6,020	152	4,127	235	10,147	767
CALABARZON	5,946,510	50	2,365	133	3,432	183	5,797	1,026
Cavite	1,063,923	9	380	16	470	25	850	1,252
Laguna	1,282,393	9	535	27	843	36	1,378	931
Batangas	1,409,995	12	675	41	947	53	1,622	869
Rizal	869,826	5	200	19	468	24	668	1,302
Quezon	1,320,373	15	575	30	704	45	1,279	1,032

Sources: National Statistics Office, DOH Region IV Annual Report, Population Census in 1990, NSO

Table 5.7 Number of Schools, Teachers and Enrollment

Area	1987 Population	No. of Schools										No. of Enrollees								
		Public			Private			Sub-Total			Total	Public			Private			Sub-Total		
		Elem.	Sec.	Ter.	Elem.	Sec.	Ter.	Elem.	Sec.	Ter.		Elem.	Sec.	Ter.	Elem.	Sec.	Ter.	Elem.	Sec.	Ter.
Philippines	56,461,352	32,000	3,307	428	1,544	2,103	1,178	33,544	5,410	1,606	40,560	8,964,804	2,090,073		636,518	1,404,387		9,601,322	3,494,460	
Metro Manila	7,203,430	457	104	19	302	229	279	759	333	298	1,390									456,456
Region 4	7,549,512	3,818	463	51	254	331	126	4,072	794	177	5,043									75,043
CALABARZON	5,756,251	2,789	304	24	408	242	61	3,197	546	85	3,828	844,003	172,178	2,117	42,987	144,936	54,906	886,990	317,114	
Cavite	1,022,000	341	44	3	99	39	9	440	83	12	535	151,712	45,440	315	9,560	22,584	10,359	161,272	68,024	
Laguna	1,238,906	445	69	5	135	65	15	580	134	20	734	174,142	34,763	1,015	12,668	27,001	18,460	186,810	61,764	
Batangas	1,378,108	1,012	101	2	67	66	16	1,079	167	18	1,264	206,666	41,247	162	10,135	48,440	21,033	216,801	89,687	
Rizal	822,417	236	14	2	65	30	10	301	44	12	357	111,124	11,971	625	5,522	24,299	5,054	116,646	36,270	
Quezon	1,294,820	755	76	12	42	42	11	797	118	23	938	200,359	38,757	0	5,102	22,612	0	205,461	61,369	

Source: DECS Region IV, NSO

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 5.1

- MAJOR WATERSHED
- MINOR WATERSHED
- OTHER SMALL WATERSHED
- RIVER
- PROVINCIAL BOUNDARY
- MUNICIPALITY
- EXISTING RAINFALL STATION
- EXISTING STREAM GAUGING STATION

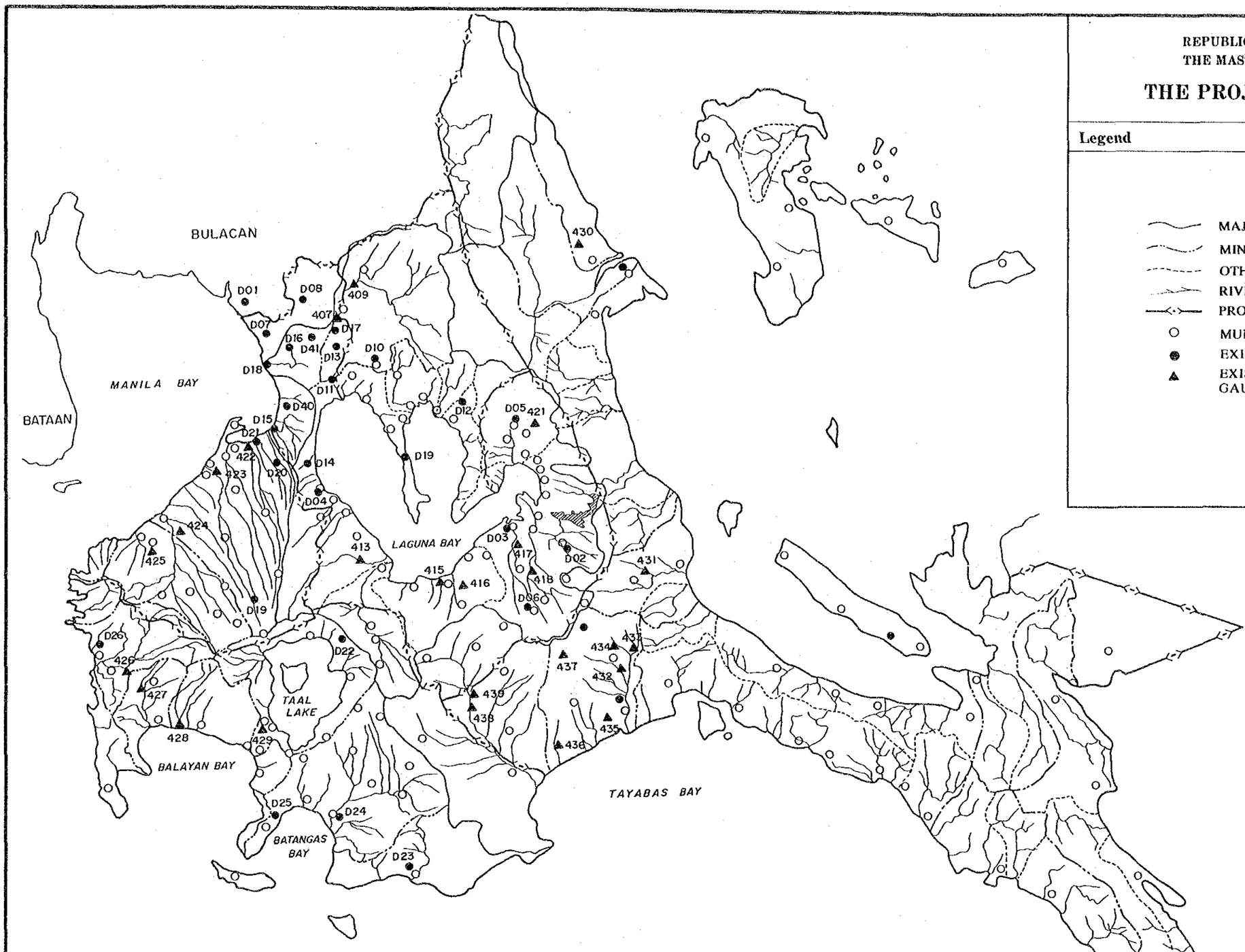


Figure 5.1

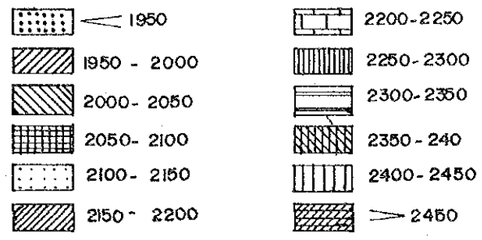
Basin Map of CALABARZON

Department of Trade and Industry
Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 5.2



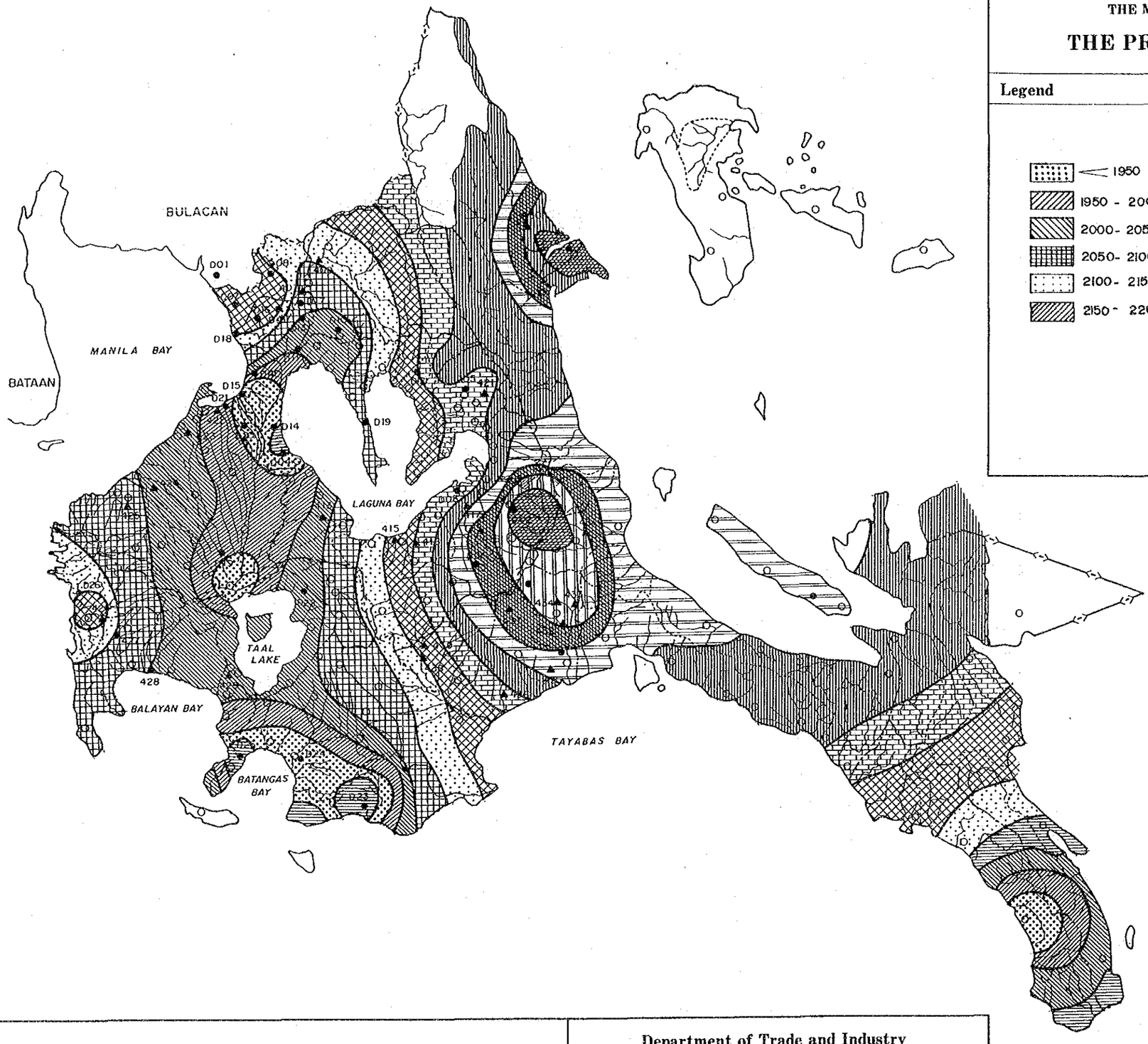


Figure 5.2

Mean Annual Rainfall Map

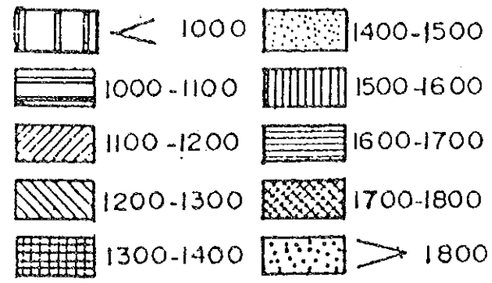
Department of Trade and Industry

Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 5.3



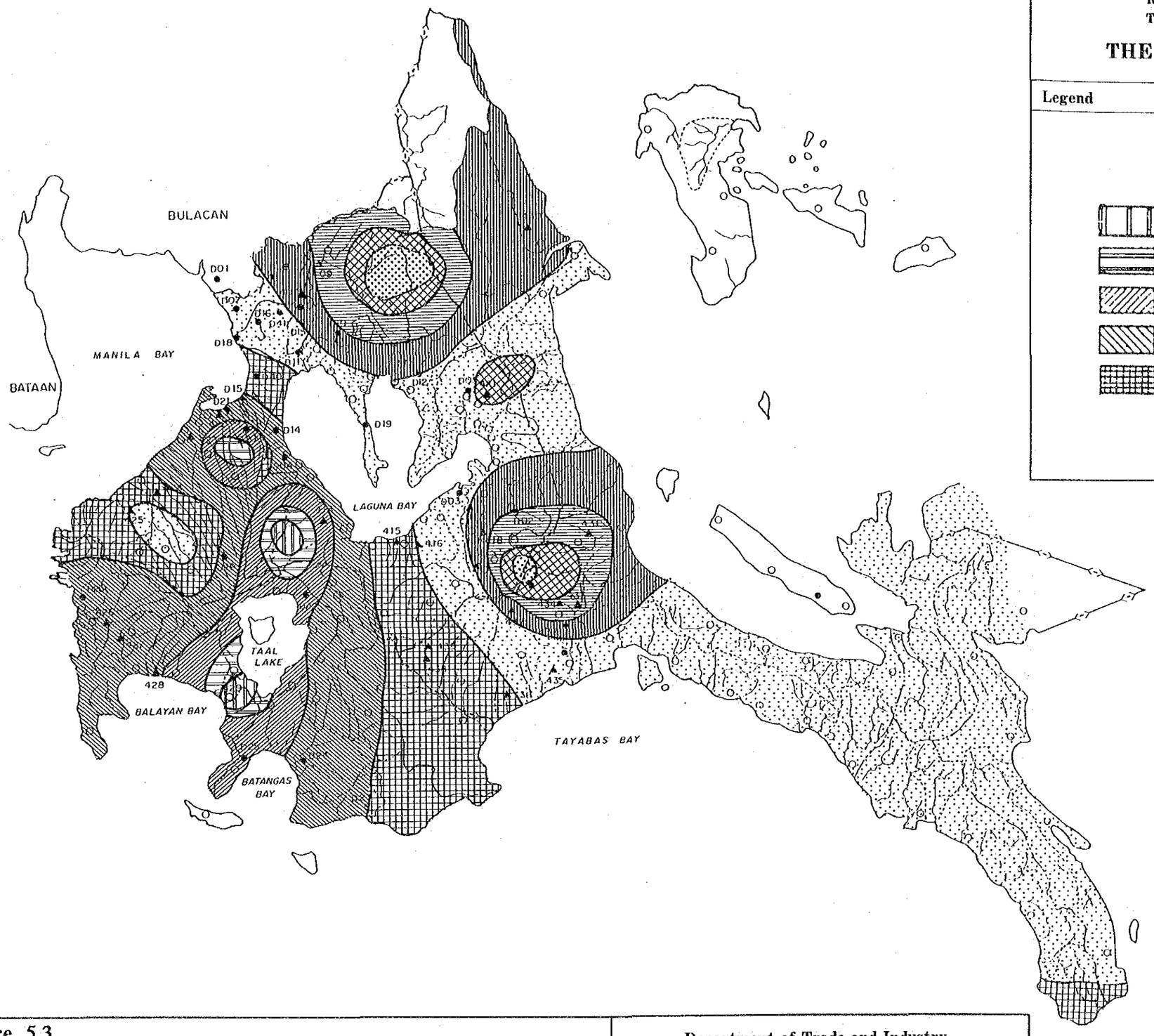


Figure 5.3

Mean Annual Runoff Map

Department of Trade and Industry

Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 5.4

SHALLOW WELL AREA
DEEP WELL AREA
DIFFICULT AREA

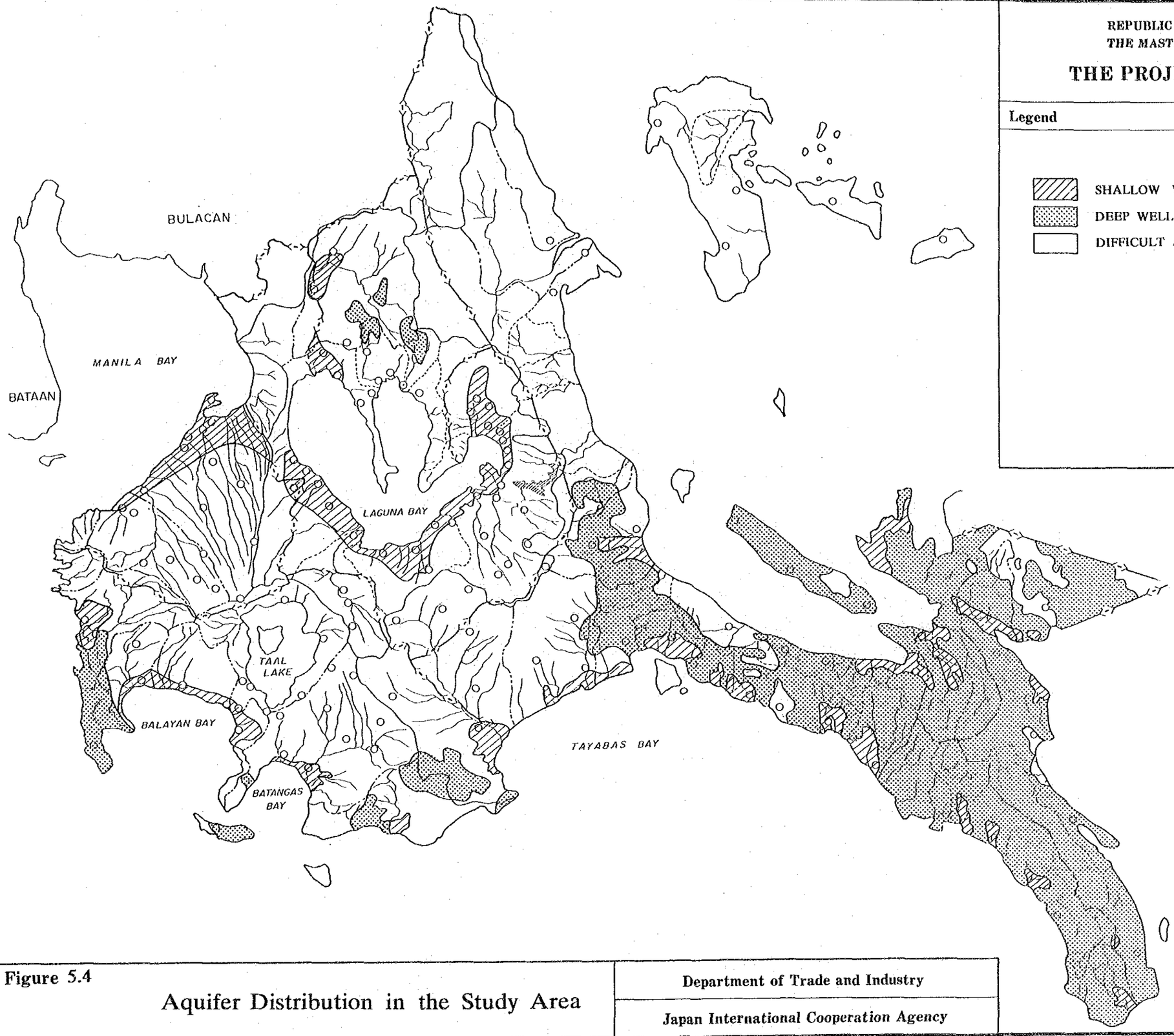


Figure 5.4

Aquifer Distribution in the Study Area

Department of Trade and Industry

Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend

- EXISTING DAMSITE
- PROPOSED DAMSITE
- POTENTIAL DAMSITE

Figure 5.5

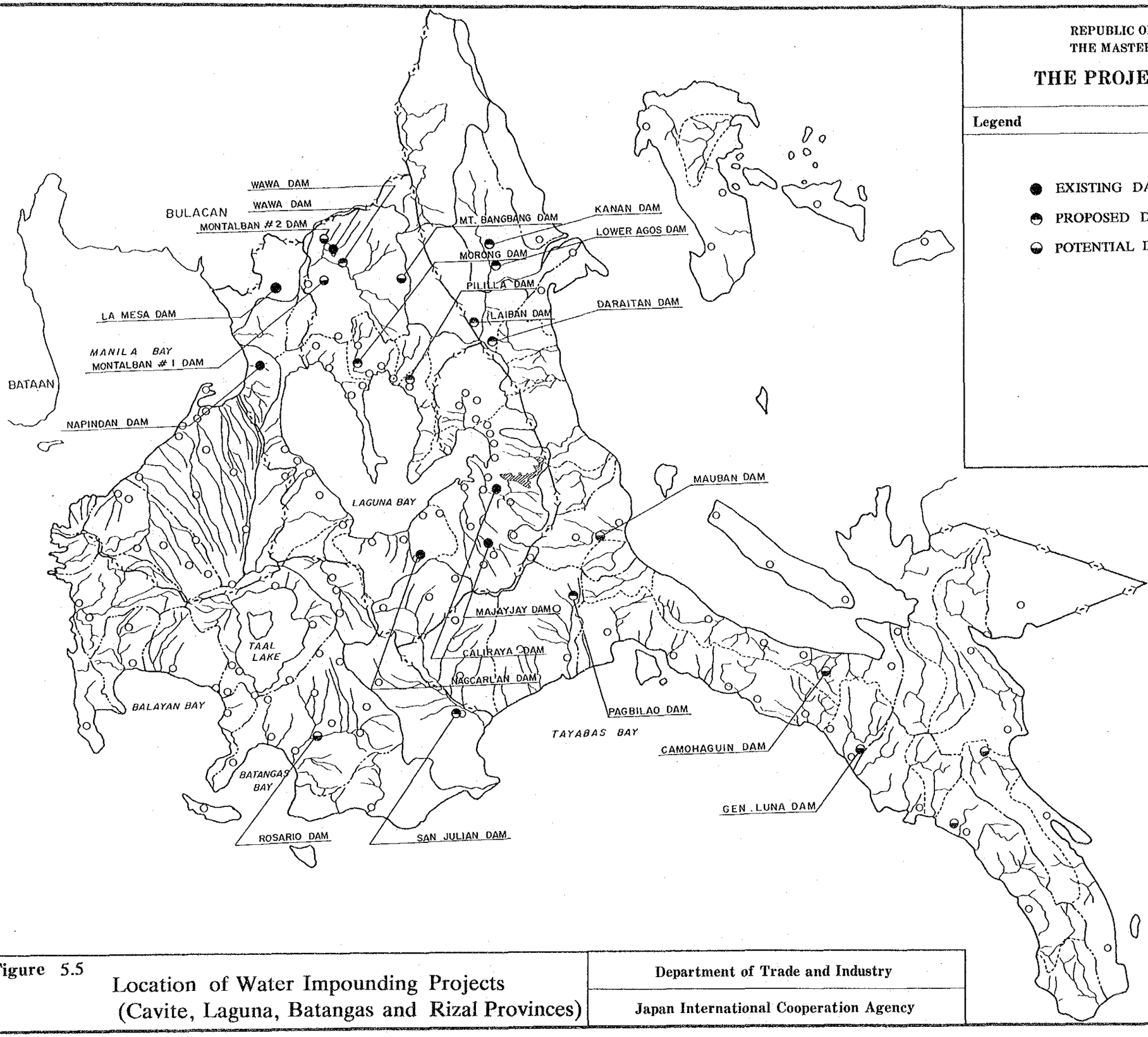


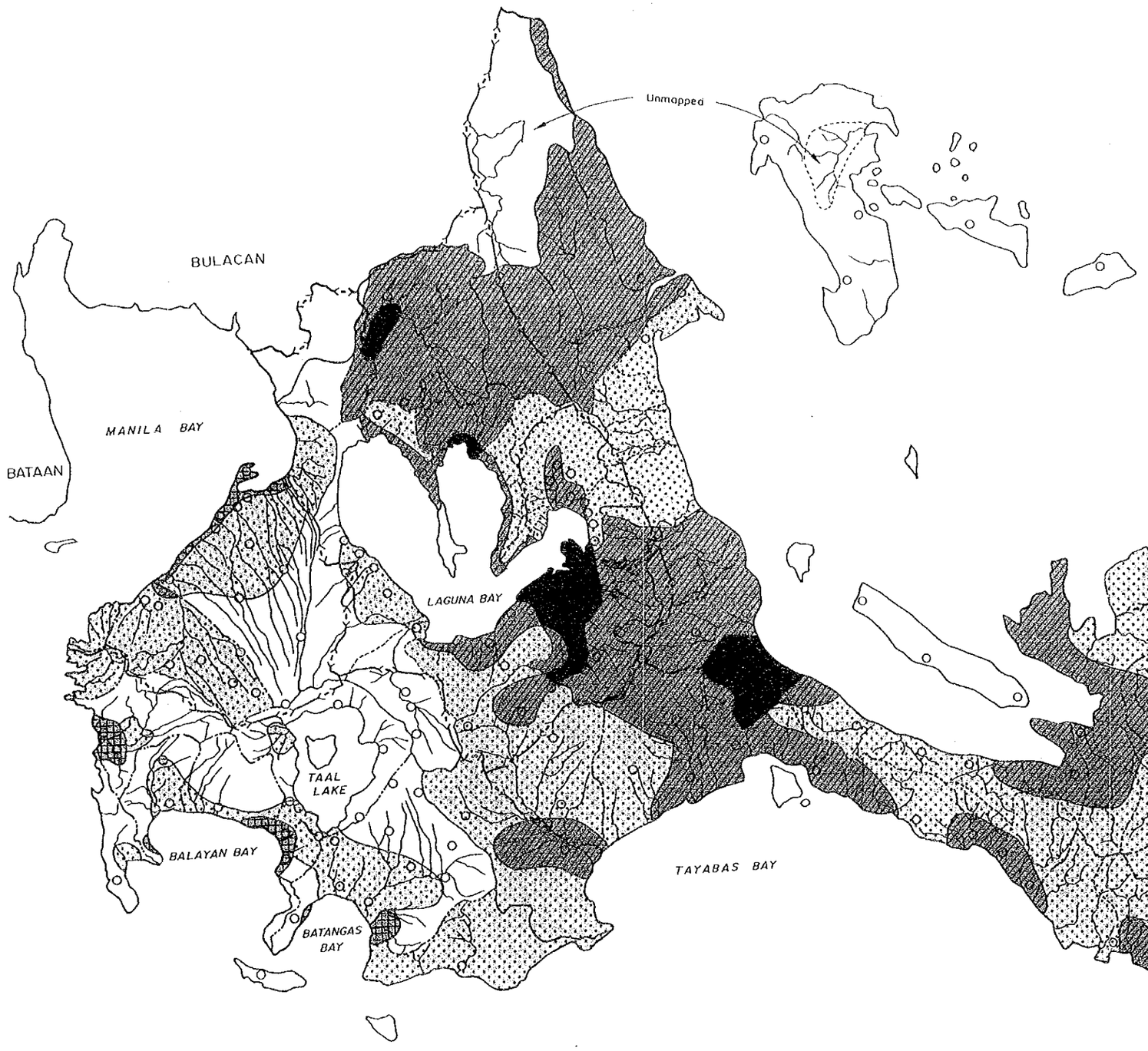
Figure 5.5 Location of Water Impounding Projects (Cavite, Laguna, Batangas and Rizal Provinces)

Department of Trade and Industry

Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON



Legend	Figure 5.6

Surface water potential (median value)

- S 1 : over 1,501mm
- S 2 : 1,251–1,500
- S 3 : below 1,250

Groundwater potential

- G 1 : High
- G 2 : Low

Composite water potential

- Highest : S1+G1
- High : S1+G2, S2+G1
- Moderate : S2+G2, S3+G1
- Low : S3+G2

APPROX, AREAL EXTENT OF SALT WATER INTRUSION

Figure 5.6 Water Resources Potential Map

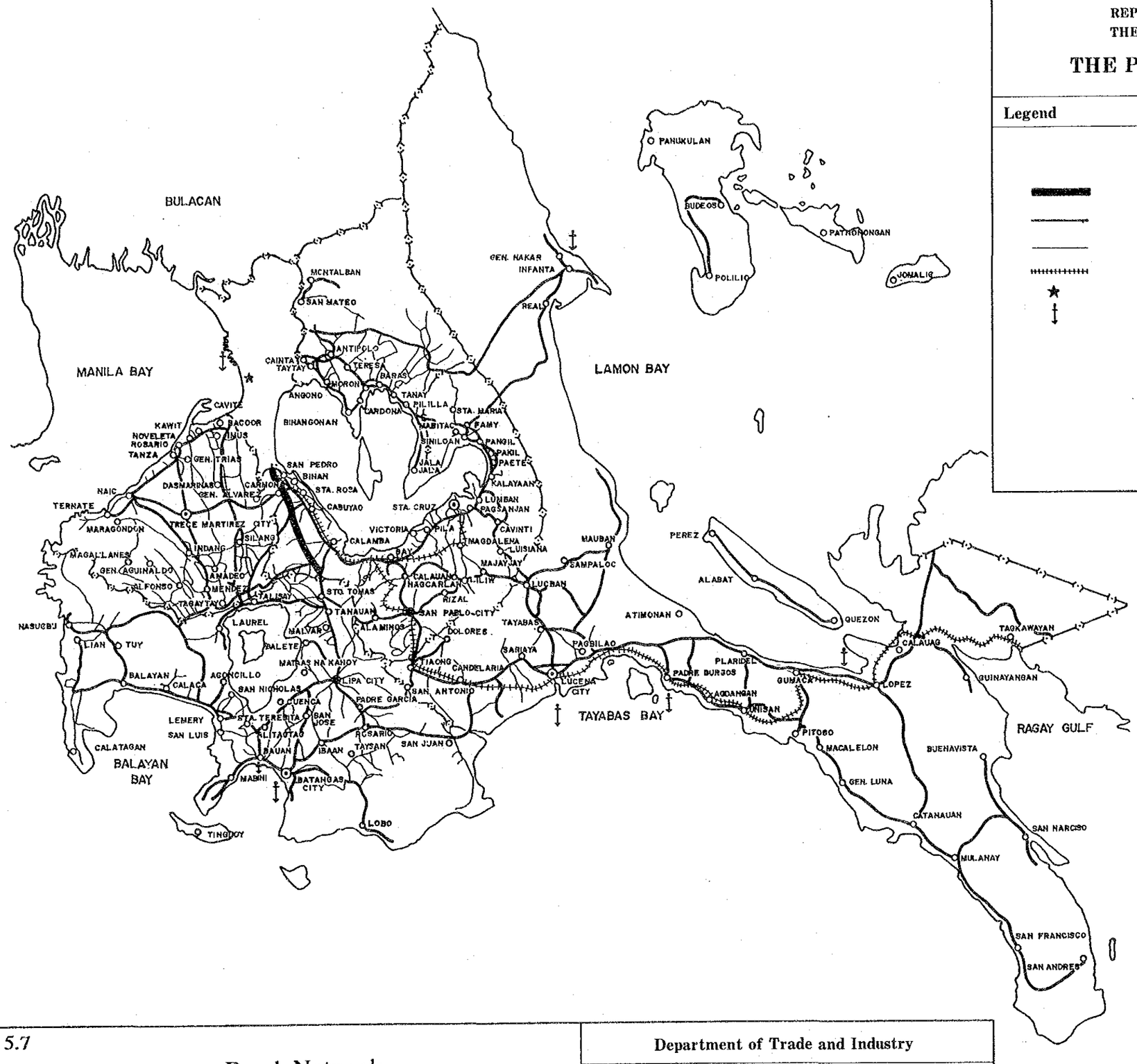
Department of Trade and Industry

Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

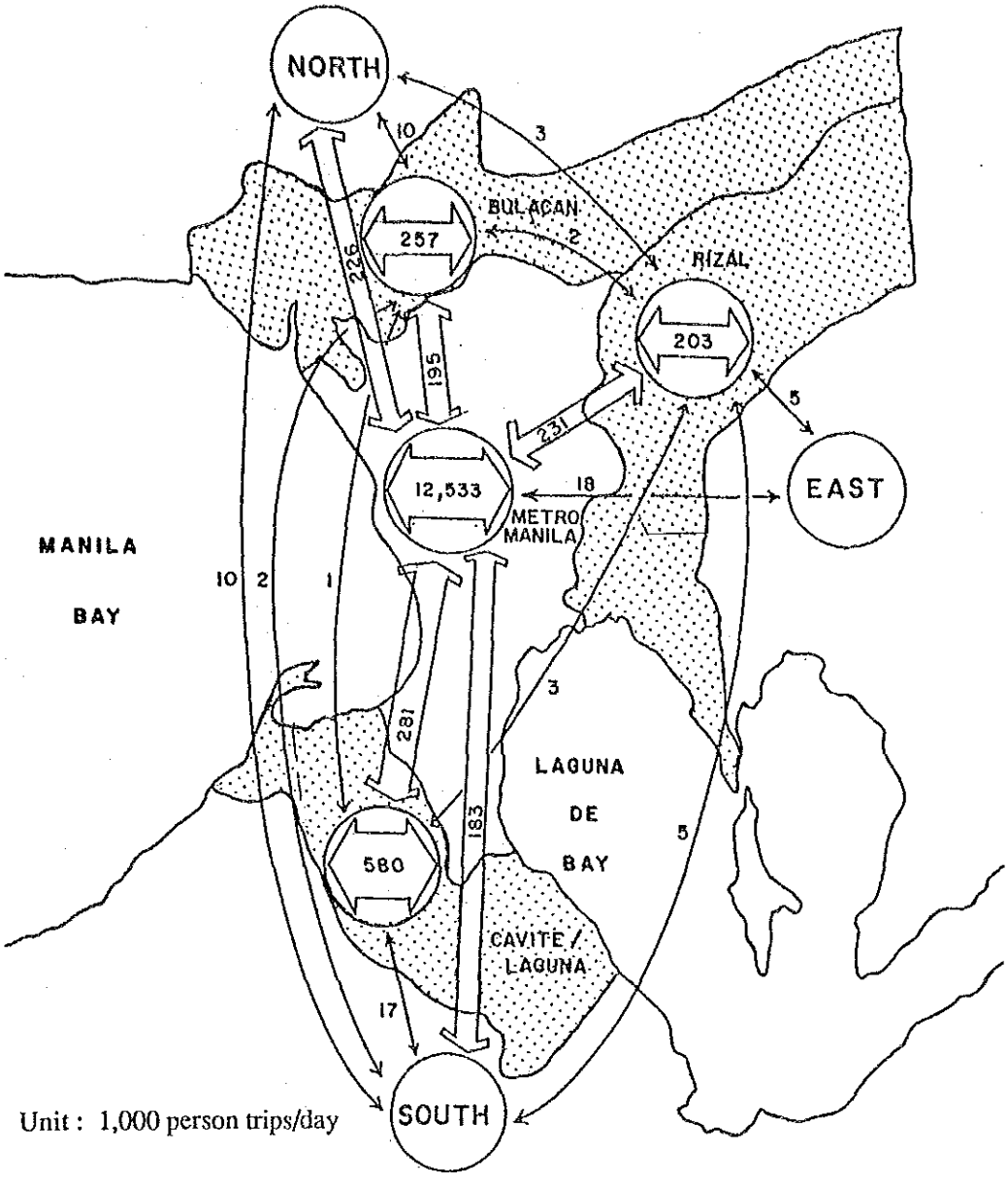
THE PROJECT CALABARZON

Legend	Figure 5.7



EXPRESSWAY
NATIONAL ROAD
PROVINCIAL ROAD
RAILROAD
AIRPORT
PORT

Figure 5.7	Department of Trade and Industry
Road Network	Japan International Cooperation Agency



Source: JUMSUT II JICA/DOTC 1984

Definition of adjoining areas is as follows:
Bulacan includes: municipalities of Obando, Bulacan, Marilao, Bocaue, Meycauayan and San Jose del Monte (1980 population; 392,000)
Rizal includes: municipalities of Montalban, San Mateo, Antipolo, Cainta, Taytay, Morong and Binangonan (1980 population; 405,000)
Cavite/Laguna includes: Cavite City and municipalities of Kawit, Noveleta, Rosario, Bacoor, Imus, Damariñas, San Pedro, Carmona, Biñan, Sta. Rosa and Cabuyao (1980 population; Laguna 269,000 and Cavite 441,000)

FIGURE 5.8
Distribution of Person Trips (Motorized) of Manila's Adjoining Area

LEGEND :

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

JAPAN INTERNATIONAL COOPERATION AGENCY

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 5.9

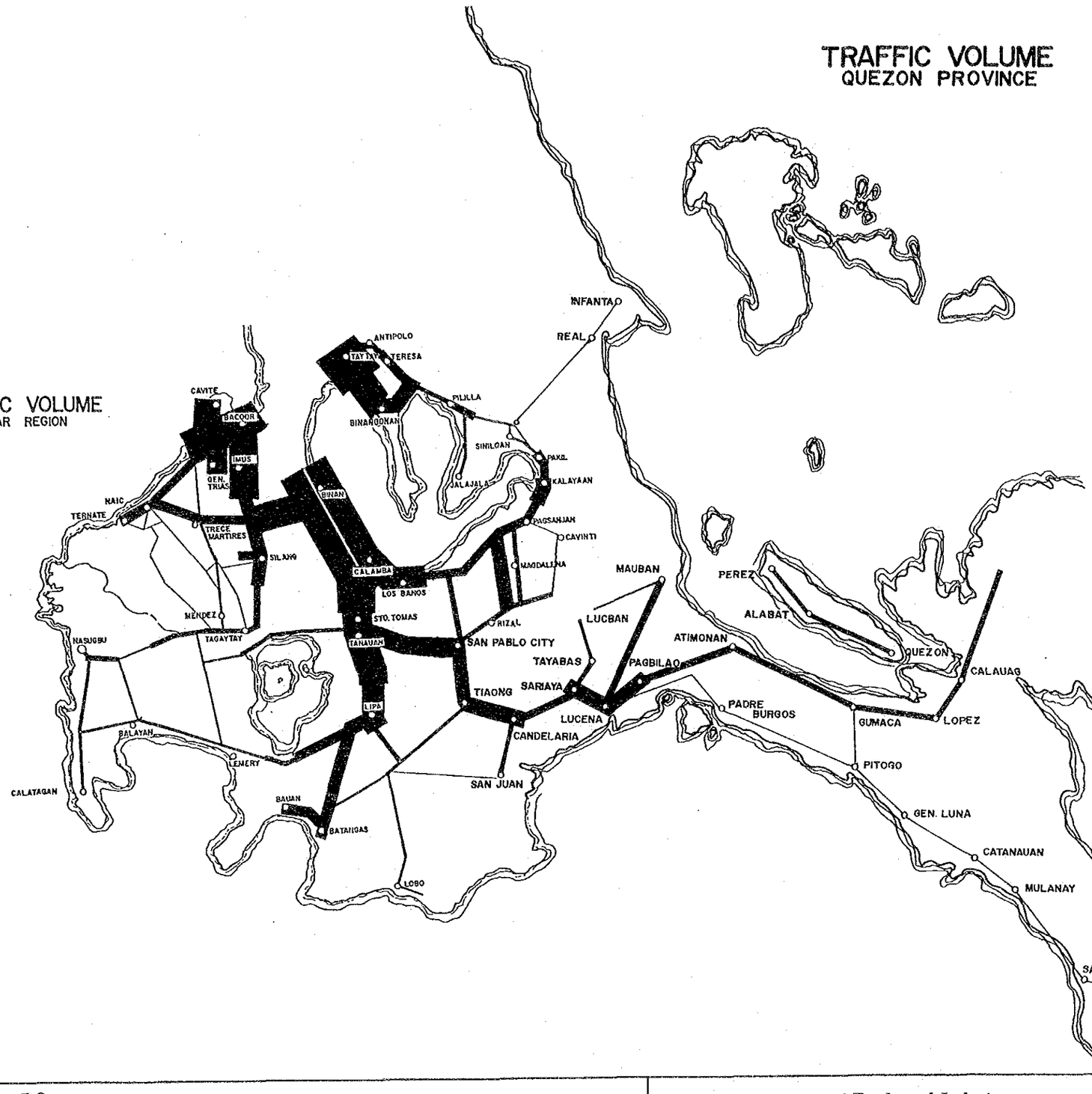


Figure 5.9 Traffic Volume in the CALABARZON Region	Department of Trade and Industry Japan International Cooperation Agency

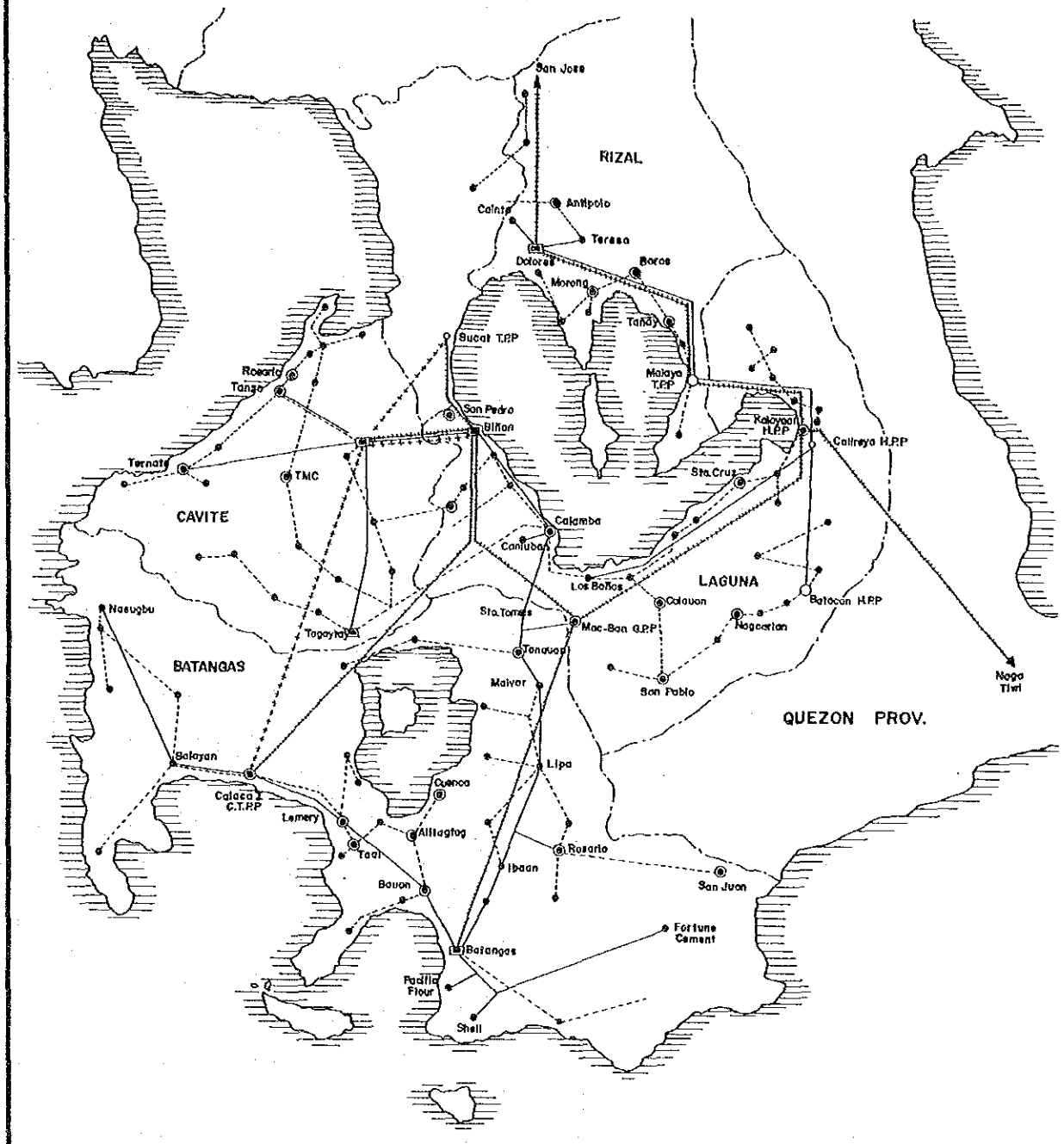


FIGURE 5.10
Major Stations and Transmission System in CALABARZON

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND :

Source: NPC's Provincial Grid Maps

Note :

- Existing Major Substation with Future Expansion
- Existing Substation with Future Expansion
- Existing Substation
- Existing 230 KV Transmission Line
- Future 230 KV Transmission Line
- Existing 115KV or 69KV Transmission Line
- Future 115KV or 69KV Transmission Line
- Existing 13.2 KV Subtransmission Line

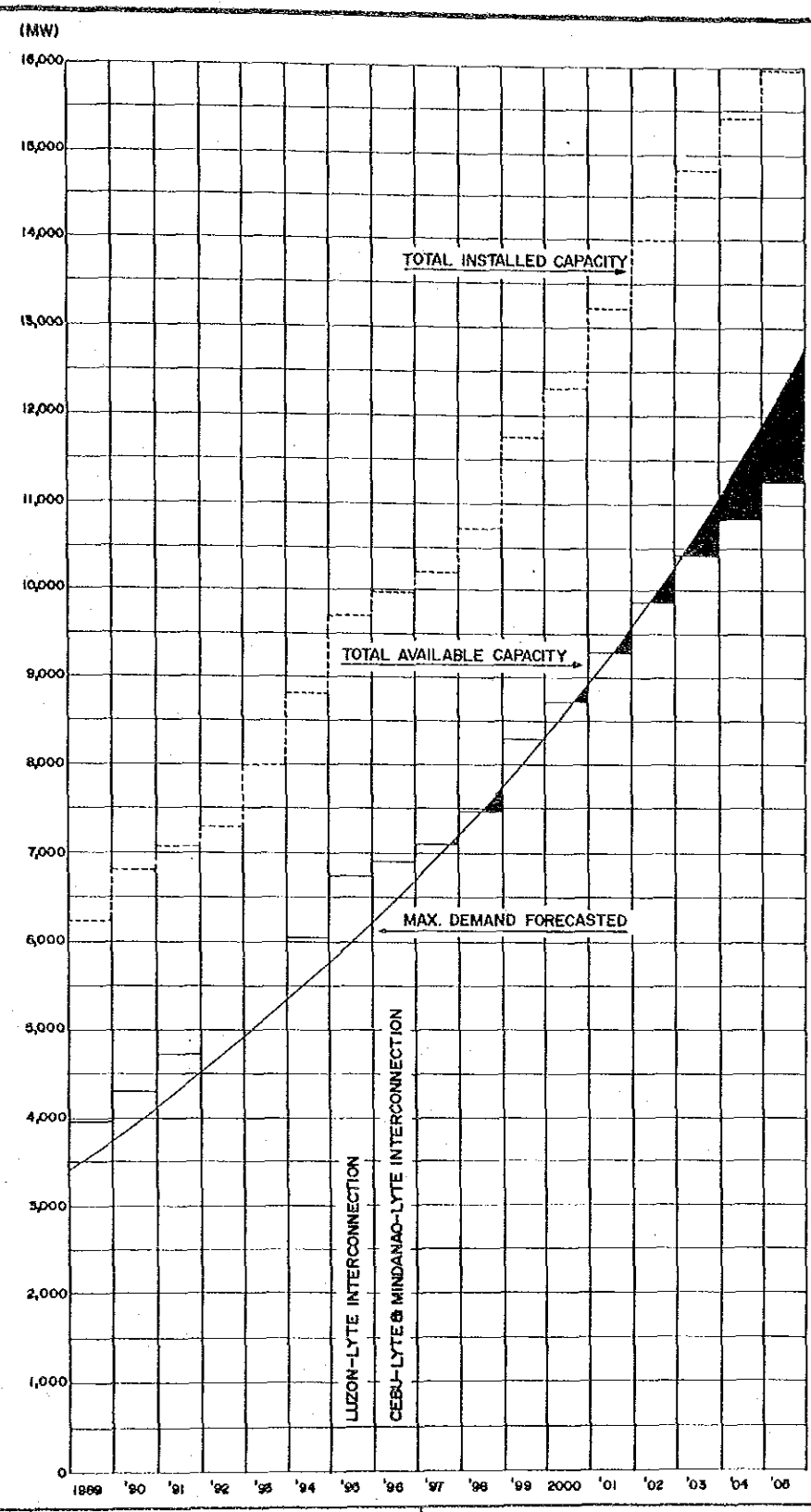


FIGURE 5.11
Power Balance of Entire Philippines

LEGEND :

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

JAPAN INTERNATIONAL COOPERATION AGENCY

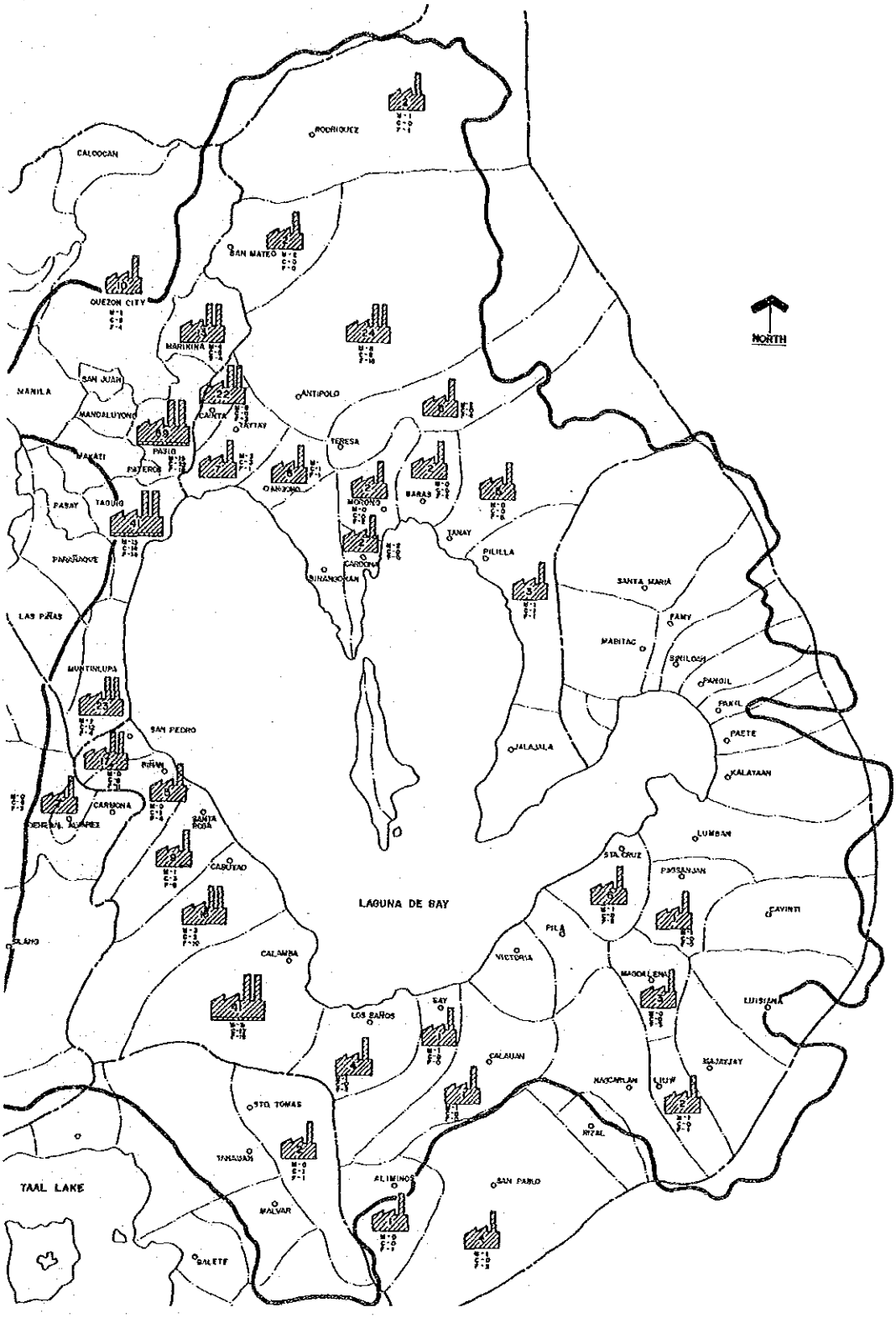


FIGURE 5.12 Number of Wet Industries in Each Municipalities in Laguna de Bay Basin

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND :

- MAJOR WATERSHED (LAGUNA DE BAY BASIN)
- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- CITY / MUNICIPALITY

CHAPTER 6

Chapter 6. DEVELOPMENT PLAN

6.1 Macro-Zoning for CALABARZON Development

On the basis of land capabilities (subsection 4.3.1) and water potential (subsection 5.1.4) as well as existing infrastructure and economic activities, the CALABARZON region is sub-divided into several geographic units with respect to development potential with prospective economic activities. These units, called sub-regions, are defined as areas respectively having similar characteristics and used to derive meaningful directions for future development.

Sub-regions defined consist of industrial areas (Figure 6.1), agricultural areas (Figure 6.2), and tourism circuits (Figure 6.3). The agricultural areas contain lowland agricultural areas, upland agricultural areas and agro-forestry areas. Each area is characterized with respect to existing conditions, constraints and prospects, and the strategy will be clarified by each area.

6.1.1 Industrial areas

Incremental land requirements for future industrial development have been allocated to the five CALABARZON provinces (Appendix B : Industry). The results are summarized below.

Incremental Land Requirements for Industry

Province	1988 - 2000		2000 - 2010	
	(ha)	(% share)	(ha)	(% share)
Cavite	812	18.8	917	19.3
Laguna	1,360	31.7	1,407	29.6
Batangas	986	23.0	1,329	27.9
Rizal	782	18.2	637	13.4
Quezon	356	8.3	465	9.8
Total	4,296	100.0	4,756	100.0

To satisfy these requirements, three types of industrial areas are identified: (a) areas contiguous to Metro Manila, (b) urban centers outside the sub-urbanization area of Metro Manila, and (c) The Batangas growth center.

(1) Rizal suburban industrial area

The area in Rizal to the east of Metro Manila has been a main receiving area of the spillover industries from the capital region. At the same time, fringes of this suburban area have been developing rapidly as "bedroom communities" for those commuting to Metro Manila and its immediate vicinity. As a result, the population growth of Rizal recorded the highest levels in CALABARZON with the average annual growth of 6.1% in 1970 - 80 and 5.8% in 1980 - 90.

This trend will continue but at a ruduced rate. Lack of land suitable for industrial/urban uses will be a main constraining factor. The further encroachment on limited lowland agricultural areas along the Laguna lakeshore should be prevented. More employment opportunities should be created in the upland areas without causing further degradation of the Marikina catchment area. Public interventions will be necessary to develop the inland areas not only for some industrial relocation from Metro Manila but also for encouraging agro-forestry, agro-processing, SME activities including handicrafts, and various services. Such development will control unorderly suburbanization and "bedroom" communities by guiding them inland and at the same time protect the Marikina watershed by providing alternative means of livelihood and labour force for reforestation and other conservation activities.

(2) Cavite - Laguna suburban industrial area

This area may be further divided into the Laguna west industrial area from San Pedro to Calamba and the Rosario - Imus industrial area. The spill over from Metro Manila and further agglomeration of industries will continue in these areas due primarily to agglomeration economies and access to large labour pool with requisite skills. However, this should not be accompanied by further degradation of the environment and generation of various social problems.

To avoid such social and environmental problems, location of additional industries in these areas should be regulated. For this purpose, first strict land use control should be enforced based on land use plans to be prepared by municipalities. Second, wastewater discharge and solid waste disposal regulation should be enforced by step : first for municipalities in the Laguna west and second for those along the Cavite coast. A moratorium on the conversion of prime agricultural land in these areas for industrial use should be immediately established.

Industries that will be allowed to locate in those areas are labour intensive and export-oriented ones. They include garments, electronics and all industries in Cavite EPZ. Some of the SME's that subcontract for Manila-based companies will also locate in these area. Some market oriented industries will also locate in these areas, including publishing and printing, furniture, beverages and some food processing such as bakeries.

(3) Carmona - Trece Martires industrial area

This is an upland industrial area. In terms of land capability, this area faces smaller conflict with agriculture than the industrial areas in lowlands. Water availability is a constraint.

As it is located in the mid to upstreams of small rivers, only light industries that are not water-intensive should be located in this area. Some agro-processing industries will establish/expand in this area, as the productivity of upland agriculture is enhanced. However, fruits and vegetable processing should be located in lowland portions where water availability is higher and discharge of wastewater with high organic contents is more tolerable.

The largest number of industrial estates are existing or planned in this area, including those in Dasmarinas, General Trias, General Mariano Alvarez and Carmona. This industrial area will be extended further inland upto Silang.

(4) Upland industrial centers

In addition to those mentioned in (4) above, a few other urban centers will be important for receiving a growing proportion of spillover from Metro Manila under the Master Plan strategy. They are Sto. Tomas/Tanauan, Canlubang, San Pablo and Lipa City, all located in the mid- to upstreams of rivers.

Most chemical industries, basic metal industries, textiles and non-metallic mineral products could be located in these and other upland industrial centers. Most of the expansion in transport equipment, fabricated metal products and electrical machinery can also be channelled into these areas.

The decentralization of industry into these areas requires implementation of comprehensive urban development programs in selected areas. This would include major housing programs, urban infrastructure and other urban amenities to build these communities into

urban centers with full functions. A critical component of these programs would be provision for SME's that will rely on the relatively large companies as sub-contractors and parts/components suppliers. The Master Plan includes prototype integrated urban/industrial programs for these centers (Appendix K : Project Profiles).

(5) Greater Batangas industrial area

In the short- to medium term, Batangas will receive all port oriented industries and will be built into a center for heavy industry. Major industries include products of petroleum and coal, basic metal industries, non-metallic mineral products, and special steel production. Batangas will become the supply base of raw materials and intermediate products for industries in Metro Manila and its suburbanization areas. The relatively large population in the Batangas-Bauan area would allow growth of labor intensive industries, including apparel and fabricated metal products. Another group of industries to be developed in Batangas are food processing industries. Batangas will continue to be the grain milling and feed production center in CALABARZON.

The industrial area to be developed will take into account the requirements of these three types of industries. These three main industries will be complemented by a large number of SME's providing parts/components. The long-term objective is to build a highly diversified manufacturing base which will provide an alternative to Metro Manila as the national industrial core.

In the long run, this area will be inter-connected with the industrial area in Quezon centering around Lucena City. A development axis will be formed connecting Batangas/Bauan through San Juan to Lucena City, and may be further extended to the east to Atimonan/Gumaca and to the west to Balayan.

6.1.2 Lowland agricultural areas

(1) Cavite coastal agricultural area

Characterization

This area is located on prime agricultural land, covering some 21,000 ha. The area is undergoing rapid urbanization/industrialization proceeding from Metro Manila. Fairly developed irrigation facilities exist with the friar lands irrigation project and other small irrigation schemes. Aquaculture along the coast for oysters and mussels and salt farms are common as well as coastal fishery.

Strategy

Productivity of rice should be increased by higher application of fertilizer and agro-chemicals as well as by further extension of irrigation. Crop diversification should be promoted under on-going programs primarily for vegetables, capitalizing on the proximity to Metro Manila. Post-harvest facilities and market information system need to be upgraded to reduce post harvest losses and avoid over-supply. A prerequisite to such an intensive land use is resolution of conflicts in land use between agriculture and urbanization/industrialization. Early clarification of issues related to CARP implementation is needed.

Both in an effort to increase agricultural land productivity and in anticipation of labour shortage due to substantial absorption of labour in industry and related services, farm mechanization should be advanced.

Aquaculture along the coast should be preserved/enhanced as it has established markets. Coastal fishery may need to be reorganized to avoid conflicts between small fishermen and large fishing enterprises, in anticipation of future establishment of aqua-processing industry.

(2) Laguna west agricultural area

Characterization

This area is located along the western lakeshore of Laguna de Bay, covering 4,000 ha of prime agricultural land. Water availability is high with rich groundwater reserves. Substantial areas have already been converted to urban and industrial land due to rapid suburbanization from Metro Manila. Double cropping of rice is practiced widely under irrigation.

Strategy

Further urbanization/industrialization from Metro Manila is inevitable, and agriculture in this area should take this as a premise. Productivity of rice should be further increased by utilizing higher level of input and agro-chemicals. As more people will engage in industry and services, farm mechanization and use of chemicals (herbicides) should be promoted to reduce labour requirements and production costs.

(3) Laguna south agricultural area

Characterization

This area has some 17,000 ha on prime agricultural land along the southern lakeshore of Laguna de Bay. Water potential is very high with both rich groundwater reserves and relatively abundant surface water. Access from Metro Manila and its suburban area is relatively good by the lakeshore road.

Double cropping of rice is practiced widely under irrigation. Poultry activities of chicken and duck, and aquaculture by fish pond are common. The area has the provincial capital of Sta. Cruz and is a gateway for mountain rapids tourism in Pagsanjan.

Strategy

Existing paddy fields should in principle be preserved, and its productivity increased by utilizing higher level of input such as agro-chemicals and organic manure. Provision of post-harvest facilities needs to be improved, including rice dryers, rice mills and warehouses. Crop diversification will be realized with the provision of marketing information and outlets.

Rural economy in the area should be diversified by further promoting poultry and piggeries, and much enhancing livestock with dairy production as well. Primary processing, administration and related services would further add to diversified economy.

An important strategy for individual farmers is to combine crop cultivation with livestock for an integrated farming system. Recycling of waste materials should be incorporated in such a system. Animal wastes may be used for biogas digester to generate energy and organic fertilizer as residuals. Crop residues and weeds may be used as animal feed. These practices not only reduce organic wastes discharged to the lake but contribute also to reducing production costs. Research and extension should be effected through cooperatives for wide application of these practices.

(4) Sta. Maria lowland agricultural area

Characterization

This is a relatively small area of some 5,000 ha on prime agricultural land at the northeastern corner of Laguna de Bay. Temperature is relatively high and rainfalls are moderate. Access from/to Metro Manila is one of the constraints.

Double cropping of rice is practiced under irrigation, and poultry of chicken is also common. Paete is located just to the south of the area, as a center of handicrafts. An alternative route to Infanta-Real in the Quezon province is available from Famy.

Strategy

The same strategy will apply to this area as that for the Laguna south agricultural area for increasing paddy productivity and diversifying crops. Integrated farming should also be promoted as described above.

An important strategy for this area is to integrate with the Laguna south agricultural area. A better access from Metro Manila is assured through this southern lakeshore rather than by Rizal. Tourism resources such as rapids and falls in Pagsanjan and handicrafts in Paete should be effectively utilized to diversify the rural economy of both of the areas.

(5) Batangas eastern lowland agricultural area

Characterization

This is a large area, covering some 25,000 ha, in the eastern part of Batangas bordering on the Quezon province. Water availability is high, and soil conditions are favourable for agriculture. Access from other parts of the province is a problem. Improvement of the Rosario-San Juan road is currently undertaken. Present land use is dominated by upland rice, sugarcane, corn and coconut.

Strategy

Paddy - based agriculture should be established with the provision of irrigation facilities and improved access. In addition to corn, soybean may be introduced to increase the feed production to support the livestock development in this and adjacent areas. Limited areas where irrigation is difficult should be devoted to coconut-based multi-story cropping. Increased post harvest facilities should be provided for rice and corn.

This area is strategically located between Batangas City and Lucena, Quezon. The development of this area will promote more autonomous development of Batangas not depending strongly on Metro Manila, and may contribute to the establishment of Batangas City - San Juan - Lucena development axis.

(6) Batangas western lowland agricultural area

Characterization

This area is located on the western coast of Batangas, around Nasugbu, occupying 8,000 ha. Soil conditions are favourable for agriculture. Water availability is good, but salt water intrusion is already a problem for groundwater development along the coast. Access from other areas is generally poor. Present land use is mainly double cropping of rice under irrigation and sugarcane.

Strategy

Paddy productivity should be increased with high input utilization. Sugarcane production will continue to support the existing sugar refinery, but its area will be reduced after the CARP implementation. Instead, diverse crops will be introduced to increase and stabilize farm income. CARP beneficiaries should be supported by the provision of basic infrastructure and agricultural credit. Livestock activities, especially of cattle, should also be promoted.

The area is situated in a strategically important location between the two existing international class resorts: Puerto Azul/Marbella Marina and Punta Baluarte Beach. Coastlines between Ternate and Nasugbu are rich in attractive scenery with coves. Future development of this area should take advantage of this tourism potential to enhance its rural economy.

(7) Quezon west lowland agricultural area

Characterization

This area covers 15,000 ha in the western-most part of the Quezon provinces between Mt. Banahaw and the Tayabas bay. Agricultural land use at present is dominated by double cropping of paddy and coconut. The area has a distinct dry season with moderate annual rainfall. Access is relatively good from the primary road connecting Lucena City with the Metro Manila area.

Strategy

Paddy production will be further increased by modernization of irrigation facilities and higher level of farm inputs. Livestock production can be promoted for integrated farming as in the Laguna south agricultural area, as the access to large markets is assured.

(8) Infanta delta agricultural area

Characterization

This is the delta area of the Agos river, occupying 6,000 ha between Infanta and Real. The climate is highly humid with the annual average temperature of 26 - 27 °C and the annual rainfall of over 3,000 mm without distinct dry season. Agricultural land use is well established with double cropping of paddy and coconut. The area is famous also for carabao production. The major constraint to further developments is lack of access to other areas.

Strategy

The improvement of access is essential. In particular, the road to Famy in Laguna should be improved as a matter of urgency. This would encourage further increase in paddy productivity by improvement of irrigation facilities and use of high level of inputs, coconut rehabilitation and replanting, and sustaining carabao population and production.

(9) Lopez - Calauag coastal agricultural area

Characterization

This area of 5,000 ha extends along the coast of Lopez and Calauag. Rain-fed paddy is practiced in the flood-prone area, and otherwise the main crop is coconut. Off-shore fishing activities are popular.

Strategy

Brackish water aquaculture will be developed in coastal areas, making most of natural mangrove forest. In addition to fishery resource inventory, rehabilitation of mangrove forest, and artificial coral reefs conducted under the on-going ADB project, the establishment of processing facilities and cold chains would expand the market for aqua-products. Paddy production should be maintained.

(10) Tayabas bay coastal agricultural area

Characterization

This area extends along the south-western coast of the Tayabas bay. The gross area is some 20,000 ha. Coconut is the main crop. Patches of paddy are found along small rivers.

Strategy

The same strategy applies to this area as in the Lopez - Calauag coastal agricultural area. Improvement of access from the Lucena City area is also a prerequisite. A small water improvement dams project may be implemented, combining small patches of rain-fed paddy.

6.1.3 Upland agricultural areas

(1) Cavite lower upland agricultural area

Characterization

This area occupies some 31,000 ha in the lower upland of Cavite, with elevation ranging from below 100 m upto 300 m. It is a moderately good agricultural land. Precipitation is fair but widely varied seasonally, and rivers deeply cut the volcanic formation to make their use difficult. Access is relatively good served by both east-west and north-south roads. Present land use is dominated by tree crops (mango, guava, etc.), corn, sugarcane and extensive pasture.

Strategy

Land development for agriculture in the area should pay utmost attention to the prevention of soil erosion. More tree crops should be planted, multi-story cropping encouraged, and vegetables, root crops and feed grains cultivated by applying contour tillage or terracing. These crops fit well with agro-ecological conditions and marketing advantages of the area. Agro-based industry for primary processing of fruits may be established along the main roads in the mid- to the long-term.

Livestock production, especially of cattle, can also be increased substantially. For this, pasture should be improved and well managed in slope lands.

(2) Cavite higher upland agricultural area

Characterization

This area occupies some 17,000 ha in Cavite above the elevation 300 m. It is characterized by relatively cool climate and small precipitation. Soil conditions are fair, but the land is either hilly or deeply dissected so that it is classified as marginal agricultural land. Access is a problem particularly in the western part.

Coconut-based multi-story cropping is common. Inter-cropped are papaya, pineapple, coffee, banana, blackpepper, jackfruits and others. Vegetables are also produced under cool climate. Ornamental flowers and office plants are produced in the eastern part.

Strategy

Coconut-based multi-cropping should be further promoted, as it suits to friable soil texture, slope and extended dry seasons observed in the area. Perishable vegetables will be encouraged to take advantage of the cool climate, but it should be supported by agricultural extension and market information to avoid over-production. Backyard livestock should be further encouraged to form integrated farming.

The development of this area should capitalize on Tagaytay as the tourism center of CALABARZON. Expansion of various tourism activities including conference tourism and weekend trips from Metro Manila will enlarge the market for vegetables and fruits. Tourism-related services will create substantial employment opportunities.

(3) Laguna highland horticultural area

Characterization

This is a small area of about 1,500 ha on the skirt of Mt. Banahaw and Mt. Cristobal. The altitude ranges from 300 m to over 600 m. Precipitation is high, and temperature low. Soil conditions are generally favourable. Access is the major constraint. Present land use is dominantly coconut based multi-cropping and some vegetables (e.g. tomato).

Strategy

With the cool climate, production of perishable vegetables is highly promising, such as cabbage, lettuce, tomato, chinese cabbage and radish. To support this, applied research on these crops at existing institutes should be coordinated, results be transmitted to farmers through the existing extension system, and extension services be provided also in farming practices and water management. Soil conservation measures are important part of extension. Rural access roads should be improved, and irrigation may be provided in limited areas, tapping spring water.

(4) San Pablo-Alaminos upland agricultural area

Characterization

This area of 13,000 ha is relatively low upland outside the Laguna basin. Soil conditions are good, and water potential is high. The area is well served by the national road passing

through Alaminos and San Pablo. Present land use is dominated by coconut based multi-cropping. San Pablo City is a center for coconut processing.

Strategy

Coconut-based multi-cropping should be further promoted. More promising crops to be inter-cropped are citrus trees, lanzones, corn and vegetables. Full potential of coconut industry should be exploited with San Pablo as the center, including coconut fiber, coconut juice, vinegar, charcoal briquets, brooms and creosole by-products.

Dairy farming may be promoted. Small farmers should be organized for manufacturing dairy products on a cooperative basis. Extension should be channeled through the cooperative.

(5) Middle Santa Cruz river upland agricultural area

Characterization

This area of 3,000 ha is a transitional area from the upland coconut area to the lowland paddy area. Both coconut-based multi-story cultivation and double cropping of paddy are common in the area. Soil conditions are favourable, and water availability is very high for both surface water and groundwater.

Strategy

Coconut-based multi-cropping should be further promoted with vegetables, lanzones, citrus and other crops. Irrigation facilities should be extended to increase paddy production with double cropping. Livestock and poultry farming should also be encouraged for farmers to enter into integrated farming systems.

(6) Upper Santa Cruz river upland agricultural area

Characterization

The area occupies 5,000 ha in the upper part of the Santa Cruz river basin. At present, coconut-based multi-story cropping is widespread. Climate is hot and humid almost throughout the year.

Strategy

Coconut-based multi-cropping should be continued with lanzones, citrus and other tree crops. Cacao will grow well under the hot and humic climate. Mashroom production may

also be possible. For these latter crops, research and extension will be necessary as well as clarification of market opportunities.

(7) Canlubang upland agricultural area

Characterization

This is 8,000 ha land located in the immediate upland of the Laguna west agricultural area, and thus access is generally good. This represents a good agricultural land, and water potential is moderate. Current land use is predominantly sugarcane. There are three industrial estates in or around the area: the Canlubang industrial estate with 7,000 ha, the Ayala-Laguna industrial estate with 340 ha, and the Science Park in Cabuyao with 120 ha.

Strategy

This area will undergo two kinds of land conversion. One is due to further urbanization and industrial location to proceed from the lowland. The other is land subdivision and crop conversion as a result of CARP implementation. In order to prevent unorderly land conversion to urban/industrial use, the land productivity for agriculture should be enhanced as CARP implementation proceeds. For this purpose, groundwater should be exploited to allow the year-round cultivation of various crops, and support services provided including research and extension, credit and market facilities. Livestock should also be encouraged for individual farmers to enter into integrated farming.

(8) Lipa-Tanauan upland agricultural area

Characterization

This is a plateau of 20,000 ha extending to the east of the Taal lake catchment area. Soil is classified as moderate for agricultural use. Water availability is low in terms of both surface water and groundwater. Access is reasonable from both Metro Manila and Batangas.

Livestock and poultry activities are common in the area. Especially, poultry productivity is high around Lipa City due to relatively cool climate. Lipa City is also a coffee processing center. Other important crops include vegetables, corn, sugarcane, coconut and blackpepper.

Strategy

Further crop diversification should be encouraged with emphasis on tomato, eggplant, ampalaya, cassava and ube. Coconut-based multi-cropping should be promoted particularly with citrus, coffee and blackpepper.

Livestock and poultry production may be further expanded. Corn production should be increased to supply raw materials for feed mills to support the livestock and poultry activities.

(9) Batangas suburban agricultural area

Characterization

This area extends in the suburbs of Batangas City over some 16,000 ha. It is served well by the highway connecting Lipa City and Batangas City. The land is classified as moderate for agricultural use. It occupies the middle catchment area of the large Kumpang river basin, and groundwater availability is also high in the southern part.

Dominant crops are sugarcane and corn. However, the sugarcane area has been decreasing recently, reflecting the decline in international market prices for sugar. Livestock activities are also common. The western part of this area along the Lipa-Batangas highway has been designated by the province as an area for urban-industrial-commercial complex.

Strategy

Production of corn and other feed grains should be much increased to expand the feed base for livestock and poultry in this and the Lipa-Tanauan upland agricultural areas. An important prerequisite to this is careful land management such as contour tillage to minimize soil erosion, considering the geologic and topographic conditions and intense rainfall patterns in the rainy season.

Large scale undertakings are recommended for corn production to reduce the production cost. Farmers need to be organized into corn producers associations or other cooperatives, which will procure agricultural machinery and administer credit. Other feed grains such as sorghum and millet can be established through research and extension. Production of vegetables can be increased to supply the growing urban markets in Batangas City and other towns.

(10) Tuy-Balayan upland agricultural area

Characterization

This area occupies some 19,000 ha in the western upland of Batangas. It is a moderately good agricultural area. Water availability is relatively high with not only surface water but also potential groundwater reserves. Present land use is predominantly sugarcane. A sugar mill exists in Balayan.

Strategy

Sugarcane mixed farming should be promoted, after CARP implementation, first to increase and stabilize income of CARP beneficiaries, and second to maintain the existing sugarmill. Crop diversification can be realized with emphasis on vegetables, feed grains and pasture. More tree crops should be planted such as mango, banana and citrus.

(11) Lucban - Sampaloc agricultural area

Characterization

This is a small area of 2,000 ha on the western skirt of Mt. Banahaw. The area receives ample rainfall over 3,000 mm annualy with no distinct dry season. Agricultural landuse at present is primarily for coconut, vegetables and paddy in small scale. Cottage industry is also active in the area.

Strategy

High-value horticultural crop production should be further promoted under favourable climate with improvement of market access and extension for establishing new crops and varieties with proper farming practices. The Southern Luzon Polytechnic College will be instrumental for applied research for new crops and varieties.

(12) Tagkawayan upland agricultural area

Characterization

This is an extensive area of some 19,000 ha in Tagkawayan. Small population and difficult access have made this area less developed. Vast grassland extends over the hill area partly due to kaingin activities in the past.

Strategy

Making most of the vast grassland in the hilly area, dairy/livestock activities should be encouraged through the introduction of new feed crops such as corn, sorghum and millet as

well as forage grasses. Access roads need to be improved to facilitate the marketing of dairy and meat products as well as the distribution of farm inputs.

(13) Bondoc peninsula agricultural area

Characterization

This is another extensive area of some 17,000 ha on the Bondoc peninsula. The annual rainfall is less than 2,000 mm, relatively evenly distributed through the year. Vast grassland as a result of kaingin extends over the hilly area. Small forest areas are also found.

Strategy

The same strategy applies to the livestock development in this areas as in the Tagkawayan upland agricultural area. Probably, large-scale commercial operation should be encouraged directly linked to markets in major urban centers, in view of difficulty in improving the access by roads.

6.1.4 Agro-forestry areas

Agro-forestry areas identified are currently under shrubs and/or grasslands, utilized extensively for grazing. These areas are hilly and susceptible to soil erosion. Agricultural activities should be encouraged only in limited areas with soil conservation measures to be taken simultaneously.

(1) Marikina watershed agro-forestry area

Characterization

This area has been identified in the middle to lower catchment areas of the Marikina river and a part of the northern Laguna basin, covering in total 21,000 ha. Water availability is fairly high, but the land is highly susceptible to soil erosion. Most part of the area is denuded forest area currently unutilized or utilized extensively as pasture. Upland crops are planted in limited areas.

Strategy

First and foremost, reforestation should be conducted extensively to enhance water retaining capacity and reduce soil erosion. This is a necessary condition for watershed management but not a sufficient one. The sufficient condition is to provide means of

livelihood for people already living in the area and its vicinity in order to prevent illicit logging and shift cultivation.

A study should be urgently undertaken to clarify land suitability for cultivation, agro-forestry and reforestation. On-going Integrated Social Forestry (ISF) program by DENR and Sloping Agricultural Land Technology (SALT) by DA should be extended to the areas identified for respective uses. In addition to extensive reforestation, on-farm tree planting should be encouraged in cultivation areas by providing seedlings/saplings as well as extension for proper crop selection and farming practices. Fruit trees and some vegetables or root crops would be preferable. Livestock activities can be expanded in limited areas.

(2) Batangas southeast agro-forestry area

Characterization

This area occupies some 20,000 ha on the northern slope of Lobo mountains in the south-eastern part of Batangas. The land at present is either unutilized or utilized as pasture, mostly denuded. Upland crops are planted in limited areas. Water availability is fair with surface water of the Rosario river. Access is a problem in most parts.

Strategy

A topographic and soil survey should be conducted first to identity areas suitable for reforestation and various agricultural activities. The ISF program and the SALT should be applied to suitable areas. Access roads should be improved associated with these programs. Agricultural activities to be promoted are agro-forestry with fruit trees, and livestock with vegetables or root crops in limited areas.

6.1.5 Other agricultural areas in Quezon

(1) Coconut areas

Coconut areas dominate the agricultural land in the Quezon province, occupying 86% of the existing agricultural area. Despite the impending problems that beset the coconut industry on both international and domestic fronts, the coconut production holds a key of the long-term development of the province. Moreover, with the growing international awareness on environment, the province can contribute substantially to making the Philippines the future cocochemical center of the world.

Productivity of the coconut areas need to be much enhanced. Two directions are inter-cropping and conversion to other crops. Coconut-based inter-cropping is starting to pick up in the province. Common practice at present is to inter-crop with lanzones and bananas. Other promising crops in different areas of the province are coffee in the highland, citrus (calamansi) in the Alabat island and the western part of the province, mangoes and pineapple in other upland areas. Some coconut areas in the highland, especially on the skirt of Mt. Banahaw, may be converted to various vegetables, and other highland areas where yields are high to citrus and other fruits.

(2) Mixed farming areas

Quezon shares about 60% of the total carabao production in CALABARZON. Swine raising and poultry are practiced in the province mostly in the backyard. They will continue to provide supplemental income to small farmers. Additional marketing opportunities such as meat processing, milk and dairy production will provide an incentive to increase production, especially in areas close to the east-west artery. Producers should be organized in such a case for effective marketing.

6.1.6 *Tourism circuits*

Tourism development is planned usually as a network connecting different tourism object/tourist sites. Tourists are expected to visit different sites one after another, attracted by mutually complementary characteristics of those sites. Based on analyses on tourism resources in CALABARZON and market environment for international and domestic tourism as well as existing conditions, two broad tourism circuits have been identified: (1) Cavite-Batangas integrated tourism circuit, and (2) Laguna lake tourism circuit. In addition, numerous potential tourism objects exist in Quezon. To develop fully these potentials, a prerequisite is to solve the insurgency problems.

These circuits combined together with access from gateways of Metro Manila and Batangas will make a tourism network of CALABARZON. Only the area around Lucena City may be integrated within Quezon into the network in the short to the mid-term. The Cavite-Batangas integrated tourism circuit contains tourism objects that suit to international tourism. The Laguna tourism circuit is primarily for domestic tourism, but important for international visitors as well such as for conference tourism if combined with the Cavite-Batangas circuit. Each circuit consists respectively of a few tourism zones. These zones are characterized first and strategy will be derived. Tourism potentials in Quezon are described separately.

(1) Cavite-Batangas integrated tourism circuit

Ternate-Nasugbu coastal tourism zone

Puerto Azul and Marbella Marina are popular beach resorts in the Naic-Ternate area. Both resorts are situated in small coves isolated from any town. There are also many hotels along the coves to the north of Nasugbu. Coastlines stretching from Ternate to Nasugbu have splendid scenery and small coves suitable for beach resorts and marinas such as Cutad, Hamilo and Limbores coves. Hacienda Looc can be utilized as the location of various tourism facilities.

Calatagan coastal tourism zone

The Punta Baluarte beach club offers the largest and international class facilities and services. This by itself can attract foreign and domestic tourists. Additional attractions can be developed along the coast.

Balayan bay-Mabini coastal tourism zone

Along the coast of Balayan bay, several beach resort hotels are found. This area is becoming popular among domestic tourists. Many hotels have been newly constructed in the Mabini area on the Calumpan peninsular. They are mostly facing the Balayan bay and specialized in diving. For some hotels, only transportation method is by banca from Anilao. Water in this area is very clear, and increasing number of foreign and domestic divers are attracted. The town of Taal at the neck of the Calumpan peninsular retaining streets of traditional houses is another attraction in this zone together with its Balisan knife.

Taal lake tourism zone

Tagaytay, overlooking the Taal lake and its volcano island, is the tourism center of CALABARZON. Several accommodations are found along the Tagaytay ridge including the first-class hotel. Also found are the Government owned picnic grove complex, the Development Academy of the Philippines and other conference facilities. In fact, this area is becoming a major location for conference tourism, due to its proximity to Metro Manila and cool climate. The volcano island starts to attract tourists as it was recently developed by DOT.

(2) Laguna lake tourism circuit

Los Baños - Makiling tourism zone

The Los Baños-Calamba area has been known since the Spanish era for hot springs. Many resorts with swimming pools concentrate along the national road to attract mostly day

visitors. Mt. Makiling offers a landmark that can be observed from a fairly large area surrounding it. It also allows command of panoramic views of Laguna de Bay and surrounding areas for climbers.

Pagsanjan tourism zone

The Magdapio falls and rapids shooting in Pagsanjan are popular tourism attractions. According to a interview survey by NAIA, Pagsanjan is ranked the third popular tourist spot in the Philippines after Baguio and Cebu. There are several hotels in Pagsanjan, and additional resort facilities are found along the Carilaya lake nearby. Paete and Pakil are old towns, retaining streets of traditional houses. Woodcarving in Paete and wood filigree in Pakil offer additional tourist attractions.

Angono-Talim island tourism zone

Angono is the birth place of famous Philippine artists and an activity base for many contemporary artists. Several art galleries are open to the public,and a new art and craft center is planned. Several resorts have been established in the Laguna north area along the national road. The Talim island is famous for bamboo handicraft.

(3) Tourism in Quezon

Most of the existing and potential tourism sites in Quezon are located on coasts or islands. The existing ones make a feature of beaches, fishing, swimming, scuba diving and yachting. Two broad areas may be identified to be more promising: the central coastal area and the Polillo islands area.

Central coastal area

Many tourism sites exist along the coast in the central part of the province. They are mostly for domestic tourism, except the Silangan beach in Sariaya featuring fishing, cruising, scuba diving, picnic and camping ground, and conference and seminar facilities. Additional attractions in inland areas include highland resort on the skirts of Mt. Banahaw such as the Mariposa resort in Tayabas and Lucban with festivity.

Polillo islands area

Coral reefs abound in the Polillo islands area, and sandy beaches and sea waters are largely untouched. The main island of Polillo would provide a base for various marine activities such as fishing, scuba diving, surf riding and cruising. Its undulating terrain may be suitable for golf courses and hiking. The island is rich in marine resources such as seaweed, sea urchin and sea cucumber as well as crustacean in coastal swamps and other

fish. The island is also endowed with water resources and coal reserves. It harbours pelagic fishery vessels for tuna.

(4) Strategy for tourism development

The CALABARZON region abounds in tourism resources, but they are not integrated in terms of accumulation of facilities and promotional activities. The two major tourism circuits identified should be treated in an integrated manner as much as possible with respect to the provision of infrastructure, complementary characterization of tourism objects and other promotional activities. More specifically, the following strategy should be taken.

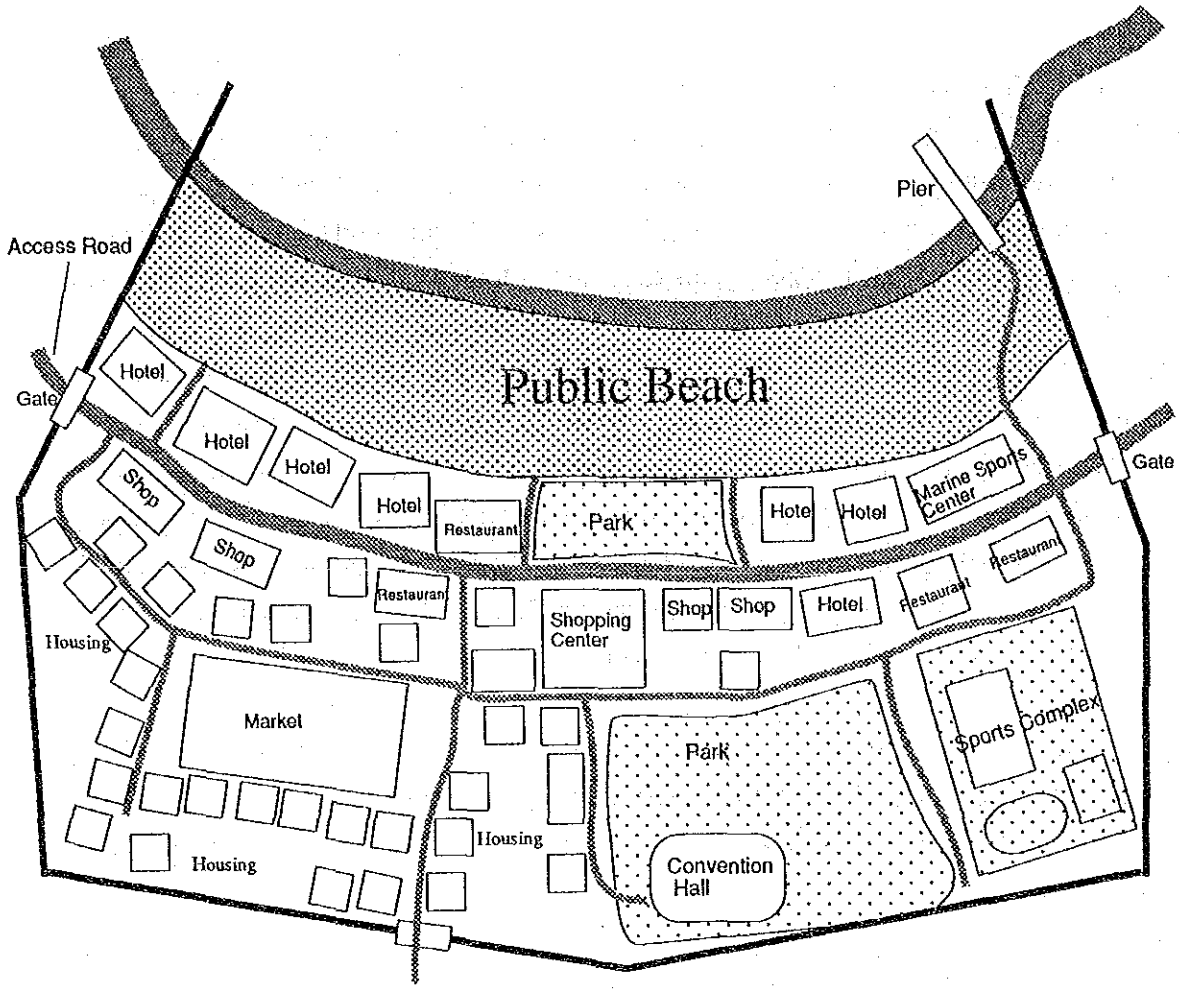
First, the area around tourism objects should be taken in its entirety as a "tourism area". Tourists are encouraged to roam about the host community rather than segregated from it by the enclosure policy. "Liveliness" of local communities is an important element to attract tourists. For this purpose, a "tourism subdivision" should be established. In a subdivision, several hotels may share sports or convention facilities. Within a subdivision, hotel guests can visit any other hotel or restaurant, while day visitors are charged at their common gates to the subdivision. This concept is illustrated on the following page.

Under this concept, standards and guidelines prepared by DOT should be followed for tourism development in CLABARZON. Their application should be flexible enough to allow tourism planners and developers to be innovative and imaginative in developing particular areas.

Second, development efforts should be strategically concentrated on a few selected tourism objects rather than being spread over many small tourism objects. For international tourism, the Ternate-Nasugbu coastal tourism zone, Mabini coastal tourism zone, and the Taal lake tourism zone should be emphasized. Other tourism zones will be primarily for domestic tourism.

Tourism development in Quezon will be important in the overall tourism development in CALABARZON in the long run. In particular, the Polillo islands area deserves special attention. As an initial step, a comprehensive resource inventory should be conducted for the entire area, and an action development plan prepared centering around tourism, covering related activities and support infrastructure and facilities.

Concept of "Tourism Subdivision"



6.2 Development Projects

6.2.1 Project evaluation system

There are a large number of projects proposed by the CALABARZON provinces and other implementing agencies and additional projects newly formulated. A stepwise evaluation will be conducted to prioritize these projects.

For all the projects, preliminary screeening is conducted. The main criterion is whether they accord with the basic concepts of the Master Plan: to what extent they contribute to the attainment of the CALABARZON regional development objectives, whether they are in line with the basic strategy, and particularly whether they are in accordance with the development concepts expressed in the development scenario.

Those projects satisfying these screening criteria are advanced to prioritization. A consistent evaluation system is established and applied to all the selected projects to determine their priorities. Evaluation results are subjected to further scrutinization by other criteria not explicitly reflected in the evaluation system before final prioritization is determined.

6.2.2 Evaluation criteria

(1) Principle

Criteria to be used in the second step of stepwise evaluation (prioritization) need to be established. A principle generally applicable to project planning and evaluation is "to formulate projects with respect to needs and to evaluate them with respect to objectives". Therefore, development objectives related to CALABARZON regional development are referred to (subsection 3.1.2).

(2) Existing evaluation criteria

NEDA criteria

NEDA has a system for evaluating development projects proposed by various government agencies. It consists of many evaluation indices with allocated scores under several broad evaluation categories and weighting by category to calculate overall scores. The broad categories are the following:

1) economic desirability,
2) project cost and financing,
3) social desirability
4) regional growth and dispersal, and
5) institutional considerations.

Many of the evaluation indices defined under these categories overlap with one another. The basic idea of this evaluation system seems to have as many evaluation indices as conceivable to make sure any inherent aspect of a variety of projects is captured by one criterion or another so that overall evaluation results do not discriminate against any type of project. This is a sensible approach. However, at least another broad category should be defined to represent environmental aspects.

General criteria

Another set of criteria is provided by the four accounts system that is generally used for development planning for a large area. Evaluation by this system is made on the four evaluation accounts:

i) national economic efficiency (NE),
ii) regional development (RD),
iii) social well-being (SW), and
iv) environment quality, (EQ).

(3) Evaluation system for CALABARZON

Evaluation criteria for CALABARZON

The CALABARZON development objectives represent and cover all the essential aspects of development. They contain collectively the four main aspects: (1) economic efficiency or growth, (2) employment creation, (3) equity including both balanced income distribution through poverty alleviation and balanced spatial development, and (4) environmental quality. These aspects, in fact, represent the four evaluation accounts generally used in planning for a large area presented above. Therefore, the four account evaluation system is adopted here as a basic framework for the evaluation of various component projects of the Project CALABARZON. In addition, institutional aspect is also explicitly considered, following the NEDA evaluation system.

Specific evaluation criteria on each evaluation account are listed in Table 6.1.

Scoring

Evaluation of projects is based on three ranks for each of the criteria listed in Table 6.1, and the score of 0, 1 or 2 is given for each rank based on the qualitative reasoning summarized in Table 6.2. The total score is calculated by simply adding scores for all the criteria. Alternatively, the total score may be obtained by evaluation account, some weighting may be applied to different accounts, and the overall total obtained as a weighted sum of the scores for different accounts.

Additional criteria

Additional criteria may be applied to project evaluation from pragmatic points of view. First, the stage of project preparation is an important consideration to judge the maturity of any project. Second, inter-relationships among different projects may be reflected in the final project prioritization. Especially after the preliminary ranking based on the five account system, those projects having relatively small score but strong relationship with any selected priority project may be advanced for early implementation in order to enhance the overall project effects.

6.2.3 Project prioritization

The evaluation system established above is applied to all the projects passed the preliminary screening. No weighting is applied to different evaluation accounts, and the total score is just the sum of scores for all the accounts.

Results of this evaluation are summarized in Table 6.3 only for candidate urgent projects. In the table, all the projects are classified into three categories: (1) infrastructure projects, (2) projects of economic activities, and (3) social projects. These projects are different in character so that the evaluation results cannot be simply compared by the total score alone.

The anchor projects of the Project CALABARZON are the original set of anchor projects proposed by the Philippine agencies and additional projects newly formulated by the Master Plan and selected as a result of the evaluation above. For some original anchor projects, only studies are recommended for Phase 1, and further actions are subject to the study outcomes. The original set of anchor projects and recommended actions during Phase 1 and Phase 2 for each, reflecting the evaluation, are summarized in Table 6.4.

The selected anchor projects are classified into eight categories: (1) port development, (2) roads and highways, (3) industrial supports, (4) urban development, (5) agriculture, (6) rural development, (7) social development, and (8) environmental management.

Implementation schedule of these projects is indicated in Figure 6.4. Profiles of newly formulated projects are contained in Attachment K.

6.2.4 Project description

(1) Port development

The port development component of the Project CALABARZON consists of the Greater Capital Region integrated port development study, the Batangas Port Upgrading, and the Sangley Point conversion.

(1.1) The Greater Capital Region Integrated Port Development study is to assess locational conditions of alternative ports in the Greater Capital Region, including Manila ports, Batangas port, Sangley Point conversion, Subic US naval base, Mariveles port, Lucena port and Real port, and to clarify their functional division in the overall flow of goods in the future centering on Metro Manila. Expected functions of Batangas port and Sangley Point will be clarified together with types and amounts of cargoes to be handled in the future. A pre-F/S of the Sangley Point conversion to container terminal will be undertaken within the scope of this study.

(1.2) The Batangas port upgrading project will be implemented in stages. Detailed engineering of phase 1 has been completed, and the implementation will be undertaken in Phase 1. A prerequisite to the implementation is to solve the relocation problem in the port area (barangay Sta. Clara). A F/S of phase 2 will be conducted also during Phase 1 on the basis of the study (1.1) for subsequent implementation in Phase 2. Further development will be subject to the outcome of the study (1.1).

(1.3) The Sangley Point conversion to container terminal may be implemented in Phase 2, subject to the outcome of the study (1.1). A full F/S may be undertaken prior to the implementation.

(2) Roads and highways

(2.1) The Cavite coastal road is expected to be developed by the public-private partnership on the land to be reclaimed. In view of compensation problems for coastal aquaculture foreseen, alternative inland routes may be preferred. This will be examined first by the Cavite coastal road alternative study. The study will take

account also of the Gen. Trias-Rosario road, for which detail engineering is available.

(2.2) The Cavite north-south highway will establish the second north-south highway and serve for both inter- and intra-regional transport needs after its completion. The highway constitutes a natural extension to CALABARZON of the planned circumferential road no. 5 for Metro Manila, and will provide another effective link between the Metro Manila urban transport system and the CALABARZON regional transport system. A F/S will be undertaken during Phase 1, and implementation in Phase 2.

(2.3) The primary/secondary road rehabilitation will be continuously implemented through Phase 1 and Phase 2.

(2.4) The Carmona-Ternate-Nasugbu road is ready for implementation with detailed engineering completed in March 1990. In view of different functions of the Carmona-Ternate section to serve the industrial areas and the Ternate-Nasugbu section to provide access to tourism areas, the original plan will be reviewed and implemented with relevant modifications.

(2.5) The Calamba-Sto.Tomas-Batangas expressway will be implemented by section. The construction of the Sto. Tomas - Lipa City section will start in 1991, and the project will complete by 1997.

(2.6) The Marikina-Infanta road is a conceived east-west highway connecting Metro Manila and Infanta-Real in Quezon. The initial section near Metro Manila may be improved during Phase 1. In the meantime, the F/S will be updated, reflecting the CALABARZON regional development envisioned by the Master Plan.

Other small road projects will be implemented under regular programs of respective implementing agencies.

(3) Industrial supports

A set of infrastructure projects are included in this component to support the industrial development. They include the Cavite export processing zone (EPZ) expansion, telecommunication projects, and power generation, transmission and distribution projects. The groundwater potential study is also included to support future industrialization.

(3.1) The Cavite EPZ expansion will be undertaken in Phase 1. So far, 75 ha for phase I and part of 40 ha for phase II have been developed. The remaining area will be developed in phases.

(3.2) The Dasmariñas-Silang telecommunication system upgrading will be implemented during Phase 1. The project consists of the improvement of existing telephone exchanges at Dasmariñas and Silang and associated upgrading of toll transmission links. A F/S will be completed by the end of 1992 to be followed by implementation.

(3.3) Th urban center telecommunication improvement will be implemented in Phase 2. During Phase 1, targets for this project will be clarified. Those urban centers that are expected to grow more rapidly with superior potential will be identified based on the Project CALABARZON Master Plan.

(3.4) The Calaca II coal thermal plant will be initiated with 300 MW during Phase 1, including its associated coal-handling facilities, switchyard equipment and a main 230 kV transmission line, financed by OECF. Expansion of the substation capacity at Dasmariñas with two units of 100 MVA transformer is financed by the World Bank. A prerequisite to the implementation is to solve the existing air pollution problems.

(3.5) The power transmission and distribution improvement is to expand the capacity of existing Dasmariñas and Rosario substations and construct a new 115 kV double circuit transmission line between them over 15 km. The project also has a component to increase power supply capacity, reduce system energy loss in existing distribution networks and supply stable and reliable power to areas of major industrial development.

(3.6) The CALABARZON groundwater potential study will provide a comprehensive survey of groundwater reserves in CALABARZON and quantitive evaluation of their yields. Future industrialization of CALABARZON will depend critically on groundwater availability. This study will generate data essential for rational industrial location, avoiding over-exploitation of groundwater and associated problems.

Other telecommunication projects by PLDT and other private companies will be implemented according to their plans.

(4) Urban development

The urban development component of the Project CALABARZON focuses on rapidly urbanizing areas and selected urban centers expected to play important roles in the future development of the CALABARZON region. It consists of a few planning studies and projects of improving urban and related infrastructure.

(4.1) The Laguna west urban region development is a planning study to prepare a detailed land use plan for this rapidly urbanizing area and to formulate projects of urban infrastructure including city streets, housing, water supply and sewerage. Institutional arrangements necessary to enforce land use regulations and to facilitate the implementation of the infrastructure projects formulated will be clarified through the study. The projects will be subsequently implemented by the local government initiative.

(4.2) The Batangas-Bauan urban development is also a planning study similar to the study (4.1). The broad land use plan already prepared by the provincial government of Batangas will be taken as a base, and a more detailed land use plan will be prepared in cooperation with related municipalities as well as the province. Priority projects of urban infrastructure will be formulated for subsequent implementation by the local government initiative.

(4.3) The Taal lake multipurpose water resources development is to develop alternative water supply sources for the eastern and the southern parts of the Taal lake which are expected to be rapidly transformed into urban/industrial/commercial areas. Intended water use is primarily for municipal and industrial water supply, but the possibility of irrigation water use will also be examined. Alternative water sources include not only the Taal lake itself but also the Kalumpang river.

(4.4) The rehabilitation of PNR south commuter line will be implemented as planned during Phase 1. The project will help to retain this railway line as a viable option for years to come to serve the Laguna west urban region, and become a basis for further improving the railway system in CALABARZON to support the urbanization/industrialization in selected areas.

(4.5) The integrated urban/industrial development will be implemented for selected urban centers one after another. A package of component projects will be prepared for improving the urban infrastructure and utilities to meet the specific needs of an urban center to fulfill its expected roles. Components of packages are different depending on urban centers with different roles expected in the future. A few urban centers will be selected for initial implementation, depending on their project preparation efforts and project implementation capabilities. The project will become replicable to other urban centers with respect to implementing arrangements including funding.

(5) Agriculture

The agricultural component of the Project CALABARZON will rely largely on the extension to CALABARZON of on-going national efforts, including rehabilitation of coconut plantations and livestock improvement. The main target area is the province of Quezon, but other areas will also be covered. Only two anchor projects are included here. Other projects include the small water impounding projects in Rizal upland and the Bondoc peninsula of Quezon, and the Cavite upland irrigation project.

(5.1) The Batangas east agricultural development will fully utilize the large area to the east of Batangas City, which at present is used rather extensively with low productivity. A master plan will be prepared during Phase 1 with priority projects in livestock, irrigated crop cultivation and other fields. Implementation of the projects in Phase 2 is subject to the establishment of respective feasibility.

(5.2) The research and extension program on inter-cropping and mixed farming aims at enhancing the income level of small coconut farmers in the upland coconut planted areas. It consists of applied research, training of extension workers, and provision of extension and credit to small coconut farmers. Initial implementation will be undertaken during Phase 1 after more precise project formulation for specific areas. Implementation may be extended to Phase 2 for different areas, applying the experiences gained through the initial implementation.

(6) Rural development

The rural development component of the Project CALABARZON contains five different kinds of projects. All of them will be implemented during Phase 1.

(6.1) The Laguna upland integrated rural development aims at enhancing the rural income in the upland municipalities of Laguna by promoting production of high value-added horticultural crops. For this purpose, the project will improve rural access, establish effective links between research and extension, improve input delivery, establish marketing outlets and provide credit.

(6.2) The Quezon upland integrated rural development is similar to the project (6.1) for enhancing rural economy through the production of high value-added horticultural crops. This project will contribute also to improving the peace and order situation in the highland area of Quezon.

(6.3) The Rizal inland agro-industrial park has dual objectives of developing inland areas of the Rizal province and conserving environmentally vulnerable upper catchment areas. Specific objectives are (1) to provide the means of livelihood for rural people by creating productive agro-industrial area in the upland of Rizal, (2) to promote proper management of land resources to prevent erosion and other environmental problems, and (3) to prevent unorderly urbanization/industrialization into the Marikina watershed.

(6.4) The rural energy development program will contribute first to the completion of rural electrification in CALABARZON by development of mini-hydro, and second to the acceleration of research and development for non-conventional energy. Non-conventional types of energy to be supported by financial and technical assistance include biomas direct combustion systems, biogas systems, alcogas production from sugarcane, commercial solar thermal systems, and photovoltaic technology.

(6.5) The rural roads maintenance system will be established in Phase 1 based on barangay as a functional unit to maintain and rehabilitate rural roads by utilizing self-help efforts of local people. The system will be supported by the provision of basic facilities and equipment as well as technical training. The system will be implemented during Phase 1 as a pilot project.

(7) Social development

All the component projects of the Project CALABARZON will contribute to the promotion of social welfare of the local people in different degree. The overall degree in which the Project CALABARZON will contribute to the people's welfare will depend on the social capacity of the people. Therefore, projects addressing more directly to increasing social

capacity of the people are also included here. They are the Southern Tagalog manpower training and employment program, the upgrading of the Batangas regional hospital, and the integrated regional livelihood development. These projects together with other smaller projects will constitute the comprehensive social development program package (CSDPP) for the Project CALABARZON.

(7.1) The Southern Tagalog manpower training and employment program will integrate all the on-going and planned activities of related agencies for manpower development through the identification of needs for skills training, comprehensive review of curricula of training courses, implementation of manpower training programs, and monitoring and evaluation. The Regional Manpower Training Center will be established as core facilities to effect the implementation of the program (see Subsection 6.3.2).

(7.2) The upgrading of the Batangas regional hospital will expand the present hospital, upgrade its equipment, and make it the center of the network for health service delivery in CALABARZON. A study, design, construction and training will be all conducted during Phase 1.

(7.3) The integrated regional livelihood development will support various livelihood activities by providing service packages and finance in a coherent way. The establishment of institution for livelihood development through the conduct of a regional livelihood potential and market study is an important component (subsection 6.3.2).

(8) Environmental management

Environmental management is a very important component of the Project CALABARZON. The high economic growth envisioned by the Master Plan cannot be sustained without having simultaneously proper management of environment. This is particularly true for the CALABARZON region, which has generally vulnerable water and related land environment represented by the Laguna de Bay and its catchment area and the Marikina watershed. Thus, this component contains two anchor projects corresponding to these areas.

(8.1) The Marikina watershed development and management will be a comprehensive package of measures to be taken to protect and enhance the Marikina watershed. It will start with reforestation of selected areas, but more positive measures will be

formulated at the same time for subsequent implementation. Opportunities for productive activities will be provided to prevent illicit logging and shift cultivation activities in such a way that will not cause soil erosion and other environmental problems. Agro-forestry and production of high value-added crops with on-farm tree planting and other proper farming practices will be promoted. The on-going integrated social forestry program will be effectively utilized to complement this project.

(8.2) The Laguna basins environmental monitoring will establish an environmental monitoring and evaluation system for the Laguna basins. The project will contribute to minimizing possible environmental problems associated with the Project CALABARZON implementation by allowing the identification of problems at an early stage of development, modification of implementation plans, and formulation of corrective measures. The project will establish an environmental data base, consisting of data related to natural/physical and socio-economic conditions. Relationships between these different kinds of data will change over time as will be monitored by the established system. The data base will allow processing those data and outputing them in the form necessary for particular uses. In particular, the data base will provide a common basis for conducting environmental impact assessment (EIA) of individual projects.

Two other projects are related partly to environment. They are the Talim island integrated area development in Rizal and the Looc Hacienda tourism development in Batangas.

6.3 Support Measures for Agriculture and Industry

6.3.1 Agriculture

A comprehensive package of supporting service will be required to achieve the agricultural development objectives envisaged by the Master Plan, consisting of agricultural research, extension services, farmer's credit and others. Proper marketing constitutes another important factor to motivate producers. These services and measures should be organized in the following way.

(1) Research

The following research work should be conducted to increase agricultural production in CALABARZON:

- *inter-cropping and/or multi-story farming practice for upland area*, especially coconut-based farming; this may include relatively new crops that may be introduced in some areas under inter-cropping and/or multi-story farming systems such as some kind of vegetables, cacao and mushrooms,

- sorghum and millet farming for upland of Batangas and the Bondoc peninsula as an alternative to corn for feed;

- soil conservation practice in the upland area and mountainous area to prevent erosion;

- farming system including cropping pattern and crop rotation in the upland area considering the long dry season; and

- integrated farming of crop and livestock production for sustainable agriculture; this may cover recycle-based systems linking these activities (subsection 6.1.2).

These research activities will be undertaken with close cooperation with extension workers who are expected to link with farmers. Existing research institutes should be effectively utilized with proper supports for these and other research activities. In particular, the Don Severino Agricultural College should be supported for research on inter-cropping and other intensive farming systems and various agri-business, and the Rizal College of Agriculture

and Technology for research on soil conservation practice and crop rotation in the upland, and integrated farming of crop, livestock, poultry and sericulture, and the Southern Luzon Polytechnic College in Lucban for research on horticulture and vegetation analysis. Other research areas may include bamboo planting, anthurium and other office plant production and upland soybean production.

(2) Extension

After the re-organization of DA in 1987, every extension worker or APT (agricultural Production Technologist) has had to cover not only his speciality but also all fields including crop, livestock and fishery. They have been facing difficulty in adapting themselves to unfamiliar fields. Those extension workers should be trained in a wide range of fields. Training systems for extension workers should be established.

The number of extension workers is not sufficient except for Laguna province being in the range of one APT to more than 500 farmers. Considering the current farm visit frequency of four times a month or once a week, the number of APT should be increased so that one farmer covers 200 - 300 farmers.

Extension workers should function as a linkage between research stations and farmers. They will transfer knowledge to farmers about farming practice or any techniques based on the research results, and inform researchers of constraints on technical matters raised by farmers.

(3) Finance

There are several financial credit schemes being extended by governmental agencies. They are: a) agricultural credit, b) crop insurance, and c) guarantee fund.

Since agriculture is rather risky business, private lending institutions are hesitant in extending loans especially to small farmers. The amount of loans which the Government has extended to farmers is very limited, being estimated at only 6% of the total requirement. Although it is ideal that the amount of loans increases to meet the demand by farmers, the Government may be incapable of doing so due to its financial position.

Crop insurance and guarantee fund will be prospective financial schemes to encourage private banks to extend loans even to small farmers. By increasing those financing schemes, total loan amount to agricultural sector will also be increased.

(4) Cooperatives

In line with the national agricultural development goals, cooperative development has been promoted. Cooperatives will enhance community development through its collective efforts. They make the procurement of credit easier for farmers, since it makes good credit conduits with its grassroots network and its built-in mechanism for capital formation. It will also enable the Government's institutions to deliver services to the clients more effectively.

To improve and promote further cooperative development, following measure should be undertaken by the Government:

- to extend manpower training,
- to extend credit, insurance and guarantee to support financial base, and
- to advise the integration of cooperatives.

(5) Marketing

The Government deals with marketing only of rice and corn, two main staple foods. It does not regulate or intervene any market of other commodities, and the private sector is actively dealing with those markets. Producers other than those of rice and corn sometimes suffer from low selling prices due to over-production. The information on market prices in several markets should be transmitted to farmers so that they can decide where to sell their products.

The Bureau of Statistics is currently extending this information service. It is recommended that the daily information on prices be filed and monitored by the Bureau, and that the information be accessible to farmers. Also extension services should cover broad marketing prospects of crops to be encouraged.

6.3.2 Industry

(1) Policy measures

Investment and production decisions made by the private sector are affected by national policies and overall performance of the Philippine economy to a different degree, depending on the types and the size of industries. The roles of the Government are to

establish an appropriate macro framework to channel resources into more competitive subsectors,to maintain certain policy stability, and to take other support measures. Policy measures at the national level are discussed in this section. Other support measures that are more specific to CALABARZON are discussed in the next sub-section.

Industrial policy

The industrial policy formulation and implementation encompass monitoring of industrial performance, investment and trade policy, finance, technology, and manpower development. DTI/BOI and NEDA perform various functions related to these. Other agencies are also involved, prominent among these being the Bureau of Customs for trade policy, DOST for technology development, and DOF and the Central Bank for finance. Regardless of which agency is in charge of industrial policy (DTI or NEDA), the responsibility for implementation of industrial policy needs to be clarified. DTI's roles may be more subsector - oriented. A new division may be created within DTI responsible for specific strategic subsectors in order to lead consistently and coordinate the private sector's activities along the national industrial policy.

Investment incentives

The major emphasis in the Philippines for export promotion is on encouragement of export oriented new investments. The decision making authority for both foreign and domestic investments is BOI. Once the incentives to be granted are decided, the process of incentive availment is very clear. The institutional mechanism for identification of the type of incentives to be granted, and classification of firms for the level of incentive availment, however, needs to be strengthened. Not granting incentives to investments for areas regarded as "adequately exploited" reduces entry of new firms. This may result in price collusion, and lead to production inefficiency in these protected sectors.

The Government identifies areas where investments will be encouraged by specifying them in the Investment Priorities Plan (IPP). An alternative way is to prepare a "negative list" specifying areas where new investment will not be encouraged and to provide access to the incentives by all firms in sectors not specified in the negative list. General directions for investment incentives should be toward being "more selective" in investment areas but "simple and non-discriminative" in incentive provision.

Additional incentives should be considered for parts / intermediates industries in order to strengthen industrial structure and enhance multiplier effects. This may include permission of 100% foreign ownership for such industries.

Export promotion

1) Duty free inputs

For the existing firms, the only export incentive is access to duty free inputs used for export production. The main channel for this is the BMW system. Another mechanism is EPZ, but its role is minor in terms of the number of companies and export revenues generated. Production inputs may also be imported under Customs Administrative Order 3-78, but that system is used by very few firms.

Most large manufacturing companies operate their own bonded warehouses. Smaller companies can utilize one of the four common warehouses for a service fee ranging from 3 to 5 % of the CIF value of inputs.

There are extremely complicated procedures for establishing a bonded warehouse, and for utilizing the inputs in the warehouse. The operator is required to pay a service fee to meet the expenses of the customs officials assigned to the warehouse and exports are monitored to account for the inputs brought into the warehouse.

A partial alternative to the bonded warehouse is the standard duty drawback system. An exporter may receive a drawback, calculated as a proportion of the export value, if he can prove that input duties have been paid on the imported inputs. This, however, is possible only if the commodity exported is one of some 250 commodities for which a standard has been established or otherwise he goes through the process of having a standard established.

An exporter benefiting from the standard drawback scheme will have to pay import duties at the time of importation, and the VAT on domestically procured inputs. He will receive a tax credit (not cash refund) after exportation. It may take several months or longer to actually receive the tax credit certificate after exportation. The certificate is denominated in nominal pesos and can only be used in settlement of tax accounts with the Government.

These complicated administrative arrangements may not deter the large exporters who have specialized staff. In the Philippines, however, most exporters have a small volume of exports. Duty free access to inputs is thus available only to a handful of firms.

One simple solution is to issue tax credits to all exporters on the basis of past performance. These credits will be based on standard rates and will exclude traditional exports such as coconut products, lumber and mining products. The special credit will be valid for settlement of import duties for manufacturing inputs, or also for payment of corporate income tax as well. A simplified review process could be introduced to allow for inclusion of new export companies, and companies whose exports expand rapidly.

2) Linkage industries

The "enclave" nature of export industries in the Philippines is largely due to the disincentives for procurement of local parts/components. A large exporter located either in EPZ or operating a bonded warehouse has access to duty free inputs. The prices in the domestic market are above the world prices due to tariffs and trade/transport margins. Given the high prices in the domestic market, the domestic manufacturer will supply the export companies only with the incentives provided to him as an indirect exporter compensating for the difference between the domestic and world prices given the exporter's access to inputs at world prices.

Indirect exporters are entitled to tax credits in the same manner as in the case of standard rates discussed above. Aside from the issues of the real value of tax credits, the indirect exporters are restricted by the requirement that they should be the actual importer and have paid duties on imported inputs. Since indirect exporters are likely to be even smaller than the exporters, it is unlikely that they would have actually imported their own inputs. In cases when these inputs are purchased from an import trader, the present system does not provide tax credits.

A system of export trading warehouse (in addition to export manufacturing warehouse) was established in 1988 to specifically address this problem. Indirect exporters who could not individually import their inputs were expected to utilize this trading warehouse. The operation of the only trading house established for that purpose has now been suspended due to the perception that it has been misused.

3) Production for domestic and export markets

All incentives provided to manufacturing companies discourage these firms from serving the domestic market. In the case of EPZ firms, sales in the domestic market are allowed only under special circumstances and may not exceed 30% of its

output. Only firms exporting 70% of their output are eligible for establishing a bonded warehouse. There are similar requirements for new investments. Two major results of this policy are to deny many firms the possibilities of exploiting scale economies and to confine the export composition to few commodities.

The Philippines domestic market has large potential for many manufactured commodities. The combination of this large domestic market and export production will allow firms in many sectors to reach the minimum efficient production scale. This is true of many consumer durables. Similar opportunities are available for a wide range of products including agricultural machinery, construction and agro-processing equipment, and cast and forged parts.

The key change should be the encouragement of all existing companies to export. Conversely, companies operating under the BMW system and those in EPZ should be allowed to sell in the domestic market. Similarly, export and investment incentives should be made available to all companies regardless of the level of exports. This broad based re-orientation towards export will also help to diversify the commodity composition of exports, making more commodities internationally competitive.

Finance

The government policy for the financial sector is to limit the size of government owned development banks and rely on the private banks to finance the industrial sector. With the low level of savings and large fiscal deficit, the real interest rates have varied between 10 to 15% over the last three years. Even at these rates, SME's have limited access to commercial bank loans due to difficulties in meeting collateral requirements and the high administrative costs of processing small loans which make the commercial banks reluctant to lend to SME's.

The government response to high interest rates and limited SME access to commercial credit has been to create special lending mechanisms. Most of these are directed to agriculture. Industrial lending is mainly provided through TLRC and DTI for SME's on concessional terms, and DBP on market rates for large firms.

The long-term objectives for the financial sector are to reduce the fiscal deficit, reduce the cost of financial intermediation and develop new instruments to increase the resource availability. In the short-term, however, the resources available to the private sector are

likely to remain limited. Special lending programs to the industrial sector, therefore, will continue to be critical for financing the industrial sector in CALABARZON.

The number of banks accredited with DBP will be selectively improved in CALABARZON. Urban centers identified for industrial/urban growth will receive priority. Manufacturing firms in these centers will have priority access to the financial resources made available through DBP. The interest rate on these types of loans presently is around 20% compared with commercial rates of around 30%.

Funds for SME's will be channelled through TLRC and DTI. The amount of lending per borrower is limited at present to ₱ 5 million under the TLRC program and to ₱ 25,000 under the DTI program. The interest rates and repayment terms are highly concessionary under these two programs. The funding under these two programs will be coordinated with a technology development program as discussed below.

Technology development

The technology development program is designed to address three bottlenecks. These are: a) technology upgrading; b) facility upgrading; and c) manpower development and skill upgrading. The priority will be given to technology support to three sub-sectors during the first phase of Master Plan implementation. These are fabricated metal products, food processing and plastics. The primary responsibility for technology improvement for the first will be borne by Metal Industry Research and Development Center (MIRDC). The other two sectors would rely on services to be provided by Industrial Technology Development Institute. More general information on available technologies on all the three sub-sectors will be provided by TLRC.

The subsectoral coverage of technology improvement program will be expanded during the second phase of Master Plan implementation. One additional sub-sector to be served during that stage is ceramics and other clay products.

The focus of technology upgrading program is SME's. For large companies, continued access to imported capital goods, tie-ups with foreign companies, development of consulting engineering capability and fiscal incentives for R & D will play the key role. The technology component will be coordinated with a financing program to expand the production capacity and upgrade the existing facilities in order also to enable SME's to build the analytical capability to develop long term programs.

(2) Direct support measures

In addition to the policy measures described above, other direct support measures should be taken. These measures address more region-specific issues under the CALABARZON industrial development strategy. They cover such issues as manpower development, inter-industry linkages, technology upgrading and spatially balanced development, and emphasize SME's and local initiative. Implementation of these measures is broadly phased as below under three headings corresponding to the industrial development strategy.

	(1) Enhancement of production capability	(2) Promotion of decentralization	(3) Integration of regional economy
Phase 1 ~ 1995	Regional Manpower Training Center	Additional incentives for industries locating outside Metro Manila	SME's Industrial Estates Development Project
		Provincial Industrial Estate Development Program	Integrated Livelihood Development Project
Phase 2 1996~2000	Commerce and Industry Plaza Complex	Batangas Regional Industrial Center	Continuation of the above
Phase 3 2000~2010	Regional Testing and R & D Center		

Enhancement of production capability

Three support facilities will be established in CALABARZON: the Regional Manpower Training Center during Phase 1, the Commerce and Industry Plaza Complex during Phase 2, and the Regional Testing and R & D Center during Phase 3.

1) *Regional Manpower Training Center*

This aims at strengthening functions of manpower training particularly for engineers and skilled workers by integrating activities of related agencies in order to prepare a firm base for industrial development in the Southern Tagalog region. The Center should locate in CALABARZON.

DOLE should take the lead in promoting this project, and function as the project management group coordinated with NEDA. Other concerned agencies include DTI, NMYC, DECS, DILG and DOST (project profile in Appendix K).

2) Commerce and Industry Plaza Complex

This is a public-private partnership project to establish a regional center for the exchange of business information among industries and entrepreneurs. This will contribute to the promotion of inter-industry linkages by expanding business opportunities and also to the upgrading of industrial technology.

DTI with its provincial offices should take the lead in implementing this project. The provincial governments of CALABARZON are expected to provide sites. The city or rural chambers of commerce and industry should initiate the project by organizing entrepreneurs and other industrial entities to support the construction.

The Plaza Complex is a building to be occupied by regional organization of chamber of commerce and industry, head offices of local enterprises, regional offices of government agencies and other business support services. It will be equipped with meeting rooms, multi-purpose hall, exhibition space and other facilities.

3) Regional Testing and R & D Center

The project aims at fulfilling the expanding need for testing as the industrialization progresses and assisting the private sector for technology and product development and thereby promoting industrial dispersal. This kind of facilities organized under DOST concentrate largely in Metro Manila, making the access difficult for industries located in Batangas and other outer areas of Region IV.

DTI with its regional and provincial offices should take the initiative in implementing this project. The provincial government of Batangas is expected to provide site. With this project completed, activities of DOST will focus more on areas of science at the national level rather than technology at the regional level.

Promotion of decentralization

1) Incentives for industrial location in CALABARZON

Spillover/relocation of industries from Metro Manila will be effectively utilized to promote industrial development in CALABARZON. Investments in Metro Manila are already without incentives in principle. In addition to this "negative incentive",

it is necessary to create a "positive incentive" to stimulate spillover/relocation from Metro Manila.

For this purpose, it would be effective to exempt tax on income replacing industrial assets out of Metro Manila. This incentive will bring about innovation of industries through partly assuring funds for installing advanced equipment.

Also, accelerated depreciation should be applied to industries locating in CALABARZON. This incentive will make start-up of factory operation smooth and decrease the burden of working capital lending.

2) Provincial Industrial Estate Development Program

This program aims to establish a provincial industrial estate (PIE) in the inland area of Batangas with the public sector initiative in order to induce the agglomeration of industries there. It will be implemented through the following procedures :

i) selection of candidate sites for the PIE,

ii) formulation of a development and management program for the PIE, including measures to promote SME's,

iii) development of the PIE, and

iv) implementation of an integrated program for inducing the location of industries in and around the PIE.

The government policy appears to be directed to the promotion of industrial estates (IE's) by the private sector. IE's existing and planned in CALABARZON are mostly due to the private sector efforts. However, no IE is planned in the inland area of Batangas, where the South Super Highway extension will enhance the potential for industrial development. Therefore, the public sector should take the initiative to develop an IE with a full range of infrastructure in advance of spontaneous industrial location by the private sector. Such an IE would better be equipped not only with "the industrial minimum" but also with additional amenities to make a precedent for subsequent IE's.

An alternative scheme for IE's is provided by the planned Bauan PIE. This has been promoted through a public-private partnership, and "the third sector

corporation" shared by the municipality of Bauan and the private enterprises will develop and operate it.

The key to its success is to formulate a development and management program for the PIE, especially to examine and assess alternative organizational arrangements. As the first step, DTI should organize a committee in cooperation with NEDA-NIEP (National Industrial Estate Program) and the provincial government of Batangas to discuss the matter.

3) Batangas Regional Industrial Center

Regional Industrial Centers (RIC) are designed by DTI to provide a full range of infrastructure needed by industries for one location in principle in each of 13 regions. There are 16 RIC's. Batangas RIC and Cavite EPZ are designated by DTI for Region IV.

Batangas RIC has 750 ha prepared for the purpose, but no substantial progress has been made to date mainly because organizational arrangements for its development and management are not clear. Thus, this should be realized in Phase 2, based on the study mentioned under the PIE Development Program.

Integration of regional economy

Two projects should be initiated during Phase 1 and continued through the subsequent phases.

1) SME's Industrial Estates Development

This project will provide the space and facilities for SME's. Promotion of SME's is a focal point of the national industrial policy because of their contribution to employment generation and economic growth. The demand for IE sites for SME's will increase as livelihood industries expand from household operation to factory operation.

However, it is not easy for SME's to locate in any IE developed by the private sector due to high land prices. Therefore, the public sector is expected to provide low cost land and facilities by developing IE's for SME's.

DTI and local governments should take the lead in implementing the project. In urban areas, IE's for SME's may be developed by local governments as part of urban renewal of specified areas. In areas to be newly developed by the private sector, an IE for SME's should be a part of their development plan.

2) Integrated Livelihood Development

This project aims at establishing an effective implementation system of livelihood development throughout CALABARZON. It will consist of (1) a regional livelihood potential and market study, (2) establishment of institution for livelihood development, (3) financial arrangement, and (4) provision of supportive service package.

One of important outputs of the project is to create zones with specialized/descriminated products. Division of labour will be performed rigorously and information or technology concerned will be accumulated by zone.

DOLE and REMDC will be the main implementing agencies, with firm commitment of DTI. Linkages of NGO's and government agencies will be very important. Many livelihood ventures are expected to take part actively in the process already of the study. The progress of the study itself is to pick up livelihood ventures leading to the formation of specified zones and the organization of livelihood members concerned.