社会開発調査部報告書

No.

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TRADE AND INDUSTRY

THE MASTER PLAN STUDY ON THE PROJECT CALABARZON

FINAL REPORT

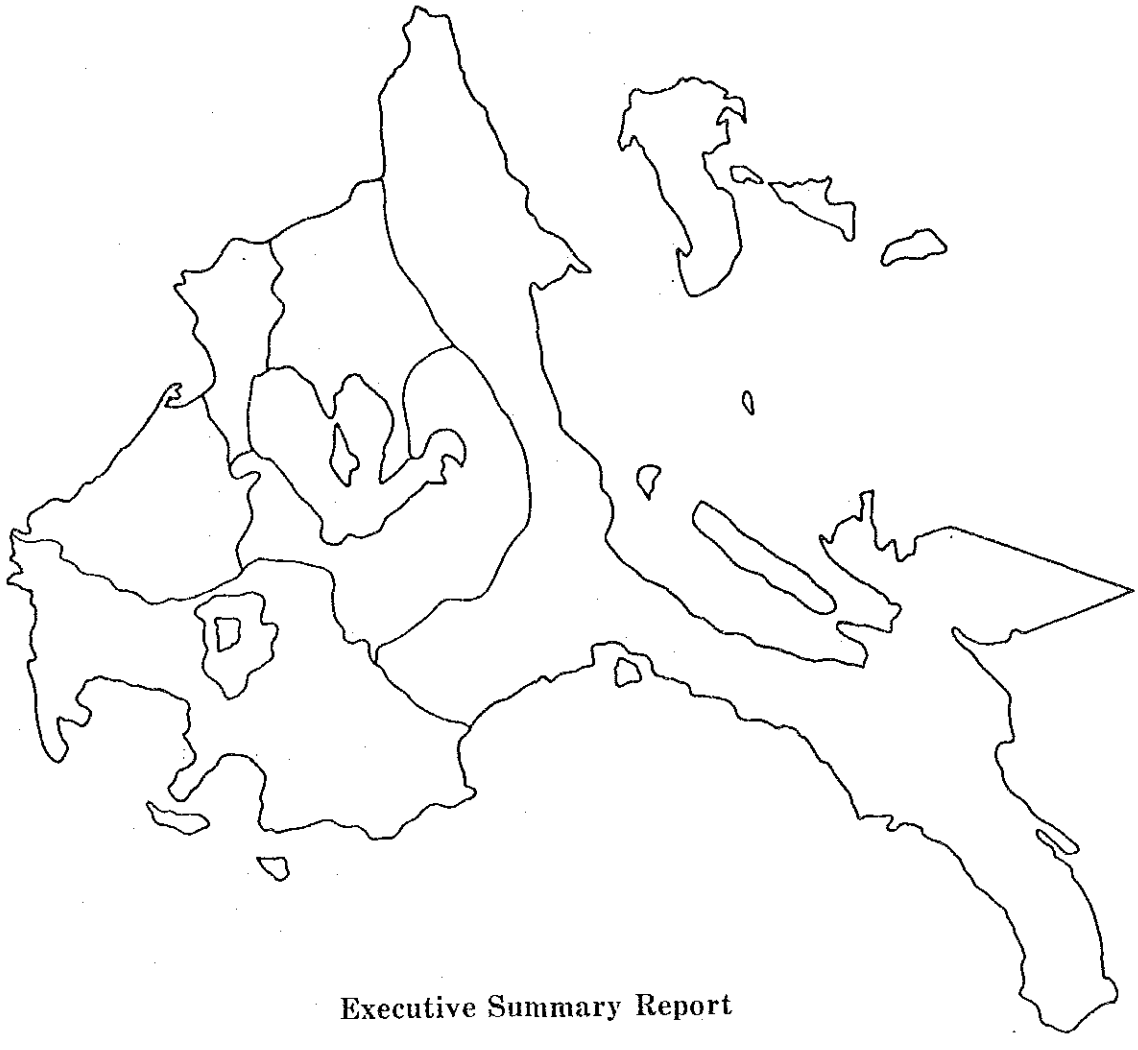
Executive Summary Report

October, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TRADE AND INDUSTRY

THE MASTER PLAN STUDY ON THE PROJECT CALABARZON



Executive Summary Report

October, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

LIST OF REPORTS

1. Executive Summary Report

2. Master Plan Report

3. Appendix A : Agriculture

4. Appendix B : Industry

5. Appendix C : Tourism

6. Appendix D : Water Resources

7. Appendix E : Transportation

8. Appendix F : Telecommunications

9. Appendix G : Energy

10. Appendix H : Urban and Spatial Development

11. Appendix I : Social Development

12. Appendix J : Environment

13. Appendix K : Project Profiles

PREFACE

In response to a request from the Government of Republic of the Philippines, the Government of Japan decided to conduct a master plan study on the project CALABARZON and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a study team headed by Mr. Osamu Takahashi, 3 times between March 1990 and October 1991.

The team held discussions with the officials concerned of the Government of the Philippines and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

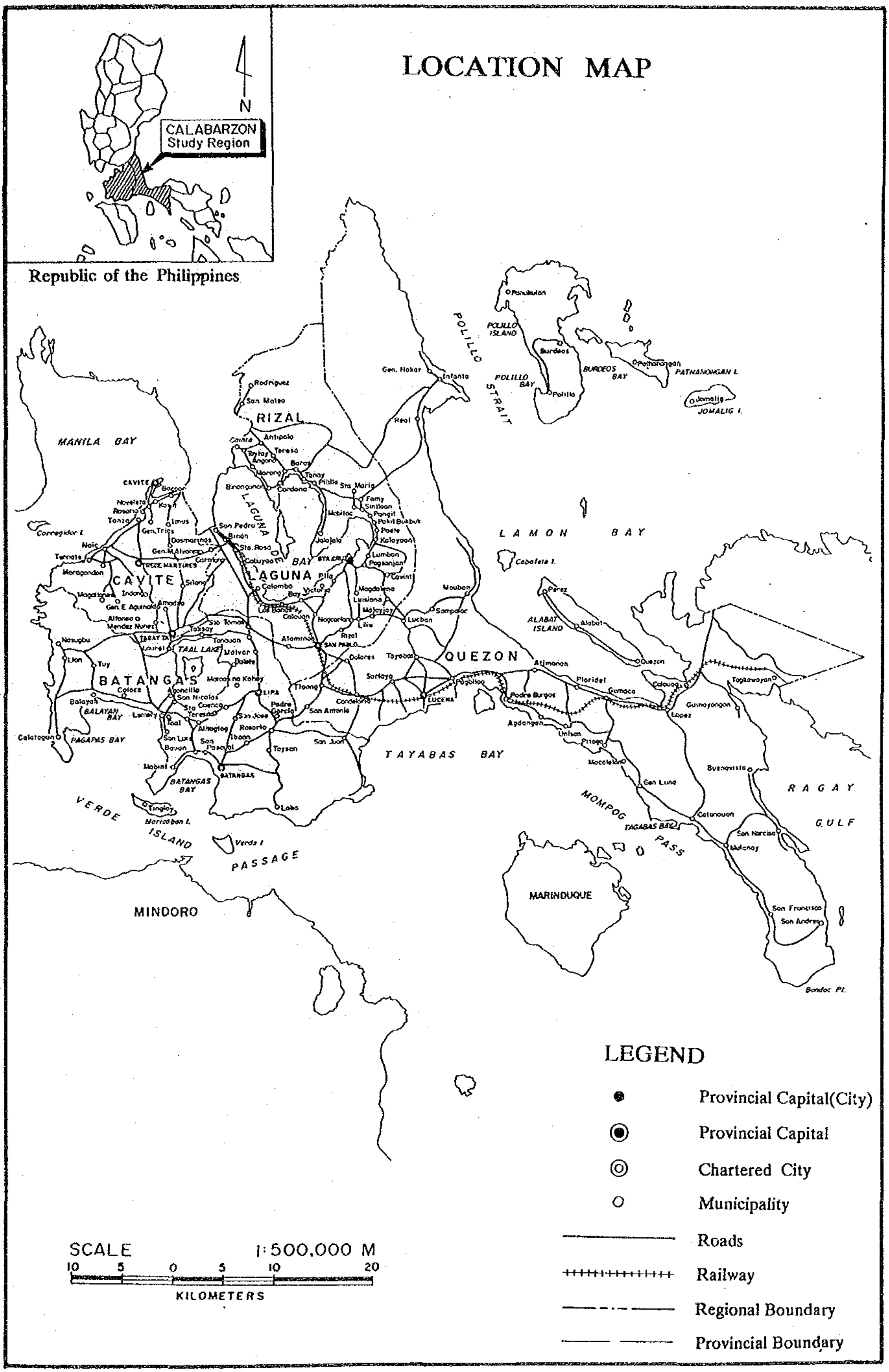
I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Republic of the Philippines for their close cooperation extended to the team.

October, 1991

Kensuke Yanagiya

Kensuke Yanagiya
President
Japan International Cooperation Agency


LOCATION MAP
CALABARZON
Study Region
N
Republic of the Philippines
MANILA BAY
RIZAL
CAVITE
LAGUNA
LAGUNA DE BAY
BATANGAS
QUEZON
LAMON BAY
POLILLO STRAIT
POLILLO ISLAND
TAYABAS BAY
RAGAY GULF
MOMPOG PASS
VERDE ISLAND PASSAGE
MARINDUQUE
MINDORO
TAAL LAKE
ALABAT ISLAND
LEGEND
Provincial Capital(City)
Provincial Capital
Chartered City
Municipality
Roads
Railway
Regional Boundary
Provincial Boundary
SCALE
1:500,000 M
10
5
0
5
10
20
KILOMETERS

EXECUTIVE SUMMARY

Table of Contents

List of Tables

List of Figures

Abbreviations of Organizations and Institutions

ADB	:	Asian Development Bank
APT	:	Agricultural Production Technologist
ATO	:	Air Transportation Office
BAT	:	Bureau of Air Transportation
BMW	:	Bonded Manufacturing Warehouse
BOI	:	Board of Investment
CAB	:	Civil Aeronautics Board
CAPWIRE	:	Capitol Wireless Inc.
CARP	:	Comprehensive Agrarian Reform Program
CEPZ	:	Cavite Export Processing Zone
DA	:	Department of Agriculture
DAF	:	Department of Agriculture and Forestry
DAR	:	Department of Agrarian Reform
DBP	:	Development Bank of the Philippines
DECS	:	Department of Education, Culture and Sports
DENR	:	Department of Environmental and Natural Resources
DILG	:	Department of Interior and Local Government
DOH	:	Department of Health
DOLE	:	Department of Labor and Employment
DOMSAT	:	Domestic Satellite Philippine Corporation
DOT	:	Department of Tourism
DOTC	:	Department of Transportation and Communication
DPWH	:	Department of Public Works and Highways
DSWD	:	Department of Social Welfare and Development
DTI	:	Department of Trade and Industry
EEC	:	European Economic Community
EPZ	:	Export Processing Zone

ERB	:	Energy Regulatory Board
ETPI	:	Eastern Telecommunications Phils. Inc.
FIES	:	Family Income and Expenditure Survey
GMCR	:	Globe Mackay Cable and Radio Corp.
HLRB	:	Housing and Land Use Regulatory Board
HSRC	:	Human Settlements Regulatory Commission
IDD	:	International Direct Dialing
IE's	:	Industrial Estates
IGLF	:	Industrial Guarantee and Loan Fund
IMF	:	International Monetary Fund
IPP	:	Investment Priorities Plan
IRRI	:	International Rice Research Institute
ISDN	:	Integrated Services Digital Network
JICA	:	Japan International Cooperation Agency
LEAD	:	Livelihood Enhancement for Agricultural Development
LLDA	:	Laguna Lake Development Authority
LLDCC	:	Laguna Lake Development Coordinating Council
LTFRB	:	Land Transportation Franchising and Regulatory Board
LTO	:	Land Transportation Office
LWUA	:	Local Water and Utilities Administration
MAI	:	Multilateral Assistance Initiative
MARINA	:	Maritime Industry Authority
MERALCO	:	Manila Electric Company
MICT	:	Manila International Container Terminal
MMA	:	Metropolitan Manila Authority
MWSS	:	Metropolitan Waterworks and Sewerage System
NAIA	:	Ninoy Aquino International Airport
NALGU	:	National Assistance to Local Government Units
NCR	:	National Capital Region

NDO	:	National Direct Dialing
NEDA	:	National Economic and Development Authority
NGO	:	Non-Governmental Organization
NIA	:	National Irrigation Administration
NICR	:	National Industrial Core region
NMYC	:	National Manpower and Youth Council
NPC	:	National Power Corporation
NPCC	:	National Pollution Control Commission
NSO	:	National Statistical Office
NTDP	:	National Telecommunication Development Plan
NWRB	:	National Water Resource Board
ODA	:	Official Development Assistance
OEA	:	Office of Energy Affairs
PAGASA	:	Philippine Atmospheric Geophysical and Astronomical Services Administration
PAP	:	Philippine Assistance Program
PCARR	:	Philippine Council for Agricultural Resources Research
PCIC	:	Philippine Crop Insurance Corporation
PDO	:	Port District Office
PHILCOMSAT	:	Philippine Communication Satellite Corporation
PLDT	:	Philippine Long Distance Telephone Company
PMO	:	Port Management Office
PNOC	:	Philippine National Oil Company
PNR	:	Philippine National Railways
PPA	:	Philippine Ports Authority
PT&T	:	Philippine Telegraph and Telephone Corporation
R & D	:	Research and Development
RCPI	:	Radio Communications of the Philippines Inc.
REMDC	:	Regional Employment and Manpower Development Committee

RWSA	:	Rural Waterworks and Sanitation Association
SEARCA	:	South East Asian Regional Center for Agriculture
SMI	:	Small and Medium Size Industry
SWIP	:	Small Water Impounding Project
TELOF	:	Telecommunication Office
TLRC	:	Technological and Livelihood Research Center
TWG	:	Technical Working Group
UPLB	:	University of the Philippines Los Banos
USAID	:	United States Agency for International Development
WB	:	World Bank
WHO	:	World Health Organization

Abbreviation of Technical Terms

GDP	:	Gross Domestic Product
GNP	:	Gross National Product
GRDP	:	Gross Regional Domestic Products
PV	:	Photovoltaic

Abbreviations of Measures

Length

mm = millimeter
m = meter
km = kilometer

Area

ha = hectare
km^2 = square kilometer

Volume

l = lit = liter
m^3 = cubic meter

MCM = million cubic meter

Weight

mg = milligram
g = gram
kg = kilogram
t = ton = MT = metric ton

Time

sec = second
hr = hour
d = day
yr = year

Energy

kcal = kilocalorie
J = joule
MJ = megajoule
HP = horsepower
TOE = tons of oil equivalent
kW = kilowatt
MW = megawatt
kWh = kilowatt-hour
GWh = gigawatt-hour
MVA = MW
MMBFOE = million barrels of fuel oil equivalent

Others

% = percent
° = degree
' = minute
°C = degree Celsius
cap. = capita
md = man-day
mil. = million
no. = number
pers. = person

EXECUTIVE SUMMARY

1. Project CALABARZON

The Project CALABARZON is a large-scale, multi-sectoral project complex planned in a region contiguous to Metro Manila. The Project was originally conceived by the Department of Trade and Industry as a project to transform agro-based rural economies to industrial/urban based economies through high industrialization led primarily by foreign export-processing type industries.

For the Project CALABARZON to give the maximum benefits to the local people, however, other sectors will have to develop simultaneously in a manner balanced with the industrial sector. The Project CALABARZON, therefore, has been reformulated, encompassing all the sectors: economic sectors (agriculture, livestock, fishery, manufacturing, mining, tourism and services), infrastructure sectors (water, transportation, telecommunications, energy and utilities), and social sectors (education, health, livelihood development and others).

The Project CALABARZON is now one of the most ambitious regional development projects ever attempted in the Philippines. The Project has been designated by the Government as one of five special projects for financing under the Philippine Assistance Program (PAP) or the Multilateral Assistance Initiative (MAI).

CALABARZON paradigm

The Project CALABARZON should serve for a model case of regional development in the Philippines. Different areas in the CALABARZON region will be transformed for the benefit of the local people: from urban squatter areas to quality housing sites having good access to high-grade social services and urban amenities, from crippled urban centers with partial functions to fully equiped multi-functianal urban centers, and from poverty stricken rural areas to rich rural environment containing several hubs of industries surrounded by productive agricultural land and forest areas.

2. CALABARZON Region

2.1 Overview

The CALABARZON region comprises the five provinces of Cavite, Laguna, Batangas, Rizal and Quezon, covering the land area of 16,229 km^2 corresponding to 5.4% of the total national land. It is a part of the planning unit of Region IV - Southern Tagalog - which occupies the southern central portion of the Luzon island. The total population in 1991 is estimated at 6,349,000 accounting for 10.5% of the national population. The CALABARZON region is a receiving area for "spillover" population from Metro Manila, and as a result its population has been growing at rates higher than most other regions : 3.3% in CALABARZON in 1980 - 90 as compared with 2.8% for Metro Manila and 2.3% for the Philippines during the same period.

2.2 Position of CALABARZON

CALABARZON in national socio-economy

Relative position of the CALABARZON region in the national socio-economy of the Philippines may be summarized as follows.

(1) Large contribution to the gross domestic products (GDP)
The share of the gross regional domestic products of CALABARZON is 11.7%, larger than its population share and much larger than its territorial share.

(2) Specialization in crops supplying to Metro Manila
Horticultural crops (e.g. tomatoes and fruits) have relatively large shares in the respective national production. A few industrial crops (e.g. sugarcane, coffee and blackpepper) also have large shares.

(3) Leading industrial area
The CALABARZON region constitutes part of the National Industrial Core Region together with part of Region IV and Metro Manila. The Core Region accounted for over 70% of manufacturing value-added in the Philippines in 1988.

(4) Comparatively developed infrastructure
The CALABARZON region appears to be in a better position than the rest of the Country except Metro Manila in the provision of infrastructure and utilities.

However, the provision of some facilities and services has not been kept up with the rapid urbanization and population growth.

CALABARZON in national spatial development

The Region's position in national spatial development may be characterized by the following.

(1) Central location in the Philippines and in Region IV

Region IV occupies the middle of the Philippine archipelago, cutting through it from the east to the west. CALABARZON holds the central place in Region IV.

(2) Important part of the Mainland Luzon or Growth Corridor Sub-region

According to NEDA Region IV, the Southern Tagalog Region is divided into the Mainland Luzon or Growth Corridor Sub-region and the Island Resource Sub-region. CALABARZON belongs to the former together with Aurora to the north.

(3) Receiving area of spill over from Metro Manila

Three out of five provinces of CALABARZON are coterminous with Metro Manila, and provide alternative locations for industries.

(4) Rapid progress of urbanization

Suburbanization has been progressing along main highways radiating from Metro Manila to form a huge conurbation. However, the remaining part of CALABARZON still exhibits rural characteristics with narrow winding roads and many settlements of small population dispersed.

CALABARZON resource characteristics

(1) Abundant water availability, but seasonal and locational constraints

CALABARZON is relatively rich in water resources in terms of total endowment. However, their seasonal variations are large, and geographic distribution is biased. There are extensive areas where extended dry seasons are observed every year. Most river basins in CALABARZON are small with limited impoundment areas and capacity.

(2) Favorable soil conditions

Soil conditions in most part of CALABARZON are favorable for various agricultural activities, although most fertile alluvial plains are limited. Most areas are covered by volcanic ash and tuff, susceptible to erosion.

(3) Physiography requiring special management

About one-third of the land area in CALABARZON is covered by high relief hills, mountains and volcanics, not suitable for most economic activities. Substantial part of the hills and mountains has been denuded, covered now by grass and used only extensively.

2.3 Expected Future Roles

The CALABARZON region is expected to play a range of important roles in the future development of Region IV and the Country. In the economic aspects, CALABARZON is expected to become a driving force of further industrialization in the Country, together with Metro Manila and other areas in the National Industrial Core Region. However, this should not be accompanied by disorderly location of industries and resultant degradation of the natural and human environment. Also such industrialization should not duplicate the urban poor and squatters as presently observed in Metro Manila and its vicinity. The ability to effectively lead the industrial growth and an active rural economy are prerequisites to preventing such phenomena. The expected urban growth in CALABARZON and its proximity to Metro Manila present opportunities for modernizing agriculture through an improved system of input delivery, extension services, and marketing of output to the growing urban market.

In the spatial terms, the CALABARZON region will have to continue to accommodate the overspill population from Metro Manila without causing additional poverty and other social problems. The decentralization of economic activities as another major thrust of the national development policy will have to be reflected in CALABARZON's spatial development in the future.

Another expected role of the CALABARZON region, partly implied by the first role of industrialization, is to attract foreign and domestic investments and contribute also to export promotion in a substantial way. In addition to political stability, which is largely beyond the control at a regional level, the provision of better natural and human environment will be the general expectation of prospective investors, supported not only by better physical infrastructure but also by capable people and an efficient social system.

3. CALABARZON Regional Development Objectives and Strategy

3.1 National Development Goals

Goals set by the present administration for the national development of the Philippines are the following:

(1) alleviation of poverty,
(2) creation of productive employment,
(3) promotion of equity and social justice,
(4) attainment of sustainable growth

These goals are generally adaptable to the CALABARZON region, and taken as a given condition in planning for the CALABARZON development.

3.2 CALABARZON Objectives

Broadly in line with the development goals presented above, and reflecting the position and expected roles of CALABARZON as well as existing regional development objectives set by NEDA, the following four objectives have been set for the mid- to long-term development of CALABARZON.

(1) To enhance the income level in rural areas by creating employment opportunities in primary agriculture, agro-processing and service activities as well as by increasing productivity in agriculture;

(2) To sustain high level of growth on the balance between agriculture and industry by promoting their complementary linkages, improving the industrial structure and inducing related service activities;

(3) To promote more equitable development, not generating the urban poor and squatters, uplifting the rural people from poverty, and realizing better distribution of population and economic wealth; and

(4) To create a better human environment and increase social capacity for development by protecting/enhancing natural environment, improving the provision of physical infrastructure and social services, and incorporating socio-cultural values in project planning and implementation.

3.3 CALABARZON Strategy

(1) Integrated planning strategy

In the CALABARZON region, a number of projects have been planned and partly implemented by various government implementing agencies. Urban sprawl from Metro Manila has been progressing into CALABARZON, resulting in a range of problems. Major problems include encroachment of productive agricultural land by urbanization/industrialization, deterioration of environmental quality, and inadequate provision of social services. These and other problems are mutually inter-related and have some common roots. An integrated approach, as opposed to piece-meal approach, is taken to solve and alleviate the problems more effectively under the integrated regional development planning, coordinating the efforts of various implementing agencies and reflecting interests of local people.

(2) Agro-based strategy

This strategy will emphasize agriculture, agro-processing, and the development of services directed to the rural population. It will call for increasing agricultural output to support processing industries and changing the cropping patterns to exploit the marketing opportunities provided by Metro Manila and the growing urban centers within CALABARZON. This strategy will also emphasize the maximum utilization of other indigenous resources such as tourism resources, limited mineral resources, and human resources. Utilization and processing of raw materials to be supplied by other provinces, especially the resource islands of Region IV, may expand the resource base for this strategy.

This strategy alone, however, cannot support the high growth expected for CALABARZON. The shares of agricultural sector in the CALABARZON economy and employment are already small, and the sector can grow only at a relatively low rate. With fairly established land use for agriculture and under the conversion pressure for urbanization/industrialization in CALABARZON, substantial increase in agricultural land is not likely. Therefore, another strategy must be adopted.

(3) High industrialization strategy

The highest growth of industry and the CALABARZON economy is aimed at under this strategy. The high industrial growth will depend primarily on (1) how much incremental

growth of Metro Manila based firms will take place in CALABARZON, and (2) to what extent the export-oriented, assembly type industry will induce the development of linkage industries including small and medium size enterprises (SME's). Many of potential linkage industries are also located at present in Metro Manila.

Thus, this strategy will make the most of the spill-over from Metro Manila for high industrialization of CALABARZON. The spill-over, however, will have to be directed to more desirable locations in a more desirable manner by deliberate planning and locational policies.

4. CALABARZON Development Frameworks

4.1 Socio-Economic Framework

A socio-economic framework has been worked out for the CALABARZON development to the year 2010. The framework specifies the level of development expected in the target year 2010 by selected socio-economic indices projected in a mutually consistent way. Main indices used are the gross regional domestic product (GRDP) and its breakdown into agriculture, industry and services, the population, the employment and the per capita GRDP.

The projected GRDP is illustrated in Figure 1. Expected performance of the CALABARZON region to the year 2010 is compared, in terms of average annual growth rates, with the mid-term growth targets of the Philippines and the recent accomplishments in Region IV (Table 1).

Figure 1 Socio-Economic Framework

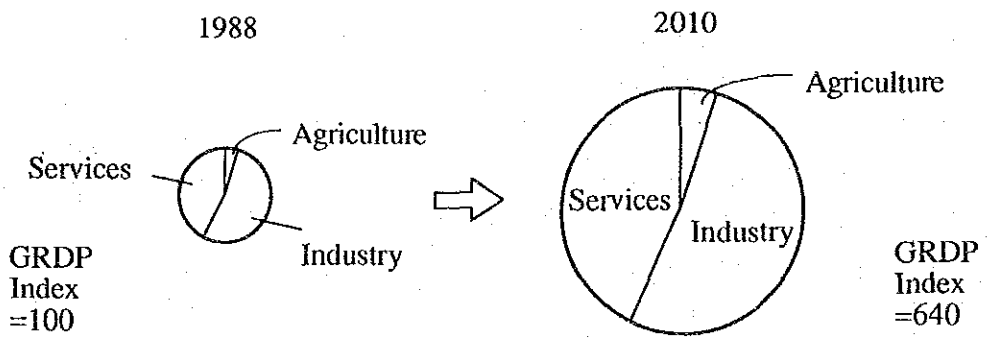


Table 1 Growth Comparison

(%)

	Philippines Mid-Term Targets 1987 - 92	Region IV Performance 1986 - 88	CALABARZON Master Plan 1988 - 2010
GDP/GRDP			
Agriculture	5.0	-	2.9
Industry	8.8	7.3	9.4
Services	6.6	4.0	9.7
Overall	6.9	4.7	8.8
Population	2.3	(2.8)	3.3
Employment			4.8
Per Capita GDP/GRDP	4.5	(1.8)	5.3

4.2 Spatial Development Framework

(1) Two regional systems

Spatial development of CALABARZON, just like its economic development, is strongly affected by the presence of Metro Manila. The area within some 50 km radius of Metro Manila is considered as a coherent region where various activities are interrelated by way of the economy of Metro Manila. Taking account of further sub-urbanization around Metro Manila and expansion of its influence areas, the provinces of Cavite, Laguna and Rizal should be taken as a planning unit together with Metro Manila. This may be called the Greater Capital Region.

The position of Batangas and Quezon is different from the other provinces. It is relatively independent of direct influence of Metro Manila, and has strong links with Mindoro and other provinces of Region IV. This may be called here the Southern Tagalog Region.

(2) Alternative development patterns

If the agro-based strategy is taken, the resultant development pattern may be more dispersed. Links between rural service centers and their respective hinterlands will more be important. More public sector resources will be devoted to the improvement of infrastructure and social services to support agriculture, agro-related industries including SME's and related services. The degree of sub-urbanization around Metro Manila will be low with small spill-over (Figure 2 (a)).

CASE 1

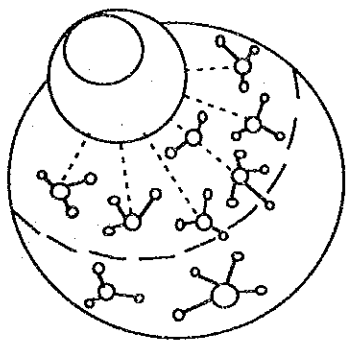


Figure 2 (a)

Rural-based Development with Small Spill Over

Under the high industrialization strategy, the spill-over from Metro Manila may be encouraged by providing improved infrastructure and urban services. The degree of sub-urbanization will be high and other areas will develop primarily by promoting linkages with Metro Manila

and its vicinity (Figure 2 (b)). If this strategy is pursued, the public sector resource costs will become increasingly high to meet the private sector needs. Social costs will also become high in the form of the urban poor, insufficient social services, imbalance between urban and rural economies and others.

An intermediate path will be pursued on the balance between the agro-based strategy and the high industrialization strategy. Growth momentum centering on Metro Manila will be effectively utilized, but the development will be directed also to selected urban center in the outer areas (Figure 2 (c)). To realize this development pattern, more deliberate efforts will be made by the public sector to lead the development to more desirable locations. They include selective and strategic improvements in the provision of infrastructure and utilities following the Project CALABARZON Master Plan. Strengthening of project planning and implementing capabilities at local level is a prerequisite.

CASE 2

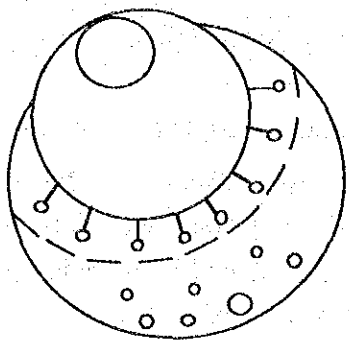


Figure 2 (b)

High Degree of Suburbanization with Large Spill Over

CASE 3

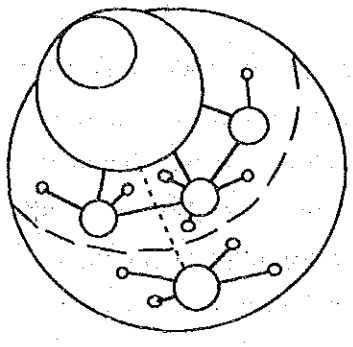


Figure 2 (c)

More Decentralized Growth *with Moderate Spill Over*

5. CALABARZON Development Scenario

CALABARZON regional development has to be planned in phases, as the expansion of resource base and financial capacity and related institutional development will take place over time. The planning period is broadly divided into three phases: Phase 1 upto 1995, Phase 2 for 1996-2000, and Phase 3 for 2001 to 2010. Expected performance of the Region in each phase is described as the CALABARZON development scenario.

(1) Phase 1 (upto 1995) : trend growth

Socio-economy

This phase is characterized basically by continuation of on-going development efforts. Agriculture will emerge from the recent stagnation and regain the past growth trend. In industry, trend growth will continue.

On-going national efforts in agriculture will be extended to CALABARZON, including the rehabilitation of coconut plantations and the livestock improvement programs. Preparation for introducing new crops, better seed varieties, new livestock breeds and fish species will be accelerated. This includes applied research and extension, and establishment/expansion of production capacity for seed, seedlings and fingerlings. Demonstration schemes for new crops/varieties, new breeds, and fish species should be established. CARP implementation will be a prerequisite to encouraging intensive land use for high value-added products. Improvements in input delivery and marketing infrastructure will also take place associated with the new development described above.

The trend growth of industry in the Southern Tagalog Region during this phase will be supported primarily by steady growth of consumer goods industry, including processed food, beverages, apparel and footwear. In the Greater Capital Region, expansion of Metro Manila based industries will continue such as consumer durables and food processing. Investment into export processing-assembly type industries will steadily increase in the existing EPZ and other industrial areas. Some of the latter will start bringing in foreign suppliers of parts and intermediates. At the same time upstream local industries would be supported to develop sub-contracting and input delivery linkages with large firms.

New investment will be required for further expansion of industrial output as the excess production capacity appears to have been already largely utilized. The availability and cost of project financing will be an important factor of industrial expansion.

Infrastrusture

The emphasis in this phase for infrastructure should be on full utilization of existing infrastructure and utilities with proper maintenance and rehabilitation as well as better management. However, those projects already in the pipeline should be implemented during this phase, including the first stage development of Batangas port, a few highway projects and the EPZ expansion. Limited infrastructure projects will also be newly initiated as indicated below.

In energy, urgent measures should be taken for power generation expansion as well as consolidation of existing generation, transmission and distribution systems. An rural energy program may be initiated, and applied research on new and renewable energy be systematically expanded. In telecommunication, an improved system may be installed along the prospective second north-south highway to serve planned industrial areas in Cavite and also for rapidly growing urban centers. Basic telephone services will be extended to all the municipalities. Water supply for selected urban centers should be expanded, and initial implementation of the Marikina watershed management will take place as well.

This phase should also see extensive planning and studies for major infrastructure projects which have been selected by the Master Plan for priority implementation. They include irrigation and integrated rural development, the Taal lake multi-purpose water resources development, and major power sources development.

Land use plans for selected municipalities should be newly prepared or updated on a priority basis. Those municipalities that are on prime agricultural land or otherwise strategically important for CALABARZON development should be covered.

Central and local government programs for housing, infrastructure and social services will be reviewed to give priority to those that will support priority agricultural and industrial development areas. At least in some selected urban areas, detailed development programs involving both the private and public sector, should be prepared to provide housing, urban physical infrastructure and social services in an integrated manner.

A key issue to be addressed in the short term is the planning and financial capability of local administrations. Local governments can not lead urban development if they are not capable of providing infrastructure in advance of urban growth and otherwise affecting the use of urban land.

Spatial development

Integration of the Greater Capital Region will proceed with the extension / improvement of primary and secondary arteries. Suburbanization areas around Metro Manila will further expand, and the area in the immediate vicinity of Metro Manila will form a conurbation. Limited expansion of urban / industrial activities will take place in the Southern Tagalog Region along major arteries. Otherwise the substantial spatial development will be confined to Batangas City and Lucena City.

(2) Phase 2 (1996-2000) : trend acceleration and renewed growth

Socio-economy

This phase is for trend acceleration and renewed growth. In agriculture, all the support activities during Phase 1 will be continued and expanded. New crops, better varieties, breeds and species will be well established. The demonstration schemes initiated in Phase 1 will be fully implemented through extension and farmer support by transferring their prime responsibilities to the government extension services, and development of grass root organizations including cooperatives.

Major projects for irrigation and integrated rural development studied in Phase 1 will be implemented. Planning and studies for additional projects will be undertaken.

In industry, active investments by domestic firms will be made in the full range of existing industries as the domestic demand growth accelerates. Use of domestic input suppliers and subcontracted firms by export processing industries will become a common practice. Some of them will establish further linkages with upstream and downstream industries including SME's.

In addition to consumer goods industry, other industries will start to develop rapidly, such as fabricated metal products, plastic products, chemicals and other engineering industries as well as new agro-processing industries. The former will support automotive and consumer durables industries and also find opportunities to supply parts and components to large multinational corporations in ASEAN. Processing plants for marine and aquaculture products will also be established. Many of them are SME's transformed into efficient production units and serve as linkage industries.

Spill over from Metro Manila will become increasingly more the relocation of industries originally established in Metro Manila. Industry composition in Metro Manila and its vicinity should change in favour of those industries capitalizing on their locational

advantages rather than just common labour availability. They include export oriented industries such as electronics and apparel, airport oriented industries such as precision instruments as well as electronics, and technology intensive industries.

Port-oriented, labour intensive and agro-/resource based processing industries will further develop in the Batangas Bay area. Some of the latter will utilize raw materials transported from resource islands.

This is a critical phase for technology upgrading. This will be effected by increasing number of joint venture arrangements with foreign firms and multi-nationals linked with local research and training institutions.

Infrastructure

A few key infrastructure projects will be implemented in this phase which will alter the patterns of spatial development in CALABARZON. They may be related to upgrading of port facilities, artery network, and major water resource development such as the Taal lake multi-purpose development and the Marikina watershed development and management. They will encourage the decentralization by enhancing the comparative position of the Southern Tagalog Region, or otherwise help to integrate part of the Region into the Greater Capital Region. The provision of infrastructure and utilities in selected second-tier towns will be strategically improved.

In energy, major power generation projects will be implemented within the Luzon grid, and a new and renewable energy project will be initiated. Development of telecommunication system during this phase include its extension to serve major tourism sites as well as to all the intermediate size urban centers.

Spatial development

Intensive land use and much increased agricultural production in rural areas of the Greater Capital Region will be supported by the assurance of good access to urban services and markets for their products as well as betterment of living conditions in villages. Strengthened urban functions and enhanced rural economy will lead to more active interactions between rural and urban areas.

Development axes will be gradually formed in the Southern Tagalog Region centering around Batangas City. Deficiencies in transportation network will be resolved in both the Greater Capital and the Southern Tagalog Regions, except in the Bondoc peninsula and mountainous areas of Quezon.

(3) Phase 3 (2001-2010) : sustained growth

Socio-economy

Agricultural land use will become more intensive with mixed farming and inter-cropping. Hydroponics and other forms of industrial agriculture may be introduced. Agricultural value-added will be dominated by industrial crops, horticulture and livestock including dairy cattle by the end of the phase.

The composition of industry will continue to change from dominance by the consumer goods industries in favor of intermediate goods and investment goods. This change will also be reflected in the export composition with the assembly type operations becoming less significant as a source of employment and exports.

More people having strong entrepreneurship and technology seed will spin out of large enterprises or otherwise retire from them and enter into venture business. They will become a driving force for further industrialization in CALABARZON with upgraded production and R & D activities.

Infrastructive

Major urban centers will be equipped with some higher order service functions such as communication/conference, higher education/technology development, and administration. Accordingly, various amenity facilities will be provided for the major urban centers. Infrastructure and some of social services will be increasingly provided by the private sector with the public role confined to regulatory functions.

Spatial development

Development axes in the Southern Tagalog Region will be well established. The main axes will be developed connecting Batangas City / Bauan with Lucena City, which may be further extended to the east and to the west. Network deficiency will be completely resolved including those in the Bondoc peninsula and mountain areas of Quezon.

6. Macro-Zoning for CALABARZON Development

Development potentials of CALABARZON have been analyzed in various aspects. Land capability has been analyzed based on physiography, soil, slope, geology, erosion potential and flood susceptibility as well as present land use (Figure 3). Water potential has been evaluated for both surface water and groundwater (Figure 4).

Based on these potentials as well as existing infrastructure and economic activities, the CALABARZON region is sub-divided into several geographic units. These units, called sub-regions, are defined as areas respectively having similar characteristics and used to derive meaningful directions for future development (Figures 5, 6 and 7).

6.1 Industrial Areas

(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.

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 3

- VERY GOOD LAND
- GOOD
- MODERATE
- FAIR
- NOT SUITABLE
- NO DATA
- ⟨10⟩ INDEX TO REGIONAL DIVISION

Figure 3	Land Capability Map	Department of Trade and Industry
		Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 4

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

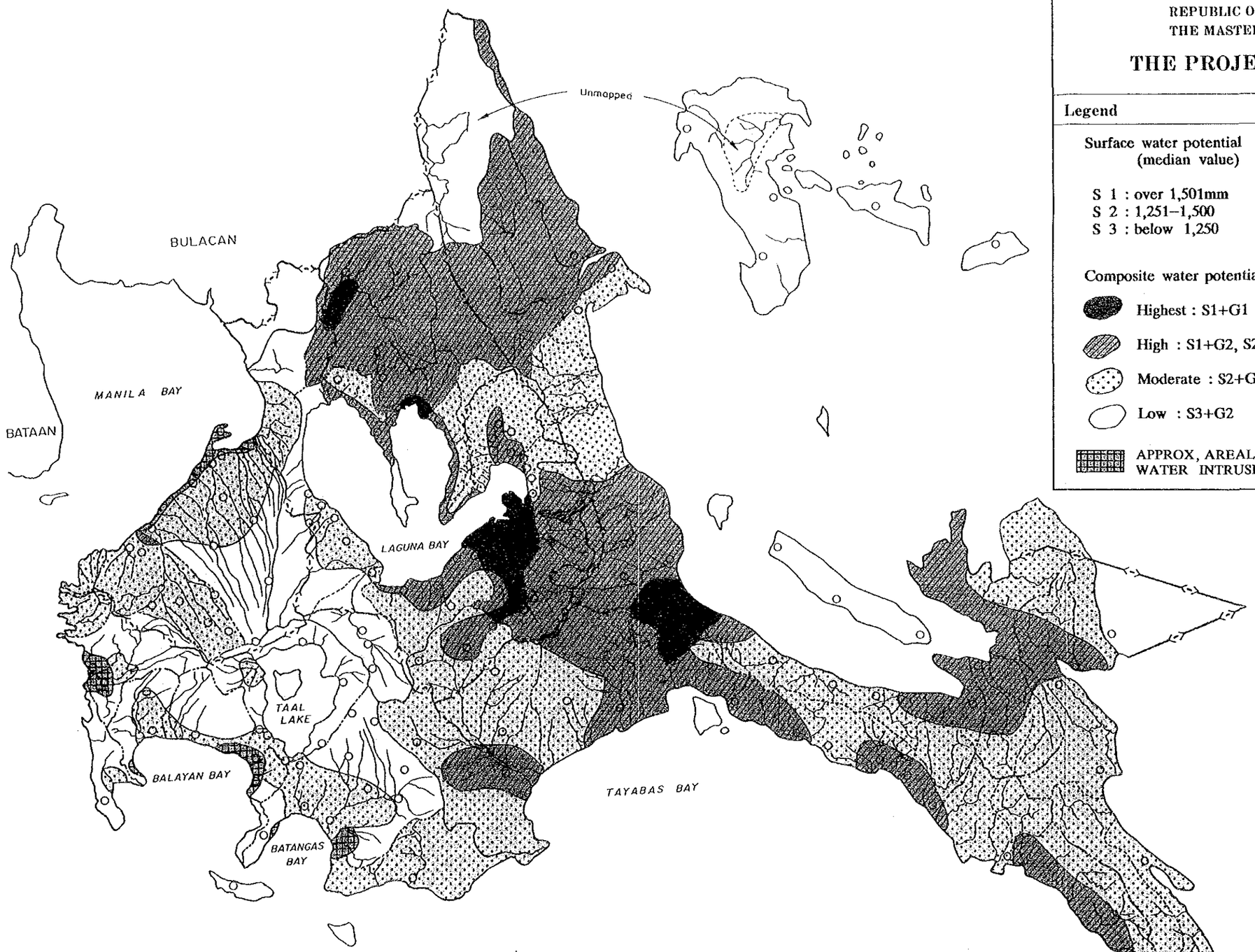


Figure 4

Water Resources Potential Map

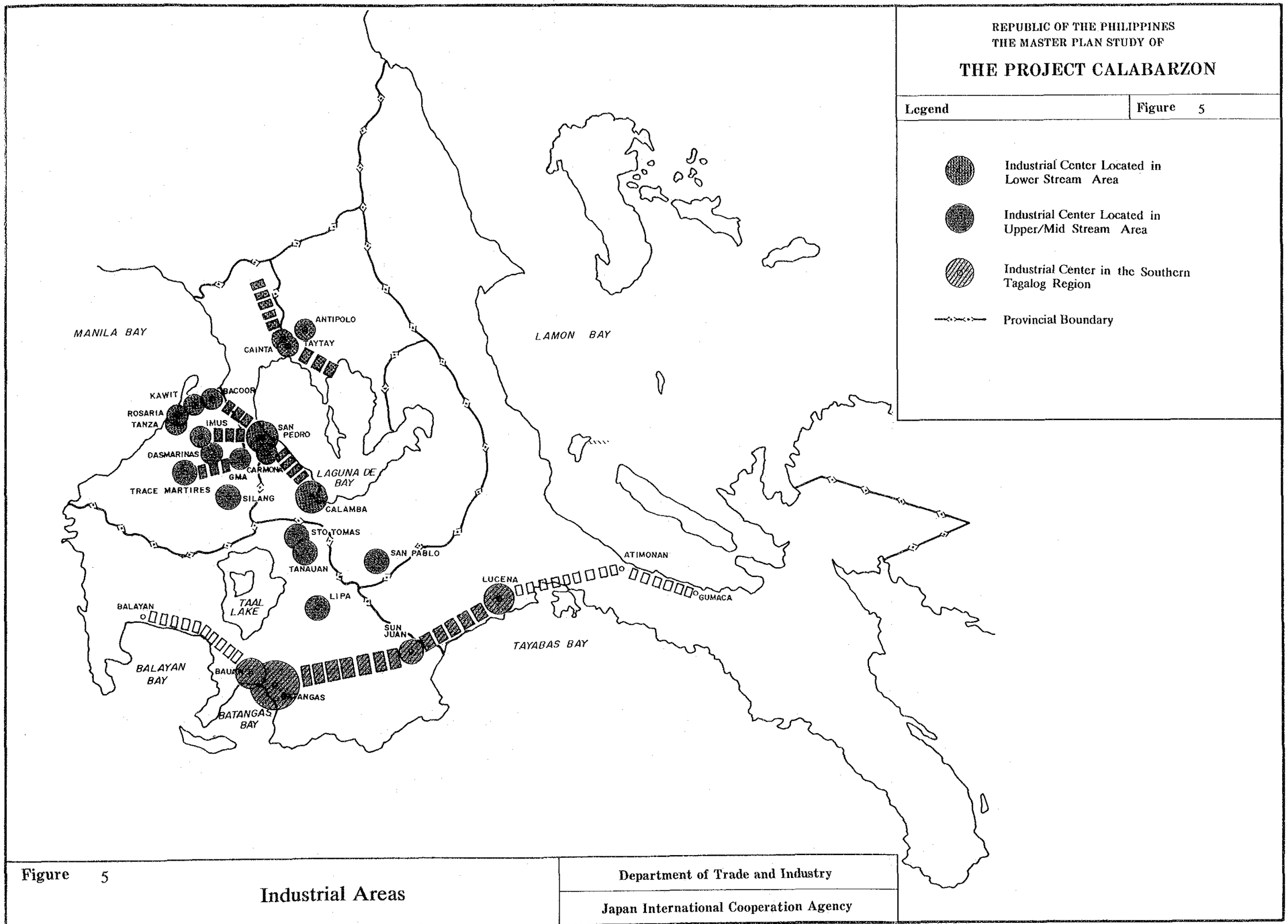
Department of Trade and Industry

Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 5



Industrial Center Located in Lower Stream Area

Industrial Center Located in Upper/Mid Stream Area

Industrial Center in the Southern Tagalog Region

Provincial Boundary

Figure 5	Department of Trade and Industry
Industrial Areas	Japan International Cooperation Agency

(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. 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.

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

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.

(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.

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

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 6

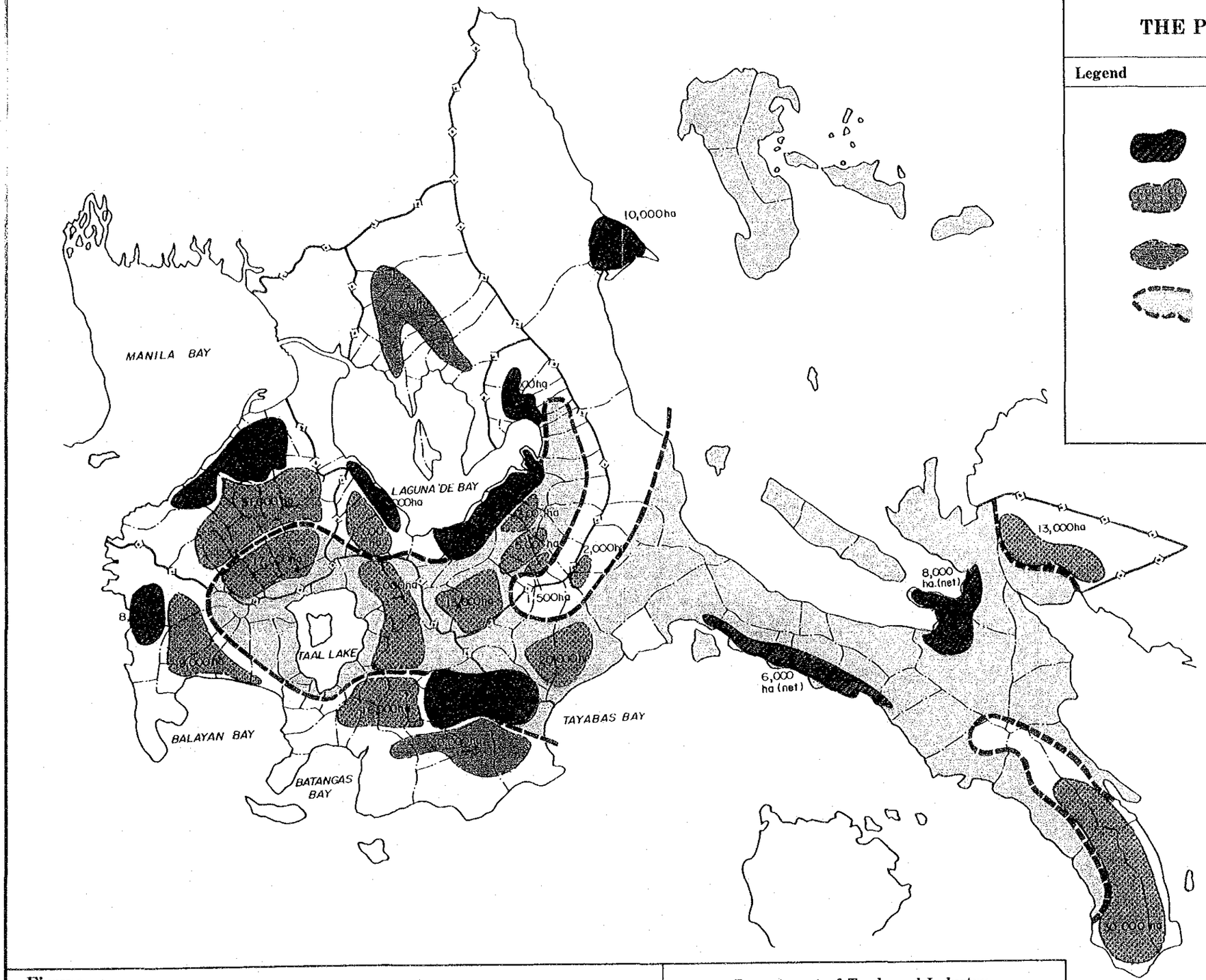


Figure 6	Agricultural Subregions	Department of Trade and Industry
		Japan International Cooperation Agency

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.

6.2 Lowland agricultural areas

(1) Cavite coastal agricultural area

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 CARP implementation.

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

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

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.

An important strategy for individual farmers is to combine crop cultivation with livestock for an integrated framing 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 though cooperatives for wide application of these practices.

(4) Sta. Maria lowland agricultural area

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 diversity the rural economy of bot of the areas.

(5) Batangas eastern lowland agricultural area

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

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

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

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

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

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.

6.3 Upland agricultural areas

(1) Cavite lower upland agricultural area

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

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

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

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

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

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

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

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

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

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

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

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 a 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

The same strategy applies to the livestock development in this areas as n 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.

6.4 Agro-forestry areas

(1) Marikina watershed agro-forestry area

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

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.

6.5 Tourism circuits

(1) Tourism circuits and zones

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. These circuits and objects combined together with access from gateways of Metro Manila and Batangas will make a tourism network of CALABARZON (Figure 7).

The Cavite - Batangas integrated tourism circuit consists of four tourism zones: Ternate - Nasugbu tourism zone, Calatagan coastal tourism zone, Balayan bay - Mabini coastal tourism zone, and Taal Lake tourism zone. The Laguna Lake tourism circuit consists of three tourism zones: Los Banos - Makiling tourism zone, Pagsanjan tourism zone, and Angono - Talim island tourism zone. More promising tourism areas in Quezon are the central coastal area and the Polillo islands area.

(2) CALABARZON tourism strategy

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

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend | **Figure 7**

- Tourism Center
- Tourism Gateway
- National Park
- Tourism Zone
- Tourism Circuit
- Main Tourism Network
- Possible Extension of Main Tourism Network
- Provincial Boundary
- Secondary Tourism Network

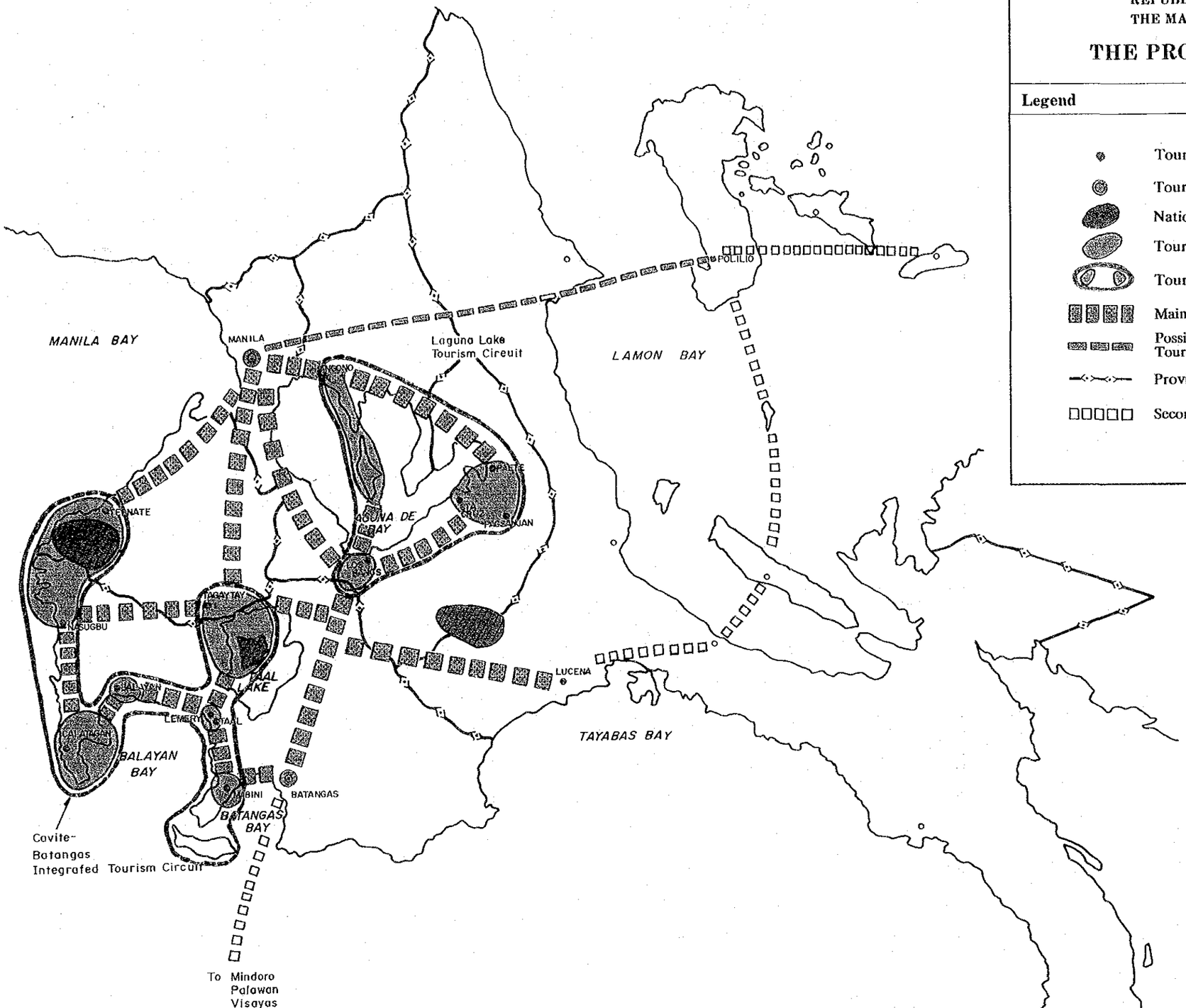


Figure 7 — CALABARZON Tourism Circuit

Department of Trade and Industry

Japan International Cooperation Agency

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.

7. Development Projects

All the projects constituting in totality the Project CALABARZON consist of the anchor projects and other projects. They 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 the anchor projects is indicated in Figure 8.

(1) Port development

The port development component of the Project CALABARZON consists of the following:

(1.1) Greater Capital Region integrated port development study,
(1.2) Batangas port upgrading, and
(1.3) Sangley Point conversion to container terminal.

The Greater Capital Region integrated port development study is to access 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. The Sangley Point conversion to container terminal is subject to the outcome of this study.

(2) Roads and highways

The roads and highways component consists of the following as well as other provincial roads:

(2.1) Cavite coastal road,
(2.2) Cavite north-south highway,
(2.3) Primary/secondary road rehabilitation,
(2.4) Carmona - Ternate - Nasugbu road,
(2.5) Calamba - Sto. Tomas - Batangas expressway, and
(2.6) Marikina - Infanta road.

The Cavite north - south road constitutes a natural extension to CALABARZON of the planned circumferential road no.5 of Metro Manila, and will provide another effective link between the Metro Manila urban transport system and the CALABARZON regional

Figure 8 Implementing Schedule of Anchor Projects

	Phase 1 (1991-95)	Phase 2 (1996-2000)	Notes
1. Port Development			
1.1 Greater capital region integrated port development study	▲		
1.2 Batangas port upgrading, phase 1	●		
phase 2	▲	●	
phase 3		Δ	Conditional on 1.1
1.3 Sangley Point conversion	Δ	O	Conditional on 1.1
2. Roads and Highways			
2.1 Cavite coastal road	▲	O	Implementation is conditional on the alternative study in Phase 1
2.2 Cavite north-south highway	▲	●	
2.3 Primary/secondary road rehabilitation	●	●	Continuous implementation through Phase 1 and Phase 2
2.4 Carmona-Ternate - Nasugbu road	●		
2.5 Calamba - Sto. Tomas -Batangas expressway	●	●	
2.6 Marikina-Infanta road	▲	O	
3. *Industrial Supports*			
3.1 Cavite EPZ expansion	●		
3.2 Dasmariñas-Silang telecommunication system upgrading	●		
3.3 Urban centers telecommunication improvement	▲	●	Identification of urban centers in Phase 1
3.4 *Calaca II coal thermal*	●		
3.5 Power transmission and distribution improvement	●	O	May be continued to Phase 2
3.6 CALABAR groundwater potential study	▲		
4. Urban Development			
4.1 Laguna west urban region development	▲		
4.2 Batangas-Bauan corridor development	▲		
4.3 Taal lake multipurpose water resources development	▲	●	
4.4 Rehabilitation of PNR south commuter line	●		As currently planned
4.5 Integrated urban development	▲ ●	▲ ●	Pilot implementation and its replication
5. Agriculture			
5.1 Batangas east agricultural development	▲	●	F/S in Phase 1
5.2 Research and extension program on inter-cropping and mixed farming	▲ ●	O	Implementation may be continued to Phase 2
6. Rural Development			
6.1 Laguna upland integrated rural development	▲ ●		
6.2 Quezon upland integrated rural development	▲ ●	●	
6.3 Rizal inland agro-industrial park	▲ ●	●	
6.4 Rural energy development program	●	O	
6.5 Rural roads maintenance system	▲ ●	O	Pilot implementation in Phase 1
7. Social Development			
7.1 Southern Tagalog manpower training and employment program	▲ ●	●	
7.2 *Upgrading of the* Batangas regional hospital	▲ ●		
7.3 Integrated regional livelihood development	▲ ●	●	
8. Environmental Management			
8.1 Marikina watershed development and management	▲	●	
8.2 Laguna basin environmental monitoring	▲ ●	●	*Monitoring system to be* established in Phase 1

Legend: ▲ study
● implementation
Δ O to be undertaken subject to study outcomes

transport system. For the Marikina - Infanta road, the F/S will be updated, reflecting the CALABARZON regional development envisioned by the Master Plan.

(3) Industrial supports

A set of infrastructure projects are included in this component to support the industrial development, consisting of the following:

(3.1) Cavite EPZ expansion,
(3.2) Dasmarinas - Silang telecommunication system upgrading,
(3.3) Urban center telecommunication improvement,
(3.4) Calaca II coal thermal plant,
(3.5) Power transmission and distribution improvement, and
(3.6) CALABARZON groundwater potential study.

A prerequisite to the implementation of the Calaca II coal thermal plant is to solve the existing air pollution problems. The CALABARZON groundwater potential study will generate data essential for rational industrial location, avoiding over-exploitation of groundwater and associated problems.

(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 Region. It consists of a few planning studies and projects of improving urban and related infrastructure as below:

(4.1) Laguna west urban region development,
(4.2) Batangas - Bauan urban development,
(4.3) Taal Lake multipurpose water resources development,
(4.4) Rehabilitation of PNR south commuter line, and
(4.5) Integrated urban/industrial development.

The Laguna west urban region development and the Batangas - Bauan urban development will be implemented by the local government initiative, following respective project formulation studies. Candidate towns for the integrated urban/industrial development have been identified by the Master Plan.

(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. In addition, the following anchor projects are included:

(5.1) Batangas east agricultural development, and
(5.2) Research and extension program on inter-cropping and mixed farming.

(6) Rural development

The rural development component of the Project CALABARZON contains the following five different kinds of projects as well as numerous other small projects:

(6.1) Laguna upland integrated rural development,
(6.2) Quezon upland integrated rural development,
(6.3) Rizal inland agro-industrial park,
(6.4) Rural energy development program, and
(6.5) Rural roads maintenance system.

(7) Social development

This component consists of the following three anchor projects and other smaller projects constituting together the comprehensive social development program package (CSDPP) for the Project CALABARZON:

(7.1) Southern Tagalog manpower training and employment program,
(7.2) Batangas regional hospital upgrading, and
(7.3) Integrated regional livelihood development.

(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 as follows:

(8.1) Marikina watershed development and management, and
(8.2) Laguna basin environmental monitoring.

The Marikina watershed development and management will start with reforestation of selected areas, and further, agro-forestry and production of high value-added crops with on-farm tree planing and other proper farming practices will be promoted. The on-going integrated social forestry program will be effectively utilized to complement this project.

The Laguna basin environmental monitory will establish an environmental monitoring and evaluation system for the Laguna basins with data base. It 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, and also provide a common basis for conducting EIA's of individual projects.

8. Implementing Arrangements

8.1 Project Management System

(1) Need for PMS

The bulk of development projects and related measures proposed by the Project CALABARZON Master Plan can be implemented within the competence and policies of sector agencies. However, the current practice of regional planning and management of regional development involving multiple sectors are hampered by the large number of central government agencies and their regional/provincial offices and the complexity of relationships between them. In order to facilitate the coordination of various development efforts by many agencies, a coherent project management system (PMS) needs to be established. Such a system should encompass all the functions in the project management cycle from project initiation and planning to implementation and monitoring.

(2) Organizational structure

Existing institutions are utilized as much as they can fulfill some functions of PMS effectively. The proposed organizational structure of the overall management system for CALABARZON is illustrated in Figure 9. It consists of several main elements at the central, regional and provincial levels. Three of them are new: the CALABARZON Regional Development Agency (RDA), the CALABARZON Committee, and the Local Consultative Bodies.

CALABARZON RDA

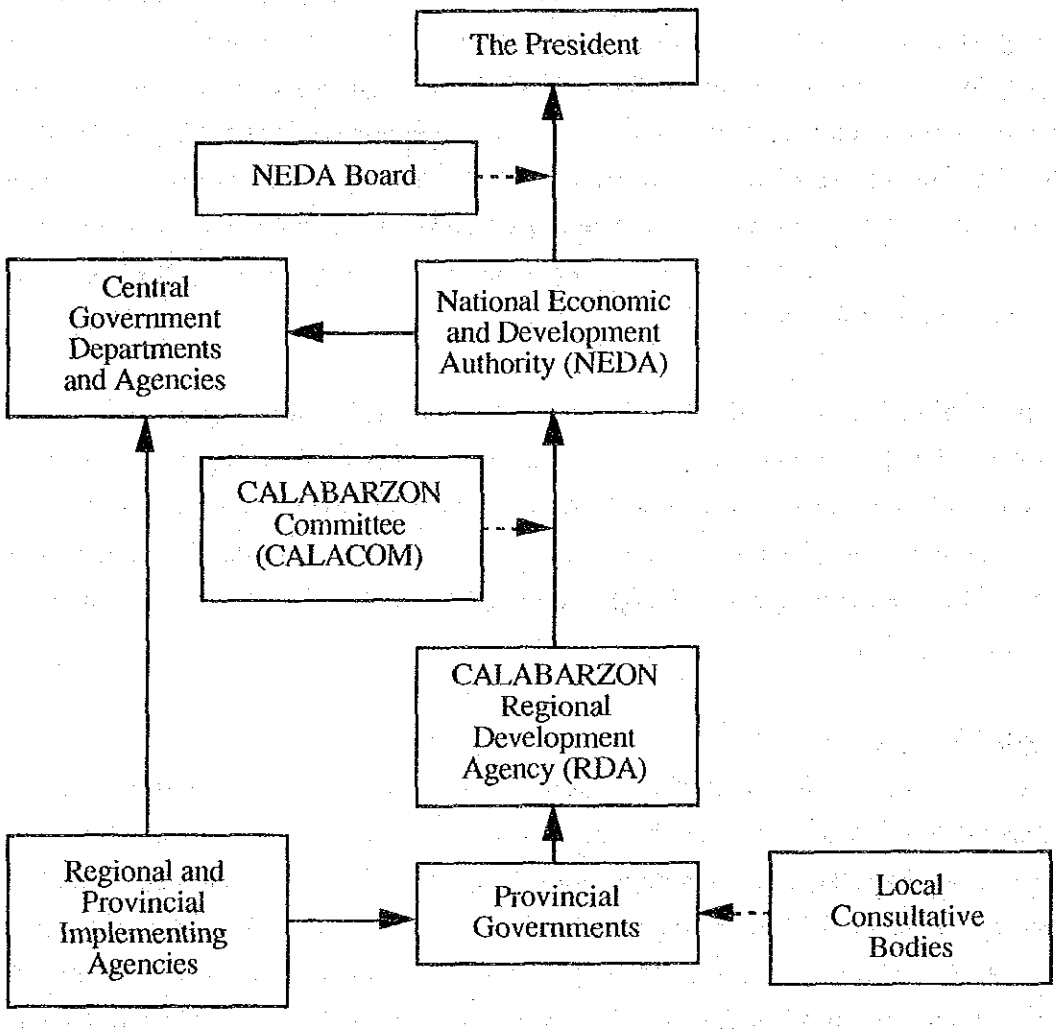
This will be the main institutional device to effect the implementation of the CALABARZON Master Plan at the regional level. They are responsible for all the substantial works related to the regional functions of PMS. Its special status should be defined by a Presidential Decree to give it a high profile. The Administrator of the Agency will be appointed by the President. The expected new Local Government code giving more authorities and responsibilities to LGU's will make the CALABARZON RDA more necessary for integrated development planning and coherent and mutually consistent actions by LGU's.

CALABARZON Committee

The CALABARZON Committee (CALACOM) should be newly established as a decision making organ of the CALABARZON RDA. The membership of CALACOM should be

limited initially to the governors of the five CALABARZON provinces, and the Administrator of the CALABARZON RDA. This would allow smooth functioning of CALACOM with elected officials to have public accountability and responsiveness. Demonstration of success at initial stages would help CALACOM to gain the confidence and support of the public and others concerned. For a better balance, three additional members from the professional and management community may be appointed by the President.

Figure 9 Project Management System for the Project CALABARZON



Local consultative bodies

In addition to the existing formal channels of communication such as PDC, various local consultative bodies, in both the public and the private sectors, can be established to help the communications between the local people and the central authorities via the provincial governments and the CALABARZON RDA. An important element within these

consultative bodies would be the coordinated efforts of the elected representatives of the municipalities, who would voice specific municipal needs.

Participation of the private sector in such a consultative body will convey to the governors the needs of entrepreneurs, associations, labour leaders and other NGO's. It would also serve as a channel to disseminate project-related information to a wide range of people.

(3) Initial steps

A sequences of steps to be taken, following the Master Plan completion are as summarized below. In parallel with these, a set of promotional measures should be taken to cultivate the public acceptance for CALABARZON.

Step	Action	By whom
1	Prepare a policy document recommending adoption of the Master Plan objectives and strategy in principle and requesting approval and support	NEDA/DTI
2	Adopt the Master Plan objectives and strategy in principle as a national policy	The President NEDA Board
3	Convene RDC-Region IV and resolve sectoral concerns and conflicts related to Master Plan proposals and the PMS	Chairman of RDC-Region IV
4	Take legislative measures necessary for the streamlining of NEDA functions related to CALABARZON and the establishment of RDA	The President
5	Appoint the Administrator of RDA	The President
6	Establish RDA and organize it with the key staff	Administrator of RDA
7	Organize the CALABARZON Committee andresolve fundamental issues related to CALABARZON implementation along the Master Plan, including involvement of various agencies into information exchange and administration	Chairman of CALACOM Administrator of RDA
8	Establish local support and advisory base	RDA

8.2 Human Communication System

(1) Need for HCS

Development in a large scale, as envisioned by CALABARZON, would need, as a prerequisite, an efficient human communication and information system to cultivate community supports and coordinate various development efforts by both local people and government agencies. This may be called social need of communication.

The fundamental reason for social need of communications lies in the fact that any public sector development plan, like a regional development plan, is prepared by government agencies at various levels often in cooperation with foreign consultants, while the ultimate implementing agencies for the plan are people in that particular region.

Planning is a continuous process. Any plan needs to be updated and revised once in a while not only as external factors surrounding the plan change but also as the people's perception of their environment and their needs change. For this to be possible, first the people would have to be given a motivation to update/revise the plan as their own plan through participation in their making. Second, there must be a social mechanism or system to elicit ideas of the motivated people and embody them into an implementable form. It is not only cooperation of the people in plan preparation but also their commitment to the plan that make it successful in implementation.

(2) Scope of HCS

The human communication and information system should cover the following activities:

1) Publicity activities,

2) Coordination among government agencies,

3) Education for environmentally sound and sustainable development concepts as well as value formation for higher productivity, efficiency and industry, and

4) Information dissemination related to investment opportunities, support and assistance programs available, market information and extension information.

8.3 Fund Management of CALABARZON Projects

(1) Indicative investment schedule

Projected public fund for CALABARZON

The availability of public fund to be allocated to the Project CALABARZON has been estimated by the ratio of all public investment to GNP, investment shares by the CALABARZON provinces during 1987-89, and expected GNP growth. Fund mobilization during 1987-89 was estimated on the expenditure basis. Thus, the projected public fund mobilization represents a conservative estimate.

The cumulative amount of public fund is projected to be US$ 615 million during 1991-95 and US$ 713 million during 1996-2000. Extending this trend projection, the total amounts of fund mobilized in CALABARZON area up to 2010 was estimated to be US$ 3,111 million.

Investment schedule

An indicative investment schedule for all the projects in CALABARZON is shown in Table 2. For the anchor projects of CALABARZON, investment costs estimated roughly are disbursed over respective implementation period in due consideration of the development phasing presented in Section 5. For those projects of which the implementation is subject to the results of studies recommended by the Master Plan, costs are not explicitly shown. They may be included in "other projects" of respective components together with other non-anchor projects.

(2) Fund management of CALABARZON Projects

Integrated area development

Of all the CALABARZON projects formulated by the Master Plan, integrated area development (IAD) type projects are important due to their multi-sector orientation, spatial integration, grassroot/local participation and organizational integration. They include the Laguna west urban region development, Batangas - Bauan urban development, integrated urban/industrial development, Batangas east agricultural development, Laguna upland integrated rural development, Quezon upland integrated rural development and Rizal inland agro-industrial park.

The effective implementation of IAD is contingent on decentralized decision-making and an integrated fund management to ensure the synchronized implementation of the multi-

Table 2 Indicative Investment Schedule of the Project CALABARZON (1/3)

Project	Agency	Status	Investment Schedule					
			-93	94 - 95	96 - 97	98 - 2000	2001 - 10	Total
Port Development								
1.1 Greater Capital Region Port Study	NEDA	New	2					2
1.2 Batangas Port Upgrading								
Phase I	PPA	On-going (C)	18	14				32
Phase II	PPA	New		4	*	*	*	4
1.3 Sangley Point Conversion to Container Terminal	PPA	New	2	*	*			2
1.4 Other Projects			0	3	20	40	100	163
1.5 Sub-total			22	21	20	40	100	203
Roads and Highways								
2.1 Cavite Coastal Road	DPWH	On-going (D/D)	2	*	*			2
2.2 Cavite North-South Highway	DPWH	New	1	1	20	40		62
2.3 Primary/Secondary Road Rehabili	DPWH	New	5	5	5	8	25	48
2.4 Carmona-Ternate - Nasgubu Road	DPWH	On-going (C)	16	12				28
2.5 Calamba-St. Tomas - Batangas Expressway	DPWH							
Phase I		On-going (C)	25	20	20			65
Phase II		On-going (D/D)						
2.6 Marikina-Infanta Road	DPWH	On-going (D/D)	2	*	*			2
2.7 Other Projects			20	20	20	30	120	210
2.8 Sub-total			71	58	65	78	145	417
Industrial Support								
3.1 Cavite EPZ Expansion	EPZA	On-going (C)	20	12				32
3.2 Das-Silang L1 Telecommunication	PLDT	New	2	3				5
3.3 Urban Center Telecommunication	DOTC	New	1	1	*	*		2
3.4 Calaca II	NPC	On-going (C)	50	150	105			305
3.5 Power Trans/Distri L1	NPC							
	NEA MERALCO	New	10	10	10	15	50	95
3.6 CALABARZON Groundwater Study	DPWH	New	3	2				5
3.7 Other Projects			20	20	40	70	170	320
(i.e.) NTP-Tranche I L2		On-going (D/D)						(203)
3.8 Sub-total			106	198	155	85	220	764

Table 2 Indicative Investment Schedule of the Project CALABARZON (2/3)

Project	Agency	Status	Investment Schedule					
			-93	94 - 95	96 - 97	98 - 2000	01 - 10	Total
Urban Development								
4.1 Laguna West Urban Development	Inter-agency	New	2	*				2
4.2 Batangas-Bauan Urban Development	Inter-agency	New	2	*				2
4.3 Taal Lake Multi-pupose Water Resource Development	DPWH LWUA	New	3	*	*	*		3
4.4 Rehabili of PNR South	PNR	On-going (D/D)	7	*	*			7
4.5 Integrated Industrial Urban Development	Inter-agency	New	10	20	20	20	100	170
4.6 Batangas Housing Program	NHA	New	1	2				3
4.7 Pre-investment Study for CALABARZON Shelter	NHA	New	2	3	*	*	*	5
4.8 Others-implementation of 4.1, 4.2, 4.3, 4.4 etc.			0	30	30	40	120	220
4.9 Sub-total			27	55	50	60	220	412
Agriculture								
5.1 Batangas East Agri Development	Inter-agency (DA)	New	2	*	*	*	*	2
5.2 Inter-Cropping and Mixed Farming	DA PCA	New	8	10	10	10	19	57
5.3 Other Projects-extension of on-going national programs to CALABARZON			5	15	40	70	141	271
5.4 Sub-total			15	25	50	80	160	330
Rural Development								
6.1 Laguna Upland IRD Project	Inter-agency (DA)	New	10	15	10			35
6.2 Quezon Upland IRD Project	Inter-agency (DA)	New	5	15	15			35
6.3 Rizal Inland Agro-Industrial Park	Inter-agency (DA)	New	10	10	10			30
6.4 Rural Energy Development Program	OEA NEA	New	3	5	5	7		20
6.5 Rural Roads	DPWH	New	5	5	5	10	25	50
6.6 Other Projects similar to 6.1, 6.2, 6.3 etc.			0	0	15	63	175	253
6.7 Sub-total			33	50	60	80	200	423

Table 2 Indicative Investment Schedule of the Project CALABARZON (3/3)

Project	Agency	Status	Investment Schedule					
			-93	94 - 95	96 - 97	98 - 2000	01 - 10	Total
Social Development								
7.1 Disaster Preparedness/ Mitigation Program	DSWD	New	1	1	1			3
7.2 Southern Tagalog Manpower/Employment L3	Inter-agency (REMDC)	New	1	2	2	2	10	17
7.3 Livelihood Development	CRDA (NEDA/ LIVECOR)	New	8	16	16	24	88	152
7.4 Batangas Regional Hospital Upgrade	DOH	New	4	6	8	4		22
7.5 Family Health Care	DOH	New	1	2	2	6	21	32
7.6 Herbal Production	DOH	New	0	1	1	1	0	3
7.7 Upgrading of District/ Medicare Hospitals	DOH	New	2	4	4	6	14	30
7.8 SCU Education/ Research	SCU	New	0	2	2	2	8	14
7.9 School Building	DECS	On-going	4	8	8	12	44	76
7.10 Comprehensive Tech/ Voc Education	DECS	New	1	2	2	3	15	23
7.11 Sub-total			21	42	44	58	190	355
Environmental Management								
8.1 Marikina Watershed	DENR	New	3	*	*			3
8.2 Laguna Basin Environment Monitoring	LLDA	New	3	2	*	*	*	5
8.3 Other Projects			4	10	30	40	130	214
8.4 Sub-total			10	12	30	40	130	222
Total			305	461	474	521	1,365	3,126

sectoral components of IAD projects. Alternative modes of releasing project funds for IAD projects are:

(a) Mode I : Funds released to the lead agency from DBM are then disbursed to the different agencies responsible for respective project component.

(b) Mode II : Project fund is directly released from DBM to the different agencies.

By Mode I, monitoring of disbursement and project implementation is easier, but fund utilization tends to delay. By Mode II, fund utilization is faster, but coordination between the lead and other agencies may be insufficient.

For the IAD projects of CALABARZON, the Mode II is recommended as the CALABARZON RDA to be newly established will function as a coordinating agency.

Local projects

The new Local Government Code would empower LGU's to command local development projects. The proper implementation of those projects would be hampered by insufficient capabilities of LGU's for project planning, implementation and management. The transfer of GOP fund from central and regional agencies to LGU's should be carefully undertaken as the abilities of LGU's are upgraded. The CALABARZON RDA inter-positioned between the national and provincial levels would be instrumental for technical guidance related to project planning, implementation and management and for coherent and mutually consistent actions by LGU's.

JICA