REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TRADE AND INDUSTRY

THE MASTER PLAN STUDY ON THE PROJECT CALABARZON

FINAL REPORT

Master Plan Report

October, 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TRADE AND INDUSTRY

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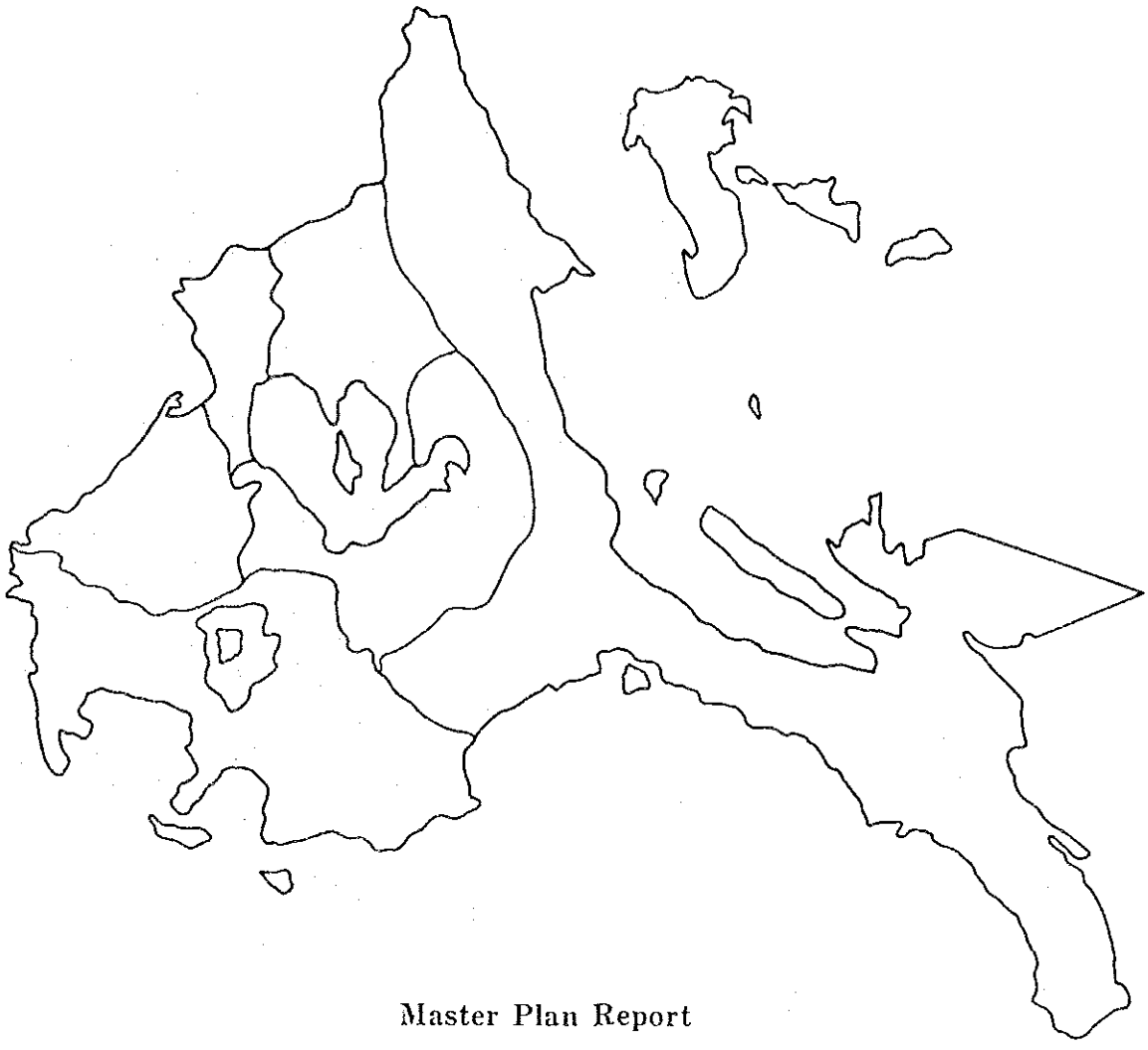

Master Plan Report

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JAPAN INTERNATIONAL COOPERATION AGENCY

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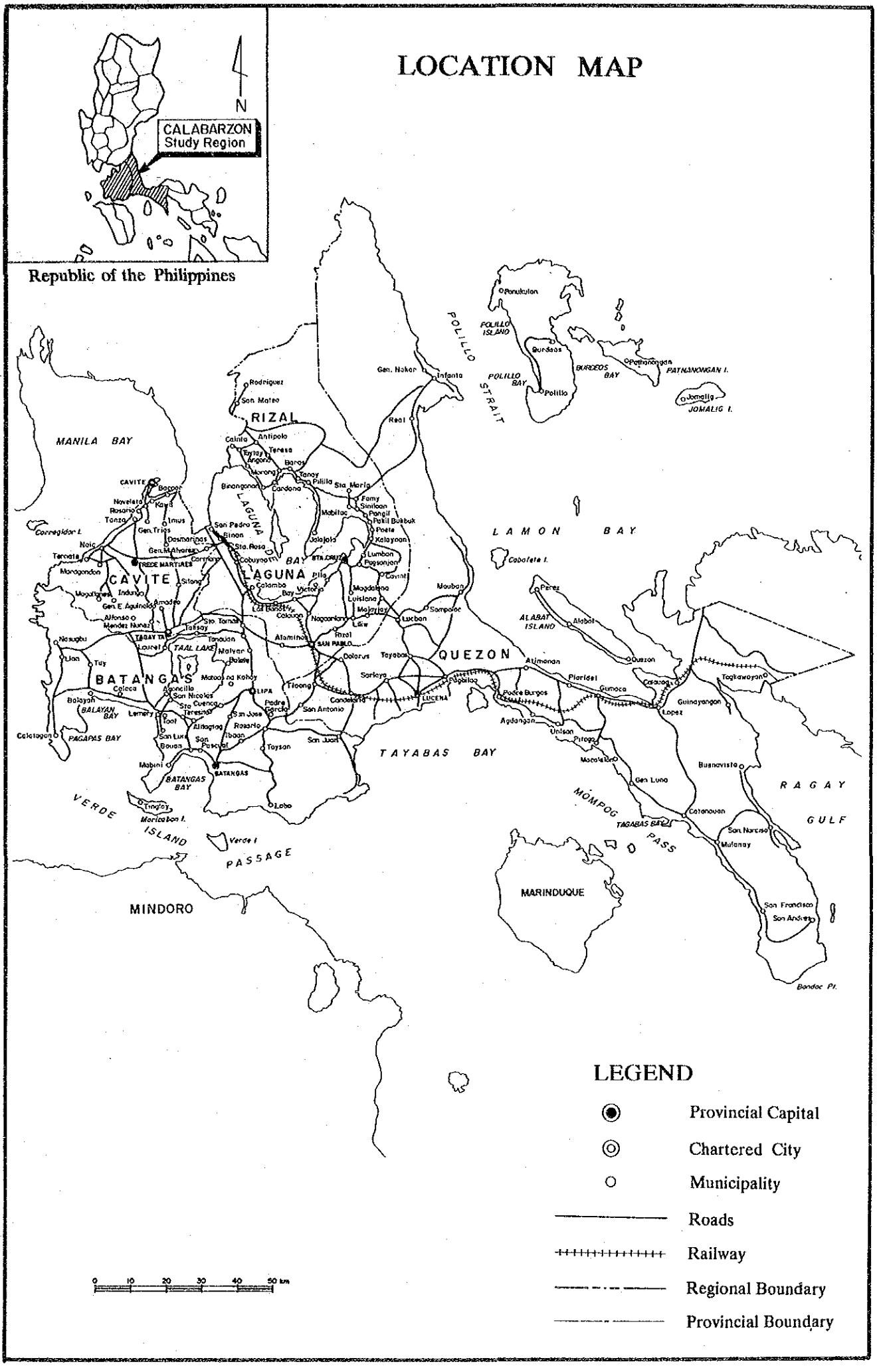

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Abbreviations of Organizations and Institutions

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

CHAPTER 1

Chapter 1. INTRODUCTION

1.1 Background

(1) Study background

The CALABARZON region (the Region) comprises the five provinces of Cavite, Laguna, Batangas, Rizal and Quezon, contiguous to the capital region of Metro Manila. With its strategic location, endowments of various resources and better existing infrastructure, the Region is expected to play a leading role in the attainment of national goals.

A number of projects have been planned and partly implemented by various government implementing agencies in recent years. Urban sprawl from Metro Manila has been progressing into the Region, 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.

The Government of the Philippines has recognized the need to coordinate the various development efforts in order to realize a balanced and environmentally sound growth of the Region. The Government designated in the Philippine Assistance Program (PAP) the CALABARZON region as one of the five demonstration areas for development assistance (The Philippine Agenda for Sustained Growth the Development, Program for the Multilateral Assistance Initiative (MAI)).

Along this line, the Philippine Government requested the Government of Japan for technical cooperation to prepare an integrated regional development plan for the Region. Originally, only the four provinces, except Quezon, were included in the subject for the technical cooperation : hence, the CALABAR region. In response to this request, a preliminary mission was dispatched by the Japanese Government for the period between October 20 and November 1, 1989 to clarify the background and specific contents of the request and to work out the scope of work for the study requested.

An agreement on the Implementing Arrangement for the Master Plan Study on the Project CALABAR (the Study) was reached between the Department of Trade and Industry (DTI)--Board of Investment (BOI) and the Japan International Cooperation Agency (JICA), and signed on October 30, 1989 by the representatives of DTI and JICA. The agreement included a mandate for JICA to dispatch another preliminary mission to carry out an initial

data collection and study. The purpose for this was to facilitate the Study execution in order to meet the request by the Philippine side to shorten the Study period.

The second preliminary mission stayed in the Philippines for the period between December 13, 1989 and February 10, 1990. The mission, in cooperation with BOI-DTI personnel, conducted intensive interviews with various agencies concerned, collected basic data and study reports necessary for the Study and made a preliminary analysis of materials collected. The present study is a continuation of these past efforts.

Upon the strong request by the Philippine government, the Japanese government agreed to include the fifth province of Quezon into the Study area. The agreement between the two governments was signed on January 7, 1991. The title of the Study has become "the Master Plan Study on the Project CALABARZON".

(2) Study scope and objectives

Study scope

The Study covers in principle the provinces of Cavite, Laguna, Batangas, Rizal and Quezon, collectively called the CALABARZON region. The Study may look into other regions and the whole Country as well in relation to CALABARZON, if necessary in characterizing the Region and analyzing some specific aspects of CALABARZON development. In particular, the National Capital Region (NCR) or Metro Manila would be looked at in the light of its dominant effects on CALABARZON.

The present Study is being carried out within the scope of work specified in the Implementing Arrangement agreed between DTI and JICA and signed on October 30, 1989, as amended on January 7, 1991. The data and study reports collected by the preliminary study teams constitute the primary basis of the Study. The Study Team, however, has made its own efforts to collect additional data necessary for the Study, as it found the readily available data and information deficient or inadequate.

Field investigation works and surveys were conducted to cover some important aspects for which available data would not provide information sufficient for the Study. They include a land use survey, market surveys for tourism, limited water sampling and water quality analysis, rural socio-economic surveys and others. Discussions with the Philippine side including communications with the concerned provincial governments provided another important base for the Study.

Study objectives

The objectives of the Study as agreed upon between BOI-DTI and JICA are the following:

(1) To formulate the Master Plan for the Project CALABARZON;

(2) To analyze the existing development plans/programs proposed by the central/local government agencies and integrate them into a coherent CALABARZON project package, out of which priority projects shall be short listed;

(3) To elaborate in particular agricultural and industrial development strategy/policies, including the identification of high potential areas of agricultural and industrial development and investment;

(4) To make recommendations regarding the necessary implementing arrangements such as investment promotion programs and institutional framework for the Project CALABARZON; and

(5) To effect the transfer of technology related to the regional development planning and management.

(3) Work progress

Following a preliminary analysis in Japan on the data and materials collected by the preliminary study teams, the main part of the Study started on April 23, 1990 with the dispatch to the Philippines of the consultant team entrusted by JICA with the Study.

The Inception Report was discussed with the Technical Working Group (TWG) and submitted on May 14, with the JICA Advisory Team's attendance. The Report clarified the objectives, scope, schedule and procedure of the Study. In the latter half of May, the Study Team made the first official visits to the provinces of Cavite, Laguna, Batangas and Rizal. The Study Team explained the nature of the Study, asked for the cooperation, exchanged views with provincial officers and people on development status and prospects, and visited a few sites of on-going /proposed projects.

Subsequently, experts of the consultant contacted individually or in a group various organizations/agencies concerned with the CALABARZON regional development. They include various departments of the Central Government, their affiliated agencies and regional / provincial offices, the provincial governments of Cavite, Laguna, Batangas, Rizal and Quezon, research institutes, international organizations and NGO's.

The Progress Report was compiled containing study results of existing conditions and constraints by sector, reflecting also the discussion with TWG. It was submitted on August 7 formally to the Steering Committee attended by representatives of Philippine agencies and the JICA Advisory Team as well as the JICA Study Team.

The Progress Report was discussed extensively between TWG and the JICA Study Team at a Technical Committee convened on August 15. Additional comments were received in writing subsequently from several agencies.

The Study Team developed scenarios and formulated socio-economic and spatial development frameworks for the CALABAR regional development. A paper entitled "CALABAR Development Scenarios and Frameworks" was submitted as an addendum to the Progress Report. To discuss the scenarios and the frameworks based on the paper, a workshop was organized on September 8 at the Development Academy of the Philippines in Tagaytay. It was attended by some 50 participants representing related provinces and Philippine agencies as well as the JICA Study Team.

At the workshop, the Study Team explained the works so far accomplished, and discussions took place by major subject: development goals and objectives, development strategy, development alternatives, and sub-regions, artery network and phasing. General concurrence was obtained among the workshop participants on key development issues and strategy, and alternative ideas were presented for specific development measures.

Subsequently, the Study Team entered the stage of project formulation, assessment and screening. A set of anchor projects has been selected through discussions between DTI-BOI and the JICA Study Team for presentation at the official inauguration of the Project CALABARZON, which took place on October 19 in Batangas City.

The Interim Report was compiled containing the first draft of the Project CALABAR Master Plan. Priority projects, institutional measures to complement the project implementation and sector-wise strategy for the CALABAR regional development were presented.

A supplemental field work was conducted from January 24 through March 9, 1991 primarily for the Quezon province newly added to the Study area. The Study Team conducted field surveys, household questionnaire surveys, collection of data and other related materials, and discussion with various agencies. In parallel with these, the Study

Team undertook additional works for further elaboration on and promotion of the Master Plan. They include the project formulation for the social sector through a series of discussions with National Economic and Development Authority (NEDA) Region IV and an inter-agency workshop, meetings with NGO representatives and the consultative panel for the Project CALABARZON, and participation in the Laguna lake environment workshop.

The data and other related materials collected were analyzed in Japan and the Interim Report submitted in October 1990 was revised. Results have been complied into the Interim Report 2, containing the first draft of the Project CALABARZON Master Plan.

Detailed results of the Study have been compiled by sector. These sector reports support and supplement the Project CALABARZON Master Plan contained in the main report, which has been restructured based on the Interim Report 2.

The final field work was conducted from June 25 through July 27, 1991 for the following purposes:

(1) supplementary survey on Quezon,

(2) discussion on the Interim Report 2 with all the sector reports constituting together the Draft Final Report, and

(3) carrying out of consultative workshops/seminars to convey the Master Plan proposals to various audiences for their comments.

In addition to discussions with various sections of DTI, the Master Plan and its appendixes were discussed extensively with various government agencies separately and also in the Steering Committee and the TWG meetings. Another forum with NGO representatives was held as well. Finally, a series of consultative workshops/seminars were conducted for all the CALABRZON provinces one after another, initiated and organized by DTI in cooperation with the Ramon Magsaysay Award Foundation and the Development Academy of the Philippines as well as the provincial governments and the JICA Study Team.

Based on all the works outlined above, the Final Report of the Master Plan Study on the Project CALABARZON has been complied in Japan and submitted to JICA head office in early October 1991.

1.2 Organization of the Report

(1) Report composition

This report is the Master Plan Report of the Final Report on the Master Plan Study on the Project CALABARZON. Eleven appendices are attached to this report. Ten of them contain sector reports as follows.

Appendix A	:	Agriculture
Appendix B	:	Industry
Appendix C	:	Tourism
Appendix D	:	Water Resources
Appendix E	:	Transportation
Appendix F	:	Telecommunications
Appendix G	:	Energy
Appendix H	:	Urban and Spatial Development
Appendix I	:	Social Development
Appendix J	:	Environment

Appendix K contains project profiles. The Executive Summary Report has been prepared separately.

(2) Organization of the main report

The remaining part of the Master Plan Report is organized in the following way. In Chapter 2, an overview is given on the national economic and spatial development, the CALABARZON region is described in various aspects, and the position of CALABARZON in the national development is clarified.

CALABARZON regional development objectives and strategy are presented in Chapter 3. First, government development goals and objectives are described, and the CALABARZON regional development objectives are established, broadly in line with them and reflecting the position of CALABARZON clarified in Chapter 2. Second, basic development strategy to attain the objectives is discussed showing alternatives and clarifying basic elements of the strategy. Third, objectives and strategy for agriculture and industry are respectively established.

Chapter 4 presents scenarios and frameworks for the CALABARZON regional development. Three broad alternatives are presented, and socio-economic and spatial development frameworks are worked out for each. The most desirable scenario and frameworks are clarified. Development phasing is described broadly for Phase 1 (upto the year 1995), Phase 2 (1996-2000), and Phase 3 (2001-2010).

In Chapter 5, conditions for realizing the envisioned regional development are described in various aspects, covering infrastructure, environment, social needs and financial capacity. Based on the analysis on existing conditions and constraints, strategy and measures are clarified by sector.

Chapter 6 is for the CALABARZON development plan itself. Macro-zoning of the land of CALABARZON is presented for future development of different sub-regions, and development strategy is derived by sub-region. Anchor projects and other priority projects are presented, and phasing of their implementation is indicated. Profiles of these projects are contained in Appendix K. Institutional measures to complement the project implementation are described. They include various incentive measures to support the agricultural and industrial development, and proposed institutional arrangements for implementing and revising the Project CALABARZON Master Plan.

CHAPTER 2

Chapter 2. THE CALABARZON REGION

The CALABARZON region is defined as the jurisdictions of the provinces of Cavite, Laguna, Batangas, Rizal and Quezon, contiguous to the capital region of Metro Manila. This is not an administrative unit. The Region is a part of the planning unit of Region IV (Southern Tagalog), which occupies the southern central portion of the Luzon island. The total area of the Region is 16,229 km^2.

This chapter presents a brief description of some of the salient characteristics of CALABARZON with respect to population, economy and the physical resource base. Details are given in Appendices.

2.1 National Economic and Spatial Development

2.1.1 National economy

(1) Past performance

The Philippine economy recovered rapidly after the World War II and regained its pre-war economic level by the end of 1940's. The balance of payment, however, was aggravated due to the trade deficit caused by rapid increase in imports, particularly of consumer goods, resulting in foreign currency crisis in 1949.

To cope with the situation, the import and foreign exchange regulations were introduced in 1950. This led to rapid development of import substitution industries in 1950's. These industries were highly protected in two aspects. First, they could sell their products at high prices in the domestic market as the import of competitive foreign products was strictly controlled. Second, they could import their inputs at comparatively low prices due to excessive appreciation of Peso.

The Government, upon strong request by agro-product exporters suffering from the excessively appreciated Peso, gradually abolished the import controls from 1960 to 62. Peso was devalued at the same time. The imports increased rapidly after 1963, resulting in aggravated trade balances.

The new administration, inaugurated in 1965, directed an active economic policy and declared further promotion of import substitution industries and export promotion of manufactured goods. The enormous deficit of public finance caused by the active

economic policy, accompanied by the increase in import and foreign debt, had brought a serious foreign currency crisis for the second time after the war.

The import control introduced in 1969 in a large scale expanded further in 1970's. The export promotion of manufactured goods was a main policy objectives. This led to the Export Incentive Act and the Export Processing Zone Act. The domestic production of consumer goods was heavily protected. Simultaneously, efforts were made to build a capital goods industry through measures such as the Progressive Manufacturing Program.

The economy in 1970's was a fragile one heavily protected from international competition by import controls, an excessively appreciated Peso and other incentives and supported by large public sector deficit sustained by foreign loans and development assistance. The distorted price structure and ill conceived public sector direct investments led to low levels of capital productivity.

The second oil crisis of 1979 brought a rapid aggravation of terms of trade. Foreign loans became difficult to obtain. Under these situations, the Government decided in 1980 to change its basic policy from import substitution to export promotion. Liberalization and industrial structural adjustment programs were implemented in subsequent years, including reduction of tariff rates, trade liberalization, and reinforcement of incentive measures to promote export.

The Government, however, continued to expand its public expenditure through introducing short-term foreign loans aiming at breaking through the economic depression. This economic expansion policy brought about the deterioration of the Philippine economy. Coupled with the political disorder, the capital flight increased and the worst foreign debt crisis occurred.

The new administration, established in 1986, declared new policies in the Medium-Term Economic Development Plan (1987 - 92) emphasizing the elimination of poverty, enhancement of employment, especially in rural areas, promotion of agricultural production, and development of labour intensive and export oriented industries. The economy has been recovering from the serious crisis of 1983-86. Although the economy at present is suffering from recent external factors, the policy framework set in the Mid-Term Plan for balanced development of industry and agriculture is expected to lead to sound and sustained growth in the mid- to the long-term.

(2) Recent trends

GDP

The changes in gross domestic product (GDP) of the Philippines in recent years are presented in Table 2.1. The GDP growth recorded an annual average of 6.2% in the period 1975-80. Much reduced GDP growth in early 1980's was followed by the crisis period of 1983-86, when the GDP growth turned negative. The GDP growth started to recover in 1986 with 1.4% and attained 4.7% in 1987, 6.2% in 1988 and 6.0% in 1989.

The economic structure changed in 1975-80 with the share of agriculture declining from 29.0% in 1975 to 23.3% in 1980 of GDP and corresponding increases in the shares of industry and services. Due to the poor performance of the industry sector thereafter, its share in GDP is still smaller (33.3%) in 1989 than it was (36.6%) in 1980. The share of agriculture is practically the same in 1980 and 1989.

The per capita GDP was ₱1,627 in 1975 (in 1972 price), and increased to ₱1,925 in 1980: an annual average rate of 3.4%. After the economic crisis, it has not yet recovered the pre-crisis level with ₱1,778 in 1989 (NEDA, Philippine Development Report 1989).

Export/import and balance of payment

The share of traditional export commodities in the total export value of the Philippines has been rapidly declining (Table 2.2). In particular, the share of coconut products, sugar and sugar products combined decreased from 47.2% in 1975 to 9.4% in 1989. No single commodity group substantially increased its share in the meantime, but export products of the Philippines are now widely varied.

Philippine imports are dominated by raw materials, but the share of imports of semi-processed raw materials has been increasing, while that of unprocessed raw materials has declined. The share of machinery and equipment in the total export value had declined steadily through mid-1980's, but started to increase again, reflecting the re-activating economy.

The foreign trade balance in the Philippines has been consistently in red (Table 2.3). This has been partly compensated by steady income transfer, largely due to remittances from the Filipino workers overseas. The current account deficit aggravated consistently since 1975 to reach its peak in 1982. The current account balance improved much recently, overcoming the economic crisis of 1983-86.

2.1.2 National spatial structure

The Republic of the Philippines is composed of about 7,100 islands, spreading 1,100 km long in the east-west direction, and 1,800 km long in the north-south direction. The land area is around 300,000 km^2, of which the largest island is Luzon island (104,700 km^2), where Metro Manila is located. The second largest is Mindanao island (94,600 km^2), followed by Samar island (13,100 km^2), Negros (12,700 km^2), Palawan (11,800 km^2), Panay (11,500 km^2), Mindoro (9,700 km^2), Leyte (7,200 km^2), Cebu (4,400 km^2), and Bohol (4,100 km^2). The land area of these ten largest islands amounts to 91% of the total land area of the Country.

The Country is divided into 13 regions, each consisting of four to 11 provinces (Figure 2.1 and Table 2.4). Region IV has the largest population, closely followed by National Capital Region (NCR; Metro Manila). They accommodate respectively 14% of the national population. Following NCR, Regions III and IV are the most densely populated regions. The most sparsely populated is Region II (Cagayan Valley). Other low population density areas are located in Mindanao island (Regions IX through XII) and Northern Luzon (Region I).

Each region has a regional center, where regional offices of sectoral line agencies are located. Many of the regional offices of Region IV are still located in Metro Manila rather than in any urban center within the Region.

Region	Regional Center (Province)	Population of Regional Center (x1,000 in 1980)
National Capital Region	Metro Manila	5,926
I. Ilocos	San Fernando, La Union	68
II. Cagayan Valley	Tuguegarao, Cagayan	74
III. Central Luzon	San Fernando, Pampanga	111
IV. Souther Tagalog	(Metro Manila)	(5,926)
V. Bicol	Legazpi City, Albay	100
VI. Western Visayas	Iloilo City, Iloilo	245
VII. Central Visayas	Cebu City, Cebu	490
VIII. Eastern Visayas	Tacloban City, Leyte	103
IX. Western Mindanao	Jolo, Sulu	52
X. Northern Mindanao	Cagayan de Oro City, Misamis Oriental	227
XI. Southern Mindanao	Davao City, Davao del Sur	610
XII. Central Mindanao	Cotabato City, Maguindanao	84

Metro Manila, consisting of four cities and 13 municipalities, accommodates 8 million population in 63,600 ha (about 0.2% of the Country's land area), including over 30% of the national urban population. Metro Manila plays dominant roles in providing

administrative services, opportunities for industrial production and commercial activities and various social and urban services. Metro Manila produces 40% of the Philippines' total non-agricultural output and its ports handle more than half of the Country's exports (Table 2.4).

The second largest metropolitan area is Metropolitan Cebu, with the urban population at 800,000 in 1980. The urban populations of other large cities are smaller than 500,000. Despite decentralization and regionalization policies, Metro Manila's population increased at high annual growth rates : 4.6% and 3.6% respectively in 1970-1975 and in 1975-1980. Metropolitan Cebu and most other large cities have shown relatively high rates of population increase. However, the concentration of urban population and accumulated investment in Metro Manila are the predominant factor in the present spatial distribution of urban population and economic activities in the Country.

2.2 CALABARZON Socio-Economy

2.2.1 Population, employment and livelihood

(1) Population composition and distribution

Population of the Region is given below by constituent province and compared with that of Metro Manila and the Philippines.

Population in 1990

Province/Region/Country	Area (km^2)	Population (1,000)	Population Share (%)	Population Density (per ha)
CALABARZON				
Cavite	1,288	1,153	1.9	8.95
Laguna	1,760	1,374	2.3	7.81
Batangas	3,165	1,476	2.4	4.66
Rizal	1,309	973	1.6	7.43
Quezon	8,707	1,373	2.3	1.58
Total	16,229	6,349	10.5	3.91
Region IV	46,926	8,261	13.7	1.76
Metro Manila	636	7,832	13.0	123.14
Philippines	300,048	60,477	100.0	2.10

The total population in the Region was 6,349 thousand in 1990, accounting for 10.5% of the total Philippine population.

The population of the Region has been growing faster than the national population, accelerating from 3.2% per annum in the 1970's to 3.3% per annum in the 1980's as shown below. This largely reflects the social increase due to migration out of Metro Manila and inflow from rural areas such as Bicol and Visayas.

Population Growth

(% per annum)

Province/Region/Country	1970 - 80	1980 - 90
CALABARZON		
Cavite	4.0	4.1
Laguna	3.4	3.5
Batangas	2.4	2.3
Rizal	6.1	5.8
Quezon	2.3	2.0
Total	3.2	3.3
Metro Manila	4.1	2.8
Philippines	2.8	2.3

The age composition of population in the CALABARZON region is compared with that of Region IV, Metro Manila and the Philippines (detail in Appendix I).

(%)

Age Group	CALABARZON	Region IV	Metro Manila	Philippines
0-14	37.4	37.8	33.4	39.8
15-64	59.4	58.9	63.8	56.8
65<	3.2	3.3	2.8	3.4

The share of working age (15-64) population in CALABARZON is relatively high, though not as high as in Metro Manila, as compared with that in Region IV or the Country. This is probably due to age selective migration.

The population density by province in 1990 is 8.95 per ha in Cavite, 7.81 in Laguna, 7.43 in Rizal, 4.66 in Batangas and 1.58 in Quezon. The distribution of population in cities and municipalities of CALABARZON, the growth rates and densities are illustrated in Figures 2.2 and 2.3 (Appendix I). Municipalities having population density over 20 per ha are Rosario (126.1), Cavite City (77.7), Bacoor (63.9), Noveleta (36.4) , Kawit (35.6), and Carmona (23.4) in Cavite, San Pedro (69.2) , Biñan (30.9) and Sta. Rosa (24.2) in Laguna, Cainta (124.4) and Taytay (29.0) in Rizal and Lucena City (22.0) in Quezon. All of them except Lucena City are located close to Metro Manila.

Cities and municipalities recorded the growth rate over 4% during 1980-90 are Dasmarinas (10.16), Trece Martires City (6.22), Silang (6.01), Bacoor (5.86), Ternate (5.09), and Imus (4.54) in Cavite, Binan (4.86) and Farmy (4.22) in Laguna, Antipolo (11.49), Cainta (7.95), Angono (5.64), Montalban (4.83), San Mateo (4.72), Binangonan (4.65), Baras (4.19) and Taytay (4.08) in Rizal, and General Nakar (4.21) in Quezon all located close to Metro Manila except General Nakar.

According to the NSO criteria, 43.5% of the population in the CALABARZON region lived in urban areas in 1980. The share of urban population varies among the provinces: 75.0% in Rizal, 61.0% in Laguna, 59.8% in Cavite , 29.1% in Quezon and 17.0% in Batangas in the same year. Batangas and Quezon have a lower share of urban population than the average in Region IV of 37. 1 in 1980.

(2) Migration

CALABARZON

The NSO migration statistics between the two census years 1975 and 1980 are summarized below for the CALABARZON provinces (details in Appendix I).

Province	In-migration		Out-migration		Net-migration
	Total	Rate*(%)	Total	Rate*(%)	
Cavite	53,045	8.4	15,150	2.4	37,895
Laguna	43,638	5.4	21,369	2.7	22,269
Batangas	18,165	1.8	28,464	2.8	-10,299
Rizal	54,795	13.2	26,493	6.4	28,302
Qezon	22,718	2.2	32,951	3.2	-10,233

* Total in- or out-migration divided by 1975 population.

The three provinces, except Batangas and Quezon, are net receivers of in-migrants. The in-migration rate varies widely among the provinces from 13.2% for Rizal to 1.8% for Batangas. The out-migration rate is at the similar level (2.4-3.2%) for the Cavite, Laguna, Batangas and Quezon provinces, but much higher (6.4%) for Rizal. Rizal experienced the most active exchange of in- and out-migrants with Metro Manila and neighboring provinces while Batangas was the most inactive.

The similar out-migration rates for the provinces of Cavite, Laguna, Batangas and Quezon indicate that it is rural-push migration. Some recent data indicate that the out-migration rate in the subsequent period must have increased for Laguna and particularly for Cavite following Rizal, while that for Batangas and Quezon stayed at a similar level.

NCR

Migration related to NCR is the dominant factor determining the overall pattern of migration in the area around CALABARZON. The following summarize the NCR-related migration.

Origin/Destination	Migration into NCR		Migration out of NCR		Net
	Share in total	Rate*	Share in Total	Rate*	
Cavite	2.1	1.29	15.9	5.18	-24,406
Laguna	2.7	1.28	7.9	2.00	-5,785
Batangas	3.8	1.39	1.7	0.34	10,901
Rizal	3.3	3.00	14.2	7.01	-16,609
Quezon	3.7	1.37	1.9	0.38	10,185
Others in Region IV	4.2	1.22	2.8	0.44	10,283
Region III	13.5	1.22	20.7	1.01	8,853
Region V	13.6	1.61	7.8	0.50	35,616
Northern Regions	15.6	1.14	8.5	0.33	41,956
Southern Regions	37.4	0.74	18.7	0.20	103,701

* Total migration divided by 1975 population

Of all the regions, the largest number of in-migrants into NCR originate from Region IV. Regions III, V, VII,VI and I are other origins, each with shares exceeding 10% of the total in-migrants into NCR. Rates of in-migration into NCR are generally higher for the CALABARZON provinces, ranging from 1.28% for Laguna to 3.00% for Rizal. Only other regions having the immigration rate higher than or comparable to CALABARZON are the remaining provinces of Region IV with 1.22%, Region III with 1.22% and Region V with 1.61%.

Region IV is the dominant destination of out-migrants from NCR with a share of 44.4%. Cavite and Rizal are leading with 15.9% and 14.2% respectively, followed by Laguna with 7.9%. Batangas and Quezon have a small share at only 1.7% and 1.9%, respectively. Other regions have generally much smaller shares than CALABARZON. The only other significant source is Region III having a share of 20.7%. Rates of out-migration from NCR are much smaller for all other regions compared with CALABARZON having the average of 1.76%. Even the rest of Region IV has the rate of only 0.44%.

(3) Labour force and employment

Labour force

According to the Integrated Philippine Survey of Households in 1988, the total population 15 years old and over was 35,865,000 (Appendix I). This represents an annual average growth rate of 2.7% from 28,967,000 in 1980. This is higher than the average growth of total population, reflecting increasing life expectancy and decreasing birth rates in recent years. The ratio of population over 15 years old to total population or the labour force coefficient increased from 59.8% in 1980 to 65.4% in 1988. The labour force coefficient in the CALABARZON region was 63.6% in 1988, lower than the average for Region IV and the national average and higher than the average for Metro Manila.

Employment

The total employment in the Philippines was 20,595,000 in the third quarter of 1986 (Appendix I). The employment rate was 88.9%, a decrease from 95.0% in 1980, however the rate increased to 91.7% in 1988. The employment rate in the CALABARZON region was 88.3% in the fourth quarter of 1986, slightly lower than the national average.

(4) Living conditions

Average income and expenditure

According to the Family Income and Expenditure Survey (FIES) conducted in 1985 by NEDA and NSO, the average annual family income was ₱31,047 in the Philippines, ₱29,985 in Region IV and ₱32,531 in the CALABARZON region (Appendix I). The average annual family expenditures were about the same for the Philippines and Region IV in both 1985 and 1988. Both the average family income and expenditure vary widely among the CALABARZON provinces, from ₱19,741 in Quezon to ₱41,249 in Laguna for the income and from ₱18,081 in Quezon to ₱36,888 in Laguna for expenditure in 1985.

Income distribution and sources

The distribution of family income in Region IV is similar to that in the Philippines: close to 50% below ₱19,999, about one-third in ₱20,000-39,999 and slightly over 20% over ₱40,000 in 1985. In the CALABARZON region, larger shares are in higher income groups. The income distribution varies significantly among the CALABARZON provinces. The shares of families below ₱19,999 are 16.2% in Cavite, 31.4% in Laguna, 39.7 in Batangas, 40.4% in Rizal and 66.4% Quezon (Appendix I).

The main characteristics of income distribution in CALABARZON by source are:

1) the income distribution for the category of wages and salaries from agriculture is most biased toward low income classes;

2) that for entrepreneurial activities in agriculture is better but still skewed to lower income classes;

3) that for entrepreneurial activities in non-agriculture has larger shares in middle income classes;

4) that for wages and salaries from non-agriculture is concentrated in middle to higher income classes, and

5) non-agricultural wages and salaries are main sources of income for majority of families accounting for 42.7%.

Families with wages and salaries from agriculture as the main source of income are mostly concentrated in lower income classes particularly in Batangas and Quezon. Families with

non-agricultural entrepreneurial activities as the main source of income are concentrated in higher income classes in Cavite, Laguna and Rizal.

Poverty

The official poverty line is set based on the NSO survey at ₱2,471 per month of family income with the average six family members or ₱29,652 of annual family income. Using this criterion, 616,150 families or 63.0% of all the families in the CALABARZON region are below the poverty line in 1985. This is still lower than the average in the Philippines and in Region IV estimated at 66.7% and 68.1% respectively. The ratios of families under poverty line in the CALABARZON provinces are 42.8% in Cavite, 50.9% in Laguna, 59.6% in Rizal, 66.1% in Batangas and 86.0% in Quezon.

Poverty families are found comparatively more in the agriculture while families depending on other sources are relatively better off. In fact, 89.2% of families engaged mainly in agriculture are classified into the poverty in the CALABARZON region.

(5) Livelihood problems

The geographic distribution of poverty and other problems related to the livelihood of people in the CALABARZON region is broadly identified with specific issues.

Cavite

In the lowland areas along the border with Metro Manila, the in-migrant poverty is observed. They are engaged primarily in common labor at factories and service activities. Another poverty group is found in coastal areas of Manila Bay, where they are engaged in small scale fishery and have recently suffered from red tides. They are mostly squatters coming from island regions such as Visayas. Large scale fishery by fishing enterprises tends to reduce the catch of small fishermen. Illegal fishing is also a problem.

Most farmers in highland areas are at subsistence level. They have suffered from crop damage by typhoons, reduction in products' prices, increase in expenditure for agro-inputs and over supply of some products such as tomatoes. Poverty is found also in resettlement areas. There are three resettlement areas in Cavite with the total population of 250,000: viz. Dasmariñas, Gen. Mariano Alvarez and Bulihan in Silang.

Laguna

The rural poverty is found in the eastern, the southeastern and the southern highlands of Laguna. They suffer from low productivity and unfavorable prices of coconut and other products.

The urban poverty is found in lowlands along the southern and the south-western coasts of Laguna de Bay. Major social problems include unemployment of out-of school youth, family separation due to out-migration, malnutrition and early marriage.

Batangas

The rural poverty is found in remote rural areas and coastal areas in Batangas. Pollution by wasteoil along the coast is already said to have negative effects on marine fishery. Small farmers in remote rural areas have problems in marketing their products and receiving social services due to poor access roads.

Farmers in the sugarcane area in the west suffer from declining prices of their products. In-migrants from island regions such as Mindoro and Palawan are working in factories or engaged in service activities. They are mostly squatters and their housing is a problem especially in the Batangas Bay area.

Rizal

The rapid population growth due to in-migration from Metro manila causes various social problems in urbanized areas such as Angono, Taytay, Antipolo and Cainta. These problems include unemployment, increased crimes, poor housing, squatters and health problems. A number of people suffer from floods of the Marikina river and flooding of lowlands by high water levels of Laguna de Bay. Farmers in upland areas face the paucity of cultivated land because of land conversion to settlement areas as well as topography.

Quezon

The rural poverty is found in most municipalities in the province. Most farmers in the province are engaged in coconut production and suffer from both lack of market and unstable international market prices of coconut products. Fishermen in coastal areas and remote islands in Lamon Bay and Tayabas Bay are at subsistence level. They have problems in marketing their fishery products due to both lack of processing and storage facilities and poor transportation system.

The poor transportation, especially the road network in remote rural areas as well as sea transportation in island municipalities, causes low level of social services and deprived

means of livelihood for people, especially in the Bondoc peninsula and the nothern part of the province.

People in the province suffer every year from natural calamities, typhoons, floods and landslides. The peace and order problem is another calamity for people which discourages social and economic development in the province. There are cultural minority groups in the mountainous area in General Nakar, Infanta and Real.

2.2.2 Economy

(1) Gross regional domestic product

The gross regional domestic product (GRDP) of the CALABARZON region have been estimated for the year 1988. First, the employment statistics are taken from the NSO Integrated Survey of Households. Second, employment coefficient or value-added per person engaged in each of broad economic sectors, i.e. agriculture, industry and services, is determined from the value-added and the employment statistics for Region IV with some adjustment to reflect characteristics of CALABARZON economy.

Results are summarized below together with the estimated employment coefficient and the employment statistics.

GRDP and Employment in CALABAR, 1988

Sector	Employment (1,000)	Employment coefficient (₱ x 10^3 per capita)*	Value-added (₱ x 10^6)*
Agriculture, forestry and fishery	606 (29.0)	30	18,180 (18.8)
Industry	544 (26.0)	75	40,800 (42.2)
Services	942 (45.0)	40	37,680 (39.0)
Total	2,092	-	96,660

(% share in parenthesis)
*in 1988 price

As seen from the table above, agriculture accounts only for 19% of GRDP, although its contribution to employment is higher at 29%. The shares of industry and services are at the similar level in GRDP, but the services sector contributes substantially more to employment with the share close to half of the total employment.

(2) Agriculture

Agricultural land use

The land use in CALABARZON is given in Table 2.5. Cavite has the largest area planted with banana (12,000 ha) and coffee (10,000 ha) of the five provinces. Agro-forestry activity is seen in the mountainous areas implemented under the DENR-assisted Integrated Social Forestry Program. Blackpepper cultivation has started recently in Cavite. Agricultural land use is well diversified in the province. In addition, saltbeds exist along the seashore between Bacoor and Noveleta with the total area of 500 ha.

Laguna has a large share of coconut area with 69,000 ha or 40% of the total provincial land. The area under sugarcane has decreased in the last five years, reflecting the decline in international market prices for sugar. Irrigation, especially for paddy, is most developed. Piggery operation, duck raising and dairy farming have been developing recently.

Agriculture in Batangas is dominated by two commercial crops: coconut and sugarcane. These crops occupy 150,000 ha or 76% of the total agricultural land. Rosario and Laurel are the commercial livestock production centers, especially for cattle and hogs. Poultry activities for chicken concentrate in Lipa City. Corn production has been increasing to meet the feed requirement for hog and poultry industry mainly in the eastern part of the province. A nursery of fruit trees exists in Talisay.

Rizal has the smallest agricultural land with 19,000 ha. Irrigated paddy is the main crop in the lowland, and fruit trees in the upland. Antipolo, San Mateo and Montalban are the commercial livestock and poultry centers, mainly for hogs and chicken. Some agricultural land has been encroached upon by the urbanization/industrialization from Metro Manila. The build up area occupies 12% of the provincial land, the largest share of the four provinces.

Quezon has by far the largest agricultural area with 452,000 ha or 53% of the total agricultural land in CALABARZON. The province is dominantly planted to coconuts which cover 86% of the agricultural land. Coconut-based intercropping is starting to pick up, commonly practiced with lanzones and banana. Forest and woodland account for 25% of the provincial land.

Production performance

The Philippine gross value-added in crop production increased by 1.54% per annum between 1984-1986. In CALABARZON, there was no growth in crop output value during that period (Table 2.6). The performance of livestock sector, in contrast, was better than the national average based on the available data for 1985-1988. The national growth during that period was 7.8% per annum, while it was 17.0% per annum in CALABARZON (Table 2.6).

Price data are not available on fishery production, but it is reported to have declined. In the Philippines, in contrast, there has been a steady increase, though the growth rates are modest (2.8% between 1984-1988).

Crop production

Production of main crops produced in CALABARZON and average yields are compared below with the national averages.

Production and Yield of Main Crops in CALABARZON, 1988

Crop	Production (1,000 tons/year)	Share in National Production (%)	Average Yield (ton/ha)	
			CALABARZON	Philippines
Paddy	413.7	4.6	2.44	2.64
Corn	199.3	4.5	0.91	1.18
Tomato	18.1	10.9	8.77	9.16
Banana	104.9	3.4	3.24	10.41
Mango	23.3	6.5	4.16	6.48
Calamansi	14.6	31.0	9.73	4.22
Pineapple	43.2	3.6	11.19	20.02
Coconut	1,814.1	14.5	4.64	3.87
Sugarcane	1,939.2	12.5	69.01	72.09
Coffee	16.9	11.9	0.94	1.00
Blackpepper	0.1	50.0	0.50	0.79

Source: Department of Agriculture

Paddy production in CALABARZON, 414,000 tons in 1988, accounts for 4.6% of the national production, led by Quezon and Laguna. Average paddy yield in Laguna was 3.7 tons/ha in 1989, among the highest in the Country. Double cropping is common owing to abundant water resources in the province. Paddy production in Batangas is mostly extensive and practiced in the upland without irrigation, resulting in low yield of 1.4 tons/ha. Paddy fields in Quezon are 56% irrigated.

Of the total corn production in CALABARZON, 199,000 tons in 1988, close to 70% is the contribution of Batangas. The productivity is still low with the average yield of 0.81 in Batangas or 0.91 in CALABARZON due to low input utilization.

The CALABARZON region contributes to 11% of national production of tomatoes, and this is one of few commodities of which production has increased in recent years. A variety of other vegetables are also produced, capitalizing on the proximity to major markets represented by Metro Manila.

The CALABARZON region also produces a variety of fruits. Quezon is the second largest producing province of coconut in the Country, contributing 80% of the total CALABARZON production. Banana is produced mainly in Quezon, Cavite and Batangas, pineapple in Cavite, mango in Batangas and Cavite, and calamansi in Quezon. Yields are generally lower than the national average, except coconut, mango and calamansi in Quezon, and coconut in Batangas.

Sugarcane production has been declining in recent years due to the decrease in area harvested. Still, the CALABARZON region is a major contributor to national sugarcane production, responsible for 12.5% of the total in 1988.

Cavite is famous in the Philippines for producing high quality coffee through careful harvest and drying. Average yield is 1.25 tons/ha, higher than the national average. Blackpepper is relatively new in CALABARZON. Batangas is the only significant producer, contributing to 50% of the national production. Production started in Cavite recently.

Other important crops in the CALABARZON region include other fruits such as lanzones, papaya, jackfruits, rambutan and santol, some root crops such as cassava and ube. Cut flowers and /or ornamental plants are important in the upland area, especially in Silang and Tagaytay in Cavite and in the lowland especially in Los Baños in Laguna, and the production has just started in Rizal.

Livestock and poultry

Livestock and poultry activities in the CALABARZON region are led by commercial raisers rather than backyard raising by individual farmers, except in Quezon. Cattle production is concentrated in Batangas with production of 7,400 tons of beef in 1989, followed by 3,200 tons in Quezon, which together account for 77% of the total production in CALABARZON. Hog production has been steadily increasing from 49,000 tons in 1985 to 85,300 tons in 1989. The leading producer is Laguna with 24,900 tons, closely followed by Quezon with 20,800 tons, Batangas with 18,900 tons and Rizal with 15,900 tons in 1989.

Chicken production doubled from 25,500 tons in 1985 to 53,006 tons in 1989. Batangas is the main producer with 38,500 tons or 73% of the total in CALABARZON in 1989. Duck production is concentrated in Laguna, although no reliable statistics are available.

Fishery production

Marine fishery is predominant in Cavite, and only inland fishery is practiced in Laguna and Rizal. Both marine and inland fishery are important in Batangas.

Fishery production in the CALABARZON region is summarized below.

Fishery Production in CALABARZON, 1988

(tons)

	Marine Fishery		Aquaculture	Inland	Total
	Municipal	Commercial		Municipal	
Cavite	2,398	4,326	7,523	15	14,262
Laguna	-	-	4,789	42,228	47,017
Batangas	19,829	3,877	1,072	17,596	42,374
Rizal	-	-	25,838	133,007	158,845
Quezon	51,861	18,391	7,423	318	77,993
CALABARZON	74,088	26,594	46,645	193,164	340,491

Source: Department of Agriculture

Marine fishery production has been steadily increasing in Quezon in recent years. Aquacultural of oysters and mussels especially in Cavite was seriously affected by recent red tide. Inland fishery in Laguna decreased drastically from 148,000 tons in 1984 to 42,000 in 1987 and 1988.

(3) Industry

The development guidelines issued by NEDA in 1988 and 1990 identify the National Capital Region, and parts of Region IV and III as the National Industrial Core Region. Detailed NSO data compiled for CALABARZON, shows that in 13 sub-sectors, all manufacturing enterprises employing more than 10 workers were in CALABARZON with none in the rest of Region IV. For all others, except wood and food processing, the ratio of manufacturing enterprises in CALABARZON is over 85% of Region IV. For the manufacturing as a whole 95% of all enterprises were in CALABARZON.

(a) Characteristics of CALABARZON manufacturing

The major factor leading to location of manufacturing enterprises in the CALABARZON region is its proximity to Metro Manila. This proximity is critical for domestic market oriented industries, relying on business,financial, and technical services, a large and skilled labor force, government regulatory services, and relative availability of equipment and intermediate inputs provided by other industries in Metro Manila, and through imports. Resource based industries (food, wood and mineral) are relatively less developed in CALABARZON compared with the rest of the Country.

Raw material resources

The major mineral resources that will continue to be exploited in CALABARZON are cement (Rizal, Batangas and Quezon) and glass raw materials. Gravel, sand and marble for construction industry both in the Region and Metro Manila largely originate from the CALABARZON provinces.

With regard to agricultural resources, it is a significant producer only of coconut with a national share of 14.5% in 1988 and sugarcane with 12.5%. The national share of CALABARZON in other commodities was minor.

The Region's proximity to Metro Manila has led to development of intensive livestock raising, particularly poultry and piggeries. The products are not processed, but sold alive for slaughter either in the wet markets or by the final consumers. Medium to low income families purchase live animals while the high income groups purchase meat in the processed/packaged form.

The Region has rich seafood resources. Seafood processing, however, is not well developed partly because of its proximity to Metro Manila which absorbs the produce in fresh form.

Manufacturing concentration

The specialization of Region IV in manufacturing sub-sectors is indicated by the location quotient (Table 2.7). The five sub-sectors where the region is most specialized are petroleum refineries, non-ferrous metal (copper), cement, footwear and textiles. Other sectors where there is some concentration are leather products, beverages, paper and products, and apparel. Of these nine product groups, two are significant as generators of manufacturing employment. These are textiles, which employed 19.0% of the regional manufacturing labor force in 1983, and apparel with a share of 17.1%. Another major

source of employment in the region is food manufacturing (21% in 1983). These three groups account for 57% of total manufacturing employment in the region.

Two product groups which are significant sources of employment nationally, but have not developed in the region are products of wood (including furniture) and manufacture of electrical machinery and appliances. The weakness in electrical machinery is due to its concentration in Metro Manila. In 1983, 46,904 of the national employment of 52,521 was in Metro Manila in this group. Wood products and furniture are located in other regions.

Other product groups in which the regional share is below the national average because of extreme concentration in Metro Manila are drugs and detergent and soap (other chemical products), printing and publishing, plastic products, and iron and steel. These may be considered as the target industries for relocation from Metro Manila to CALABARZON.

Level of industrialization in Region IV

Region IV is more industrialized than the national average. In 1988, 12.9% of total Philippine's employment was in Region IV, but the region had 18.1% of employment in industry, and 18.9% of employment in manufacturing.

Despite its relatively high share, the region would have been even more industrialized if the industry was not "over-concentrated" in Manila, but distributed in such a way that it would have reflected the regional distribution of resources and demand patterns.

A survey of manufacturing enterprises was undertaken by NEDA/NIEP in 1986 to identify their locational requirements, including raw material availability, physical infrastructure, access to intermediate products and markets for the final goods within the region, availability of skilled labor force, financial intermediaries, and government regulatory agencies. An allocation model was developed which optimized the regional distribution of manufacturing production to produce the best match between locational requirements and their availability in each region. The optimum pattern for Region IV, from the national viewpoint, is compared with the actual pattern below.

	Actual Output Share in Region IV in 1983	Model Allocation
	(% of national)	
Food, beverages and Tobacco	12.5	13.0
Textiles, garments, leather	19.0	17.3
Wood products	11.6	11.8
Paper and printing	11.4	16.0
Chemicals and plastics	5.8	23.0
Non-metallic mineral products	24.3	21.7
Basic metals	12.9	9.8
Fabricated metals & machinery	11.3	23.3
Other manufacturing	6.0	18.5

The comparison of the two columns above shows that the actual share of Region IV in manufacturing output was less than the model allocation for most product groups: i.e. the level of industrialization in the region was less than the optimal pattern, given its resource and marketing advantages. This, of course, was largely due to "over concentration" in Metro Manila.

The industries that were least developed in Region IV, despite the inter-regional comparative advantage were chemicals and plastic products, fabricated metals and machinery and "others". The last group includes jewelry and related articles, musical instruments, and manufacture of office supplies. Plastics, fabricated metals and machinery are identified as priority sectors in recent industrial sector studies.

(b) Growth trend

Detailed information on manufacturing employment in the five provinces of CALABARZON is provided by NSO from the 1983 Census of Establishments. Comparable data are not available for recent years. Indications of the magnitude of change are provided by data from other sources. It appears that employment and value added in manufacturing grew by 6.3% and 10%. The respective figures for the nation as a whole are 3.2% and 7%.

Changes in size of manufacturing employment

According to the 1983 census, manufacturing employment in the four provinces in CALABARZON except Quezon was 77,306 in large enterprises and 26,904 thousand in small enterprises. Nationally, the census coverage of small enterprises is limited to about 35% of the actual. Assuming that the national average for small enterprises also holds for the four provinces, the total employment in manufacturing in these provinces was 154,175 in 1983.

Further assuming that employment in the four provinces would have grown at the same rate as the national average between 1983-1988, the total manufacturing employment in these provinces would have been 182,955 in 1988.

Actual employment in industry in CALABARZON is reported to be 544,000 in 1988. Applying the manufacturing to industry ratio for Region IV, during the same year, would indicate manufacturing employment of 381,000 in 1988 in CALABARZON. In addition to growing at the same rate as the national average, the CALABARZON region appears to have absorbed 198,000 jobs between 1983-1988. This additional absorption corresponds to 34% of all new manufacturing jobs in the Philippines between 1983-1988.

This relatively high level of absorption by CALABARZON is confirmed by the analysis of BOI approved projects in all sectors, that located in the region between 1984-1989. Of the 2,672 projects approved by BOI between 1984-1989, 399 located in the four provinces of CALABARZON except Quezon, creating 87,335 jobs. Including Quezon, the share of the Region in the nation was 34% in the total investments and 19% in total employment generated for 1985-90. This is considerably higher than the actual share of CALABARZON in manufacturing employment: 12.4% in 1988.

Employment created through the BOI approved projects in manufacturing was 93,246 between 1985-1990 in CALABARZON. The growth in manufacturing employment during the period was around 300,000. The BOI approved projects, thus, account for over 30% of all new jobs created.

Incremental employment created in industrial estates (IE's) within the Region, on the other hand, does not seem to be as significant (Figure 2.4 for the location of these estates). There are around 20,000 workers in IE's - including the EPZ at Cavite and Canlubang where development started in mid-1970's. Industrial estates have thus received around 15% of incremental employment in manufacturing.

Sectoral and locational distribution of BOI approved projects in CALABARZON

Of the total employment created under the BOI approved projects 60% was in three sectors: apparel, textiles, and electronics. The only other product group which appears to be significant is manufacture of transport equipment with a share of 10.6%. Others with more than one percent of employment created in CALABARZON are wood products, footwear, fabricated metals and plastics.

Most of the jobs created in CALABARZON under the BOI approved projects have located in Laguna and Rizal as shown below:

Provincial Distribution of BOI Approved Projects

(% of employment)

	Cavite	Laguna	Batangas	Rizal
1989	15.3	34.8	7.6	42.3
1988	29.1	38.8	3.5	28.6
1987	9.7	60.0	0.7	29.6
1986	1.7	59.7	-	38.6
1985	32.8	49.5	-	17.7
1985 - 1989	18.1	41.8	4.6	35.5

Laguna and Rizal also appear to be the first recipients of the spill-over from Metro Manila (the high share of Cavite in 1985 is due to two garment firms). Two clear trends appear to be the declining share of Laguna, and the steady increase in that of Batangas in recent years. Employment generation in Quezon by BOI approved projects was 1,758 in 1985-90.

Garments, textiles and electronics are the dominant sources of employment in the three provinces, except Batangas and Quezon. Drugs and pharmaceuticals, paper and fabricated metal products tend to concentrate in Laguna. Wood products and footwear tend to concentrate in Rizal. The most diverse manufacturing base seems to be in Laguna.

(c) Types of firms

The existence of an EPZ (Cavite), large domestic firms locating in CALABARZON as an alternative to Metro Manila, emergence of Batangas as a strong second tier center, and resource based SMI's provide CALABARZON with the full range of manufacturing enterprises. This spectrum may be conceived as consisting of three types of firms with different locational requirements.

Import dependent, export oriented industries

The prime example of these assembly operations are garments and electronics. All intermediate inputs are imported and all output is exported. All firms in the Cavite EPZ are of this nature, although they are a small part of this type of firms.

Most firms in this group operate under the Bonded Warehousing System which allows them duty free importation of inputs, provided that the corresponding output is exported.

Unlike those in the EPZ, these firms can have a parallel operation oriented to the domestic market.

Both the firms in EPZ and those under the Bonded Warehousing System are dependent on ports, they have large and specialized labor requirements, and they are in daily contact with regulatory government agencies. The location meeting all these three requirements is Metro Manila.

Some of these firms have also located away from Metro Manila: principally in Canlubang and Batangas. Some of the garment firms in Batangas for example, are subsidiaries of Metro Manila based firms. The head office in Metro Manila maintains production facilities where the garments and leather are cut and all the administrative procedures are handled, but the labor intensive components of production is undertaken outside Manila to save operating and labor costs.

Another group of large, export oriented companies locating outside Metro Manila have large land area requirements. These include manufactures of chemicals, automotive parts, and textiles.

Large, domestic market oriented firms

Almost all of the firms locating away from Metro Manila are resource dependent: sugar and coconut mills, smelting plants, cement, and wood processors.

Market oriented large firms tend to locate in or near Metro Manila. These include manufacturers of transport and electrical equipment, foundries and forging plants, and producers of beverages, soaps and detergent.

Small and medium size firms

Many firms in this group rely on agriculture for their raw materials, and tend to locate at the source of raw materials. Most of the small firms in CALABARZON are market oriented: bakery products, custom tailoring, wood products except furniture, and other custom made products.

Around 25% of total manufacturing employment in CALABARZON consists of cottage industries where people work at home. Almost all in that group work as sub-contractors for large manufacturing or marketing outlets. As in the case of firms in the EPZ, these sub-contractors are provided with all production inputs and the parent company undertakes marketing.

2.3 Natural Resources in CALABARZON

(1) Physiography

The physiographic classification of land into 13 classes is summarized in Table 2.8 for CALABARZON. Main characteristics by province are outlined below.

Cavite

The provincial land slopes generally from foot slopes in the south, through terraces, to alluvial plains in the north. The land in these classes occupies over 60% of the total land area. Hills (high relief) and mountains constitute some 20% and coastal plains 2%.

Laguna

Alluvial plains extend mainly in the lowlands along the southern to the eastern lakeshore of Laguna de Bay, accounting for 25% of the provincial land. Hills (high relief), mountains and volcanics combined occupy 34% of the total land area, located mainly along the southern to the eastern borders with the neighboring province of Quezon. Terraces and foot slopes are found between the mountainous areas and the alluvial plains.

Batangas

Plateaus formed by volcanic activities extend in large part of the province, while mountainous areas around the Taal volcano are relatively small. Terraces and foot slopes constitute 41% of the provincial land, and hills (high relief), mountains and volcanics account for 31%. Lowlands are confined to 1.5% on alluvial plains and 9% on coastal plains.

Rizal

The main part of the province is the middle to upper catchment areas of the Marikina river. Thus, hills (high relief) and mountains occupy 57% of the total land area. Another 14% is classified as hills (low relief). Alluvial plains concentrate along the northern lakeshore of Laguna de Bay, occupying 7% of the land area.

Quezon

The provincial land is dominantly hilly to mountainous covering two-thirds of the total land area. Hills of low profile extend from the central part to the Bondoc peninsula utilized for coconut trees and extensive grazing. Hills of high profile are found around the low profile hills and covered by forests or coconut trees. The northern part is the Sierra Madre mountains covered mostly by forests. Alluvial plains are limited to the lowland near

Infanta, deltaic lowlands of small rivers and the areas around Lucena City, constituting 15% of the land.

(2) Geology

Main characteristics of typical geological formations in CALABARZON are outlined below.

Mesozoic formation

This is the oldest formation in CALABARZON composed of sedimentary rocks of the Cretaceous period or later in the Mesozoic era. It distributes widely within the Sierra Madre mountains in the northeastern part of Rizal and the northern part of Quezon.

Cenozoic era, tertiary formation

Distributed in the formation corresponding to the tertiary period of the Cenozoic era are sedimentary and volcanic rocks. The sedimentary rocks are found mainly in the mountainous areas of Rizal and contain sandstone, shale and reef limestone. The volcanic rocks are the main constituent of the Sierra Madre mountains and consist of diorite and other rocks. Other formations are found in the Lobo mountains and part of the southwestern peninsular of Batangas.

Quarternary deposits and volcanics

Most widely distributed in the CALABARZON region , except in Quezon are the formations of volcanic rocks. They were formed by active volcanic activities mainly after the diluvial epoch of the tertiary period derived from the Taal, Banahaw and other volcanoes. Main constituent rocks are lava flow of andesite and basalt, breccia and tuff. They are deposited on foots of volcanoes and in shallow coastal areas to form plateaus or hills of low relief.

Alluvium

This is the newest formation derived through sedimentary processes of rivers, and contains sand, gravels and clay. Distribution in CALABARZON is in the lowland along the lakeshore of Laguna de Bay, the coastal areas in Cavite, along the southern coast of Batangas, and small deltaic plains in Quezon.

Faults

North-south faults are dominantly developed in the northern part of the Region and NW-SE faults are dominant in the Bondoc peninsula in Quezon. The N-S faults are dissected in

some parts by NW-SE faults. Laguna de Bay was formed by major geological movements of these fault structures. Major faults are observed in the eastern and the western parts of the Lake. The one on the east runs in the north-south direction parallel to the Sierra Madre. In the west, the Marikina fault runs from the upper catchment area of the Marikina river, through Muntinlupa, all the way to the Taal lake. This fault is still active and considered to be strongly associated with the formation of the Taal lake as well.

(3) Soil

Most part of the CALABAR land is covered by volcanic ash and tuff. In the Laguna de Bay basin, this constitutes 86% of the land area, while the remaining 14% is alluvial and fluvial plains. Alluvial plains along the Laguna lakeshore are subject to seasonal flooding due to their high clay content ranging from 40 to 70%. Fertility of the soil is generally high as it contains organic matters originating from the upland and carried by storm runoffs.

Soil in the foothills consists mostly of volcanic tuff with texture ranging from clay to clay loam. Fertility of this type of soil varies depending on topography and amount and/or intensity of rainfalls as well as soil property.

The remaining areas are mountainous, consisting of peaks, ridges, side slopes along crater rims and complex volcanic ranges. Land forms are composed mainly of lava flow of andesite and basalt, breccia and tuff.

(4) Other natural conditions

Climatic and hydrologic conditions of CALABARZON are described in Section 5.1. Endowments of mineral and other resources are indicated in the previous section related to raw material availability for industry.

(5) Land use

Present land use in CALABARZON is given in Table 2.5 by province, and summarized below.

Land Use in CALABARZON

Land Use	CALABAR		Quezon	
	Area (ha.)	%	Area (ha.)	%
1.Agricultural crops	411,434	54.7	455,610	52.3
of which coconut	173,182	(23.0)	385,932	(44.3)
of which sugarcane	92,667	(12.3)	-	(0.0)
2.Grass and shrubland	192,065	25.5	68,858	7.9
3.Forest and woodland	72,157	9.6	310,463	35.7
4.Built-up area	41,104	5.5	33,289	3.8
Total	752,223	100.0	870,660	100.0

Coconut has the largest share of the agricultural land in CALABARZON and four of the five provinces except Rizal. It is particularly dominant in Quezon with a 44% share. Multi-cropping is becoming a common practice in the coconut area. Main crops inter-cropped are coffee, banana and pineapple in Cavite, lanzones, coffee, rambutan and avocado in Laguna, coffee, blackpepper, lanzones and citrus in Batangas, and lanzones and banana in Quezon.

Irrigated paddy area is the second largest in Cavite and Laguna with 15,000 ha or 12% and 22,000 or 13% of the respective provincial land. In Batangas, the area of non-irrigated paddy is 16,000 ha or 5.2% of the total land, while the area of irrigated paddy is only 2,300 ha. In CALABARZON as a whole, both irrigated and non-irrigated paddy fields combined occupy 125,000 ha or 7.7% of the total land.

Forest and woodland cover 36% of the provincial land in Quezon, but in other provinces their coverage is only smaller than 10%. The built-up area occupies smaller then 5% of the total land area.

2.4 Position of CALABARZON

2.4.1 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 GRDP of Region IV accounted for 13.6% of the GDP of the Philippines in 1988, ranked second among the 13 regions, only next to the National Capital Region. The share of CALABARZON GRDP in the Philippine GDP is 11.7%, higher than its population share (10.5% of the national population in 1990) and much higher than its territorial share (5.4% of the total land area).

(2) Relatively small contribution of agriculture to the national production but specialized in crops to supply Metro Manila:

Production of most crops in CALABARZON has small shares in the respective national production, reflecting the small share of its land in the national land area. However, horticultural crops have relatively large shares in the respective national production (subsection 2.2.2). A few industrial crops also have large shares such as sugarcane, coffee and blackpepper.

(3) Leading industrial area within the National Industrial Core Region:

The Core Region accounted for over 70% of manufacturing value-added in the Philippines in 1988. Most large manufacturing establishments in Region IV are located in CALABARZON. There are several industrial estates existing and planned in CALABARZON primarily for export-oriented industries as well as Cavite EPZ. At the same time, small-scale, cottage-type industries dominate the sector in terms of number of establishments and employment.

(4) Comparatively developed infrastructure and utilities, but their insufficiency in view of rapidly expanding economy and growing population:

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 by

most macro indicators. For instance, road density, the ratio of households having access to improved water supply and household electrification ratio are all higher in CALABARZON than national averages or the average in Region IV. However, the provision of some facilities and services has not been kept up with the rapid urbanization. For instance, transport capacity is inadequate in several road sections near Metro Manila, and so is the provision of social services including education and housing.

2.4.2 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 that would otherwise locate in the capital.

(4) Rapid progress of urbanization along main highways radiating from Metro Manila, but still basically rural in spatial development structure:

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

2.4.3 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. However, soil of volcanic ash origin is 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, constituting upper catchment of rivers, has been denuded, covered now by grass and used only extensively.

Table 2. 1 Gross Domestic Product of the Philippines by Industrial Origin

(P million, current prices)

Industry	1975	1980	1985	1986	1987	1988	1989	Real growth rate (% p.a) 1975 - 80	1980 - 85	1985 - 89
Agriculture, Fishery and Forestry	33,209	61,761	162,519	155,989	170,770	189,988	225,872	5.2	2.1	2.4
Industry	38,118	96,772	200,544	204,980	232,585	272,175	320,437	7.5	-	5.2
Mining and quarrying	2,000	8,095	11,529	12,445	13,600	15,996	16,462			
Manufacturing	28,248	64,555	150,523	155,172	173,539	207,447	240,377	6.0	-	5.8
Construction	6,813	21,311	27,506	22,685	28,113	33,645	41,965			
Utilities	1,057	2,761	10,986	14,678	17,333	20,087	21,632			
Services	43,370	106,167	249,621	266,160	305,013	359,586	416,862	5.8	-	5.6
Transportation	5,834	16,444	38,263	39,256	42,027	44,973	48,276			
Trade	15,761	42,050	118,370	121,243	137,375	160,959	187,550			
Finance & Housing	9,051	20,608	32,287	38,168	48,467	55,242	67,666			
Private services	7,151	15,572	33,668	35,765	38,534	44,032	51,850			
Government services	5,573	11,493	27,033	31,728	38,610	54,380	61,521			
Gross Domestic Product at market prices	114,697	264,650	612,684	627,129	708,368	826,749	963,171	6.2	-	4.6

Source: NSCB, Philippine Statistical Yearbook (1975, 80, 1985-88)
NEDA, Gross Regional Domestic Product Summary, 1987-89 (1989)

Table 2.2 Commodity Composition of External Trade for the Philippines

	1975	1980	1985	1986	1987	1988	1989
Exports							
Coconut products	20.3	14.0	9.9	9.7	9.8	8.2	6.8
Sugar and sugar products	26.9	11.4	4.1	2.2	1.4	1.2	1.4
Forest products	11.3	8.1	5.3	5.2	5.3	4.8	2.5
Mineral products	14.5	17.8	5.2	5.5	3.9	5.4	5.4
Fruits and vegetables	5.4	6.3	7.6	7.1	6.7	5.9	2.0
Abaca products	1.0	0.5	0.7	0.7	0.8	0.6	0.2
Tobacco products	1.5	0.5	0.6	0.5	0.4	0.4	0.2
Mineral fuel and lubricants	1.6	0.7	0.9	1.4	1.7	2.2	1.2
Chemicals	0.9	1.5	3.3	5.0	4.3	3.6	3.6
Textiles	1.0	0.6	0.8	0.9	1.2	1.0	1.0
Total including others (US$ million)	2,294	5,788	4,629	4,842	5,720	7,074	7,821
Imports							
Total producer goods	92.1	95.6	92.3	93.8	93.2	93.0	91.4
Machinery and equipment	19.5	16.2	6.2	6.1	6.7	10.3	
Unprocessed raw materials	26.3	28.9	29.4	19.8	20.2	17.0	
Semi-processed raw materials	42.5	42.7	49.5	61.6	60.8	61.1	
Supplies	3.8	7.8	7.1	6.4	5.5	4.7	
Total consumer goods	7.9	4.4	7.7	6.2	6.8	7.0	8.6
Durables	0.4	0.4	0.3	0.4	0.3	0.5	
Non-durables	7.4	4.0	7.4	5.8	6.5	6.5	
Total (US$ million)	3,459	7,727	5,111	5,044	6,737	8,159	10,419

Source: NSCB, Philippine Statistical Yearbook, 1989.
NEDA, 1989 Philippine Development Report (for 1989)

Table 2.3 Current Account Balance of the Philippines

(US$ million)

	1975	1980	1982	1985	1986	1987	1988	1989
Foreign trade balance	-1,165	-1,939	-2,646	-482	-202	-1,017	-1,085	-2,598
Net services	-45	-399	-1040	26	783	0	-77	303
Net transfer	318	434	486	379	441	573	789	830
Current account balance	-892	-1,904	-3,200	-77	1,022	-444	-373	-1,465

Source: NSCB, Philippine Statistical Yearbook, 1989.
NEDA, 1989 Philippine Development Report (for 1989)

Table 2.4 Regional Comparison

	NCR	Region 4		Region 1	Region 2	Region 3	Region 5	Region 6	Region 7	Region 8	Region 9	Region 10	Region 11	Region 12	Philippines
		CALABAR	The Rest of Region 4												
1. Land															
1)Land Area(sq.km)	636	7,528	39,398	21,568	36,403	18,231	17,633	20,223	14,952	21,432	18,730	28,328	31,693	23,293	300,048
	0.21%	2.51%	13.13%	7.19%	12.13%	6.08%	5.88%	6.74%	4.98%	7.14%	6.24%	9.44%	10.56%	7.76%	100.00%
2)Arable Land Area(sq.km)	196	4,941	13,377	9,252	10,233	10,236	12,087	12,673	8,317	9,620	8,688	10,384	11,463	9,427	130,894
	0.15%	3.77%	10.22%	7.07%	7.82%	7.82%	9.23%	9.68%	6.35%	7.35%	6.64%	7.93%	8.76%	7.20%	100.00%
2. Population															
1)1990 Population('000)	7,832	6,349	1,912	4,335	2,705	6,191	3,911	5,379	4,593	3,048	3,145	3,503	4,453	3,121	60,477
	12.95%	10.50%	3.16%	7.17%	4.47%	10.24%	6.47%	8.89%	7.59%	5.04%	5.20%	5.79%	7.36%	5.16%	100.00%
2)1980 Population('000)	5,926	4,603	1,515	3,541	2,215	4,803	3,477	4,525	3,787	2,799	2,529	2,759	3,349	2,271	48,099
	12.32%	9.57%	3.15%	7.36%	4.61%	9.99%	7.23%	9.41%	7.87%	5.82%	5.26%	5.74%	6.96%	4.72%	100.00%
3)1980 Urban Pop('000)	5,926	1,671	598	841	343	2,009	746	1,282	1,209	609	431	733	1,121	427	17,946
	33.02%	9.31%	3.33%	4.69%	1.91%	11.19%	4.16%	7.14%	6.74%	3.39%	2.40%	4.08%	6.25%	2.38%	100.00%
4)1980 Urban %	100.00%	36.30%	39.47%	23.75%	15.49%	41.83%	21.46%	28.33%	31.93%	21.76%	17.04%	26.57%	33.47%	18.80%	37.31%
5) Pop Density(per sq.km)	12,314	843	49	201	74	340	222	266	307	142	168	124	141	134	202
3. Economy															
1)1987 GRDP	215,753	Region 4	104,713	30,577	16,152	62,638	22,265	45,805	48,846	18,553	24,106	38,116	51,939	26,002	705,465
(mill. p. at current price)	30.58%	Total	14.84%	4.33%	2.29%	8.88%	3.16%	6.49%	6.92%	2.63%	3.42%	5.40%	7.36%	3.69%	100.00%
2)Gross Value Added in	0	Region 4	25,253	11,315	8,323	13,174	11,570	16,640	9,427	8,649	14,880	15,217	22,942	13,382	170,772
Agricultural Sector(1987)	0.00%	Total	14.79%	6.63%	4.87%	7.71%	6.78%	9.74%	5.52%	5.06%	8.71%	8.91%	13.43%	7.84%	100.00%
(mill. p. at current price)															
3)Gross Value Added in	215,753	Region 4	79,460	19,262	7,829	49,464	10,695	29,165	39,419	9,904	9,226	22,899	28,997	12,620	534,693
Non-Agricultural Sector	40.35%	Total	14.86%	3.60%	1.46%	9.25%	2.00%	5.45%	7.37%	1.85%	1.73%	4.28%	5.42%	2.36%	100.00%
(mill.peso at current price)															

Source: NSO

Table 2.5 Existing General Land Use

(ha)

Land Use	Cavite		Laguna		Batangas		Rizal		Quezon		CALABARZON	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
Total Provincial	128,775 *	100.0	175,974	100.0	316,581	100.0	130,894	100.0	870,660	100.0	1,622,883	100.0
Agricultural Crops :	88,707	68.9	107,117	60.9	196,847	62.2	18,764	14.3	455,610	52.3	867,044	53.4
Paddy; Irrigation	15,169	11.8	22,296	12.7	2,301	0.7	3,564	2.7	40,098	4.6	83,428	5.1
Paddy; Non-Irrig.	7,146	5.5	1,320	0.8	16,433	5.2	3,982	3.0	13,175	1.5	42,057	2.6
Other Seasonals	7,544	5.9	1,232	0.7	25,979	8.2	44	0.0	16,312	1.9	51,112	3.1
Fruit Trees	6,528	5.1	1,092	0.6	607	0.2	7,839	6.0			16,065	1.0
Banana	12,371	9.6			990	0.3	1,215	0.9			14,575	0.9
Coconut	21,513	16.7	69,317	39.4	80,234	25.3	2,119	1.6	385,932	44.3	559,114	34.5
Sugarcane	10,503	8.2	11,860	6.7	70,304	22.2					92,667	5.7
Other Perennials	7,933	6.2							93	0.0	8,026	0.5
Forest and Woodland	8,854	6.9	26,079	14.8	19,453	6.1	17,771	13.6	310,463	35.7	382,620	23.6
Bamboo	1,612	1.3			10,149	3.2	4,733	3.6			16,495	1.0
Grassland and Shrubland	15,259	11.8	29,968	17.0	76,984	24.3	69,855	53.4	68,858	7.9	260,924	16.1
Wetland & Special Use Area	921	0.7	2,147	1.2	3,884	1.2	442	0.3	33,289	3.8	40,683	2.5
Built-up Area	8,251	6.4	10,576	6.0	7,040	2.2	15,237	11.6	2,424	0.3	43,528	2.7
Mining and Quarrying	17	0.0	70	0.0	276	0.1	1,520	1.2	16	0.0	1,899	0.1
Other Built-up Area			17	0.0							17	0.0
Unclassified Areas	5,155	4.0			1,948	0.6	2,572	2.0			9,674	0.6

Source: Bureau of Soils

Note:

* Estimates vary among different sources, official estimate by the provincial government of Cavite is 142,706 Ha.

Table 2.6 Value of Agricultural Output (in 1988 farmgate prices) in CALABARZON

Output : '000 metric ton
Price : Peso/metric ton
Value : '000 Pesos

I. CROP OUTPUT VALUE

		1984		1985		1986		1987		1988	
Commodities	Price	Output	Value	Output	Value	Output	Value	Output	Value	Output	Value
Crops											
Mongo	14,059	0.8	11,247	0.8	11,247	0.8	11,247	0.8	11,247	0.9	12,653
Camote	2,560	23.9	61,184	24.2	61,952	26.1	66,816	27.5	70,400	28.1	71,936
Cassava	1,520	33.4	50,768	36.2	55,024	39.5	60,040	37.7	57,304	48.7	74,024
Pineapple	5,000	32.9	164,500	33.7	168,500	36.8	184,000	39.9	199,500	43.2	216,000
Banana	2,780	100.8	280,224	109.8	305,244	113.8	316,364	114.3	317,754	104.9	291,622
Calamansi	5,350	12.4	66,340	13.2	70,620	14.7	78,645	14.6	78,110	14.6	78,110
Mango	8,770	30.4	266,608	32.6	285,902	25.9	227,143	27.1	237,667	23.3	204,341
Coffee	36,000	20.0	720,000	23.0	828,000	22.0	792,000	20.4	734,400	16.9	608,400
Peanut	5,770	0.5	2,885	0.6	3,462	0.5	2,885	0.5	2,885	0.6	3,462
Eggplant	6,100	23.5	143,350	18.7	114,070	18.4	112,240	18.4	112,240	19.5	118,950
Garlic	24,536	2.2	53,980	2.2	53,980	2.1	51,527	1.7	41,712	1.4	34,351
Onion	4,187	0.8	3,349	0.8	3,349	0.5	2,093	0.5	2,093	0.4	1,675
Tomato	8,080	10.1	81,608	12.2	98,576	20.2	163,216	19.9	160,792	18.1	146,248
Blackpepper	96,540		0		0		0	0.1	7,723	0.1	9,654
Coconut	5,560	1,870.0	10,397,200	1,931.1	10,736,916	2,057.3	11,438,588	1,988.8	11,057,728	1,814.1	10,086,396
Corn	2,850	168.0	478,800	199.0	567,150	208.9	595,365	209.3	596,505	199.3	568,005
Palay	3,490	402.0	1,402,980	424.0	1,479,760	423.3	1,477,317	383.4	1,338,066	413.7	1,443,813
Sub-Total Crops			14,185,024		14,843,753		15,579,486		15,026,127		13,969,640

II. LIVESTOCK OUTPUT VALUE

		1984		1985		1986		1987		1988	
Commodities	Price	Output	Value	Output	Value	Output	Value	Output	Value	Output	Value
Beef	36,800	-	0	13.0	476,818	14.2	522,744	13.8	506,221	10.5	387,946
Chicken	28,510	-	0	25.4	724,838	37.2	1,060,515	37.8	1,077,678	53.5	1,525,285
Hogs	23,500	-	0	49.0	1,150,349	55.6	1,306,107	62.7	1,473,450	78.8	1,851,800
Sub-Total Livestock			-		2,352,004		2,889,365		3,057,349		3,765,031

1] Sugarcane is not included, because the available price information is for sugar, but not sugarcane. Considering the decline in sugarcane production, the crop output value would have declined if it were included.

Table 2.7 Manufacturing Employment in Region IV and Concentration

	Share in Philippines (%)	Share in Region IV (%)	Location Quotient
1. Petroleum Refineries (353)	0.25	1.63	6.51
2. Non-ferrous metal (372)	0.46	1.19	2.61
3. Manufacture of Cement (363)	0.92	2.17	2.35
4. Manufacture of footwear - except rubber, plastic and wood (324)	1.53	2.98	1.95
5. Manufacture of Textiles (321)	11.04	19.03	1.72
6. Manufacture of Leather and Products (except footwear and wearing apparel) (323)	0.51	0.72	1.42
7. Beverage Manufacturing (313)	3.63	4.91	1.35
8. Manufacture of Paper and Products (341)	1.73	2.34	1.35
9. Wearing Apparel - except footwear (322)	13.00	17.05	1.31
10. Non-metallic Mineral Products except china/pottery, glass and cement (369)	1.93	2.45	1.27
11. Food Manufacturing (312)	13.51	14.80	1.10
12. Transport Equipment (384)	2.90	3.10	1.07
13. Fabricated Metal Products- except machinery & eqpt. (381)	3.18	3.13	0.98
14. Industrial chemicals (351)	1.32	1.28	0.97
15. Food Manufacturing (312)	6.67	6.07	0.91
16. Rubber Products (355)	2.51	2.25	0.90
17. Manufacture of machinery - except electrical (382)	2.35	1.63	0.70
18. Iron and Steel (371)	2.20	1.30	0.59
19. Manufacture and Repair of metal furniture & fixtures (332)	3.14	0.33	0.54
20. Plastic Products (356)	2.16	1.14	0.53
21. Manufacture and Repair of Furniture (332)	3.14	1.65	0.52
22. Manufacture of wood, and wood and cork products-except furniture (331)	7.87	3.52	0.45
23. Manufacture of Electrical Machinery, apparatus and appliances (383)	6.68	2.53	0.38
24. Other chemical products (352)	3.13	1.08	0.34
25. Printing, publishing and allied industries (342)	2.29	0.51	0.23
26. Manufacture of pottery, china and earthenware (361)	0.32	0.07	0.20
27. Other	1.63	1.14	
TOTAL	100	100	

Table 2.8 Physiography of CALABARZON

Land Form	Cavite		Laguna		Batangas		Rizal		Quezon		CALABARZON		
	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	Area (ha)	%	NOTE
Alluvial Plain	17,197.5	13.35	44,158	25.09	4,630	1.46	9,182.0	7.01	126,813	14.57	201,981	12.62	
Coastal Plain	2,624.2	2.04			29,159	9.21			35,419	4.07	67,202	4.20	
Terrace 1	17,983.4	13.96	12,170	6.92	79,044	24.97					109,197	6.82	
Terrace 2	7,303.0	5.67	5,660	3.22	32,255	10.19					45,218	2.82	Dissected
Foot Slopes	36,292.8	28.18	14,340	8.15	18,586	5.87	3,857.5	2.95	39,468	4.53	112,544	7.03	
Scarpments					18,983	6					18,983	1.19	
Plains			13,220	7.51	799	0.25	613.0	0.47	3,424	0.39	18,056	1.13	Flat Land
Plateaus			4,880	2.77			6,791.5	5.19	6,144	0.71	17,816	1.11	
Hills (Low Relief)	22,098.1	17.16	20,086	11.41	34,305	10.84	19,089.4	14.58	290,344	33.35	385,923	24.11	
Hills (High Relief)	6,916.7	5.37	42,683	24.26	52,291	16.52	53,045.0	40.53	208,314	23.93	363,250	22.69	
Mountain	18,359.3	14.26	7,522	4.27	29,567	9.34	21,120.6	16.14	141,218	16.22	217,787	13.60	
Volcanics			8,915	5.07	16,962	5.36			19,516	2.24	64,922	4.00	Volcanic Slope, Volcanic Cone
Miscellaneous			2,336	1.33			17,193.0	13.14					Built-up, Wet land
TOTAL	128,775 *	100	175,970	100	316,581	100	130,892	100	870,660	100	1,600,879	100	

Note:
* Estimates vary among different sources; official estimate by the provincial government of Cavite is 142,706 Ha.

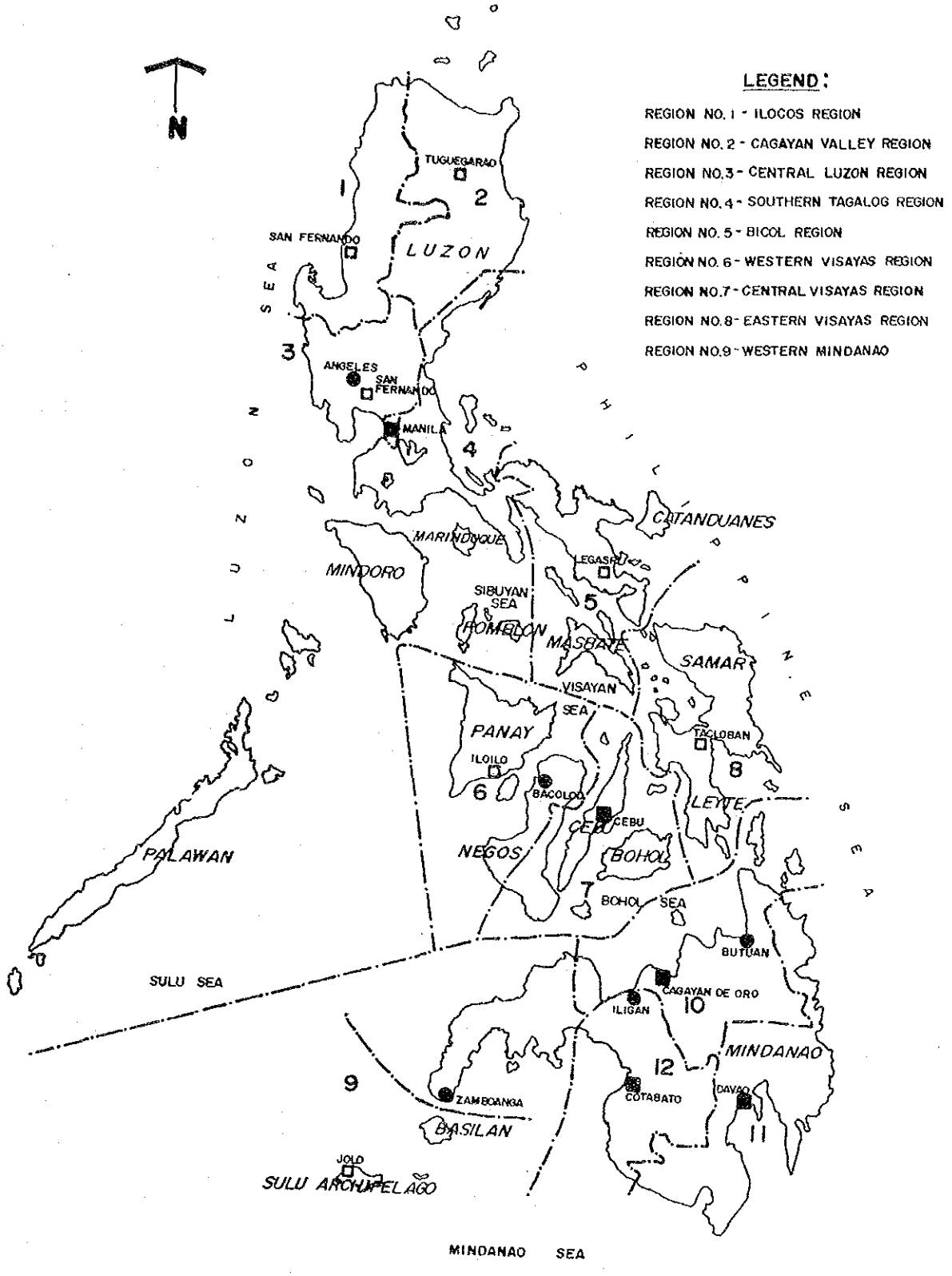


FIGURE 2.1

Regional Map of the Philippines

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

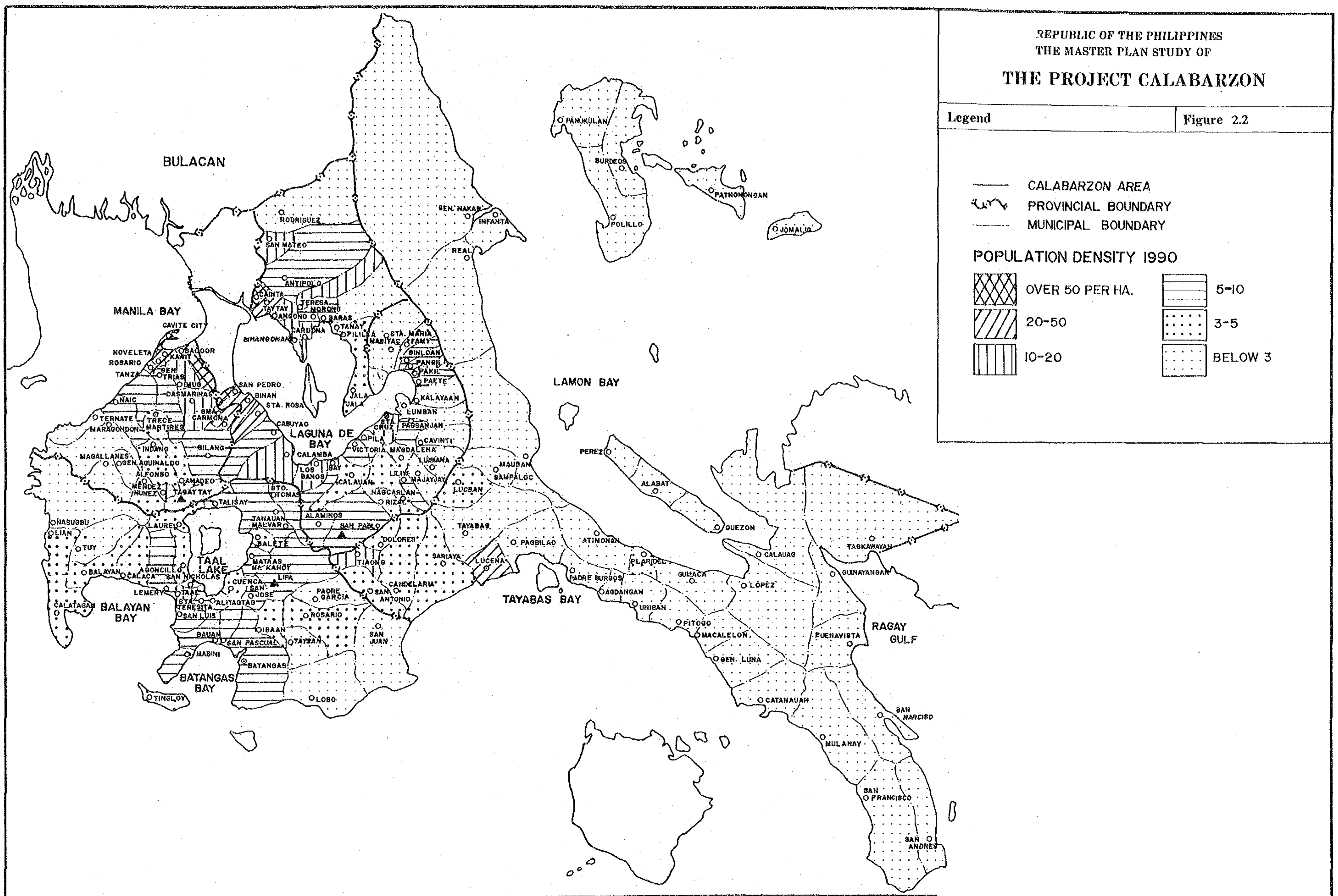
JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND :

REGION NO.10 - NORTHERN MINDANAO
REGION NO.11 - SOUTHERN MINDANAO
REGION NO.12 - CENTRAL MINDANAO
REGIONAL CENTER
METROPOLITAN AREA
REGIONAL CENTER / METRO AREA
REGIONAL BOUNDARY LINE

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF
THE PROJECT CALABARZON

Legend | Figure 2.2



CALABARZON AREA
PROVINCIAL BOUNDARY
MUNICIPAL BOUNDARY
POPULATION DENSITY 1990
OVER 50 PER HA.
20-50
10-20
5-10
3-5
BELOW 3
BULACAN
MANILA BAY
LAGUNA DE BAY
LAMON BAY
TAYABAS BAY
BALAYAN BAY
BATANGAS BAY
RAGAY GULF
TAAL LAKE
CAVITE CITY
NOVELETA
ROSARIO
TANZA
KAWIT
BACOOR
GEN. TRIAS
IMUS
DASMARIÑAS
NAIC
TERNATE
MARAGONDON
TRECE MARTIRES
GMA
CARMONA
SILANG
INDANG
MAGALLANES
GEN. AGUINALDO
ALFONSO
MENDEZ NUÑEZ
AMADEO
TAGAYTAY
TALISAY
NASUGBU
LIAN
TUY
BALAYAN
CALACA
LEMERY
CALATAGAN
LAUREL
AGONCILLO
SAN NICHOLAS
STA. TERESITA
TAAL
SAN LUIS
ALITAGTAG
BAUAN
MABINI
SAN PASCUAL
TINGLOY
BATANGAS
IBAAN
TAYSAN
LOBO
ROSARIO
PADRE GARCIA
SAN JOSE
CUENCA
LIPA
MATAAS NA KAHOY
BALETE
TANAUAN
MALVAR
STO. TOMAS
SAN JUAN
RODRIGUEZ
SAN MATEO
ANTIPOLO
CAINTA
TAYTAY
TERESA
MORONG
ANGONO
BARAS
BINANGONAN
CARDONA
TANAY
PILILLA
SAN PEDRO
BIÑAN
STA. ROSA
CABUYAO
CALAMBA
LOS BAÑOS
BAY
CALAUAN
VICTORIA
PILA
STA. CRUZ
MAGDALENA
PAGSANJAN
LUMBAN
CAVINTI
LUISIANA
LILIW
MAJAYJAY
NAGCARLAN
RIZAL
ALAMINOS
SAN PABLO
JALA JALA
STA. MARIA
MABITAC
FAMY
SINILOAN
PANGIL
PAKIL
PAETE
KALAYAAN
GEN. NAKAR
INFANTA
REAL
PANUKULAN
BURDEOS
PATNANUNGAN
JOMALIG
POLILLO
MAUBAN
SAMPALOC
LUCBAN
TAYABAS
DOLORES
TIAONG
SAN ANTONIO
CANDELARIA
SARIAYA
LUCENA
PAGBILAO
ATIMONAN
PEREZ
ALABAT
QUEZON
PLARIDEL
GUMACA
PADRE BURGOS
AGDANGAN
UNISAN
PITOGO
MACALELON
GEN. LUNA
LOPEZ
CALAUAG
TAGKAWAYAN
GUINAYANGAN
BUENAVISTA
CATANAUAN
MULANAY
SAN NARCISO
SAN FRANCISCO
SAN ANDRES

Figure 2.2

Population Density, 1990

Department of Trade and Industry
Japan International Cooperation Agency

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

Legend	Figure 2.3

CALABARZON AREA
PROVINCIAL BOUNDARY
MUNICIPAL BOUNDARY

POPULATION GROWTH RATE 1980-1990

OVER 5% p.a.
3.01 - 5.00
2.01 - 3.00
BELOW 2.00

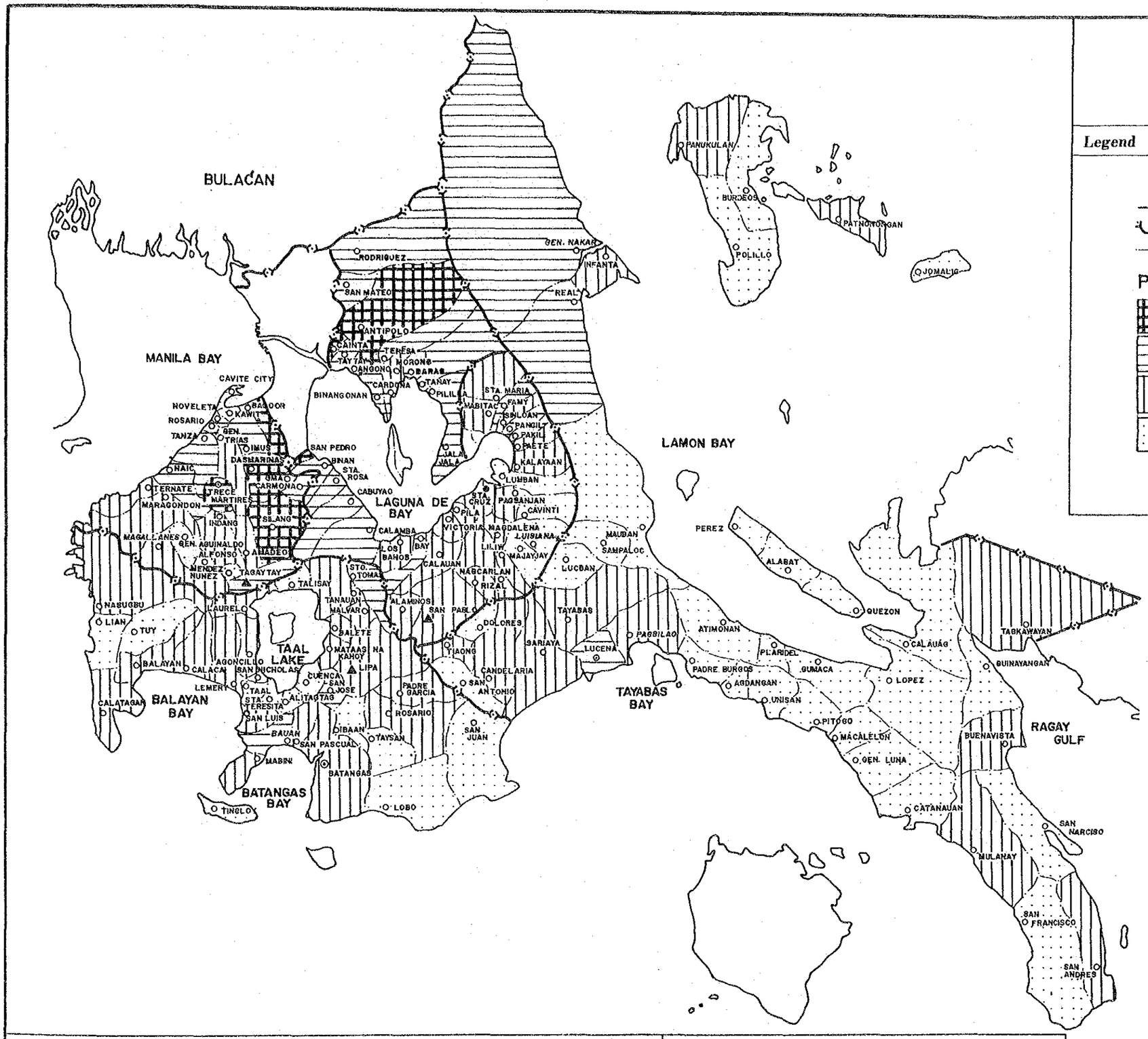


Figure 2.3

Population Growth Rate, 1980 – 1990

Department of Trade and Industry
Japan International Cooperation Agency

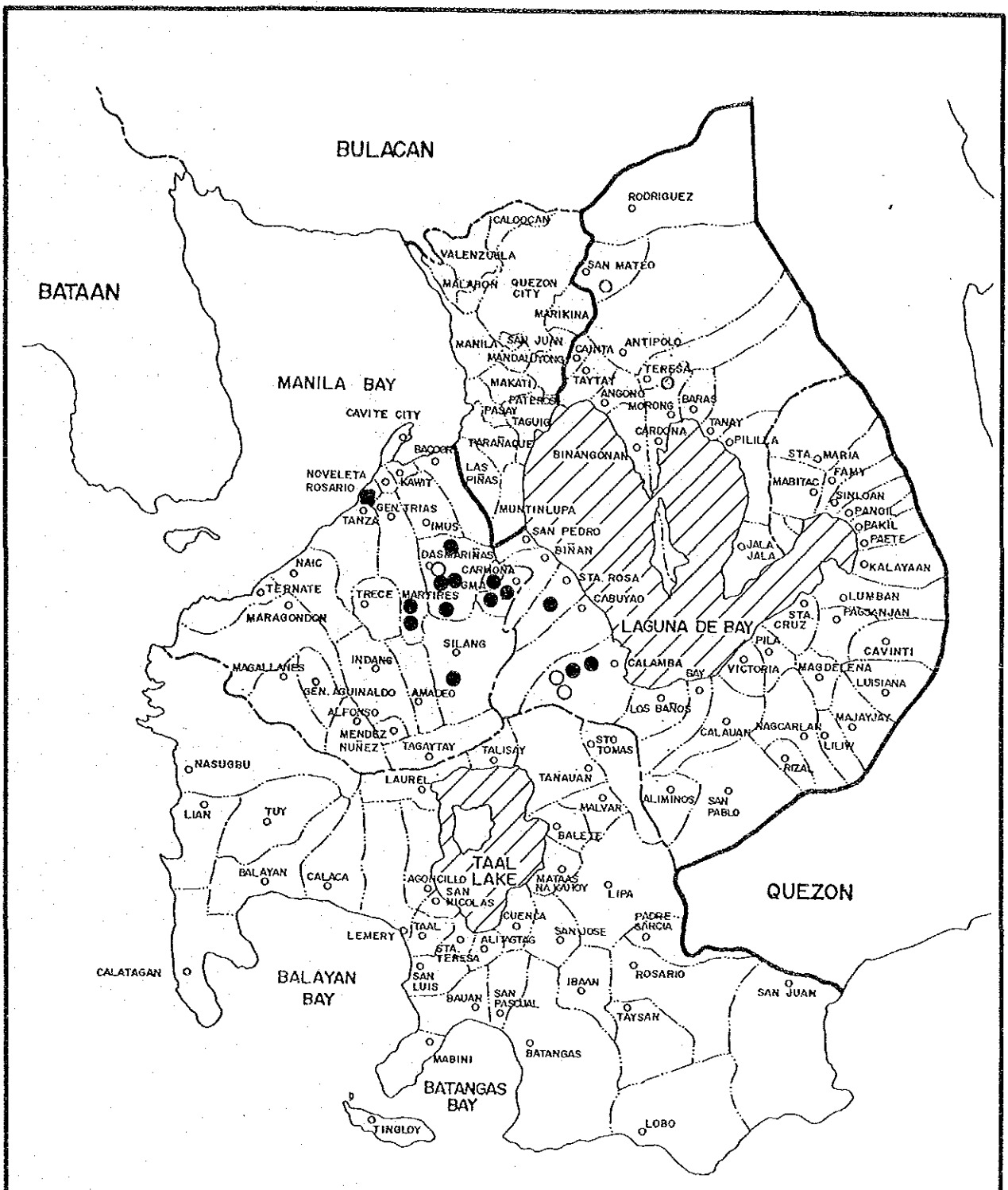


FIGURE 2.4 Location of Existing/Planned Industrial Estates and EPZ

REPUBLIC OF THE PHILIPPINES
THE MASTER PLAN STUDY OF

THE PROJECT CALABARZON

JAPAN INTERNATIONAL COOPERATION AGENCY

LEGEND :

- CALABAR AREA
- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- EXISTING EPZ
- PLANNED INDUSTRIAL ESTATE
- EXISTING INDUSTRIAL ESTATE

CHAPTER 3

Chapter 3. CALABARZON REGIONAL DEVELOPMENT OBJECTIVES AND STRATEGY

3.1 Development Goals and Objectives

3.1.1 Existing development goals and objectives

(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, and

These goals are generally adaptable to the CALABARZON region.

(2) Existing development objectives for Region IV

The Medium-Term Southern Tagalog Development Plan, 1987-92 was prepared by the National Economic and Development Agency (NEDA) Region IV office, following the NEDA central office's guidelines. The latter clarify the socio-economic goals to be pursued by different regions, generally in line with the national development goals presented above.

Recently, NEDA Region IV further established development goals particularly for the CALABARZON region in line with the national and the Region IV's goals but reflecting also specific characteristics of the CALABARZON region. The goals of the CALABARZON region are:

a) To ensure rational development of industry and agriculture with a resultant pattern of human settlements balanced with ecological and environment considerations;

b) To induce the growth of investments from all possible investors; and

c) To open an avenue for wider participation of the populace in the forward and backward linkages of all these development efforts.

The general objectives of the CALABARZON region also set by NEDA Region IV are:

i) To develop the CALABARZON region as a catalyst for the development of Region IV and to contribute to the sustained economic growth of the Country;

ii) To ensure a harmonious and complementary development between agro-based industrialization and social and ecological efforts;

iii) To increase the per capita income of the rural and urban populace through accelerated increase in industrial and agricultural productivity and employment generation;

iv) To support high levels of sectoral productivity with adequate and efficient infrastructure facilities, public utilities and basic services; and

v) To induce a climate conducive for investors and producers to participate in the agro-based industrialization of the sub-region.

3.1.2 CALABARZON regional development objectives

(1) Expected future roles of CALABARZON

The CALABARZON region is expected to play a range of important roles in the future development of Region IV and the Country as dictated by the existing development goals and as envisioned by the Region's position (Section 2.4). First in the economic aspect, the Region 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 inorderly location of industries and resultant degradation of natural and human environment. Also such industrialization should not duplicate the urban poor and squatters as presently observed in Metro Manila and its vicinity. 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, as the matter of truism, will have to continue to accommodate the overspill population from Metro Manila. At the same time, the decentralization of economic activities is another major thrust of the national development policy, which will have to be reflected in the Region'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 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.

(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 for Region IV and CALABARZON, the following four objectives have been set for the mid- to long-term development of CALABARZON.

Objective (a) : 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.

Agriculture will continue to be an important sector in CALABARZON, and the Region's rural area should be maintained and enhanced. However, the enhancement of rural economy, dictated by this objective, cannot be attained by the agricultural sector alone. Its share 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.

Even if labour productivity in agriculture increases at a rate comparable to other sectors, the growth of this sector will not be higher than around 4% per annum at most. Besides, the productivity increase in agriculture implies that a fewer people will be employed in the sector. Larger employment in agriculture, on the other hand, means more people will stay at low income level.

In order to improve the livelihood of many rural people in CALABARZON from the present poverty, the increase in agricultural productivity would be a necessary condition but not a sufficient one. Agriculture will have to be improved together with other sectors to enhance the rural economy. Contribution of service sector is expected to be high as well as rural industry for primary processing.

CARP implementation, applied research and extension, and agricultural credit are among the means to attain this objective. Provision of the physical and social infra-structure in rural areas influences the improvements in rural productivity. It also directly affects the living conditions in rural areas and is one of the major tools for promoting equity between the rural and urban areas.

Objective (b) : To sustain high level of growth on the balance between agriculture and industry by promoting complementary linkages between the two major sectors, improving the industrial structure, and inducing related service activities

The industrial sector will continue to lead the Region's economic growth, increasingly more so. A major regional development challenge is how to make the fruits of further industrialization shared by a larger number of people in CALABARZON.

At present, the industrial structure in CALABARZON is characterized by large foreign export-oriented firms and other large domestic firms and a large number of small/cottage industries. Self-sustainable industrial growth should be realized by establishing better industrial structure and sub-sector balances with inter-industry linkages including small and medium size enterprises (SME's). Agriculture will play an important role by supplying raw materials for processing and creating demand for various agro-related industries.

Spill over from Metro Manila is another important factor affecting the industrialization in CALABARZON. This should be effectively utilized for further industrialization. At the same time, this should not duplicate the problem of the urban poor and squatters nor result in degradation of natural and human environment. In order to avoid such a situation, industrial development should be linked with local economies. Provision of infrastructure and social services including housing should be improved concomitantly in areas receiving the spillover industrialization, and employment opportunities should be created substantially in the service sector as well as in industry.

Objective (c) : To contribute to more equitable development, not generaling the urban poor and squatters, uplifting the rural people from poverty, and realizing better spatial distribution of population and economic activities

This objective has several dimensions. The poverty alleviation discussed above related to the objective (a) is one aspect. Solution of the problem associated with the urban poor and squatters described above under the objective (b) is another. The growth of SME's and their integration with larger firms will also contribute to this objective. These are pre-requisites for encouraging self-help efforts. CARP implementation is expected to promote self-help efforts in rural areas through more equitable patterns of land ownership, and creation of more owner operated farms.

Another important dimension relates to the spatial distribution of population and economic activities. Excessive concentration of population and economic activities tends to create various social problems as presently observed in Metro Manila and its vicinity. The enhancement of rural economy will help to reduce the concentration pressure. This aspect, therefore, is related to the objective (a) and the spill over issue under the objective (b).

Objective (d) : To create a better human environment and enhance 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

Provision of better natural and human environment is not only important for the livelihood of local people but also a prerequisite to attracting foreign and domestic investments into CALABARZON. For this, physical infrastructure and social services need to be improved, and natural environment should be protected or enhanced as much as possible. Both, however, involve costs. Also, concentration of population and economic activities tends to result in the degradation of natural environment. Therefore, costs of decentralization need to be weighed against costs involved in protecting/enhancing the natural environment as well as costs of improved infrastructure and social services. This trade-off is particularly acute in CALABARZON, where heavy urbanization/industrialization is taking place in environmentally vulnerable areas, typically around Laguna de Bay.

3.2 Basic Development Strategy

3.2.1 Alternatives for development strategy

Two key resources in the CALABARZON region are a) the natural and human resources; and b) the Region's proximity to Metro Manila. The future growth of CALABARZON will depend much on these two components as the deriving force for development. Two distinct alternatives are conceived, each emphasizing either one of these aspects.

(1) 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 the agricultural output to support processing industries and changing the cropping patterns to exploit the marketing opportunities.

First, the production of crops that can be processed in the CALABARZON region may be maximized, and the use of fertilizer and agro-chemicals may be intensified. Service activities will be induced by both agriculture and agro-related industries. Second, more high value-added crops will be produced for growing urban markets to raise the income levels in rural areas. Higher income, in turn, will increase demand for consumer goods and various urban services.

Crop selection in favour of those adaptable to this strategy will depend among others on the degree of CARP implementation. In general, intensive land use with high input utilization accords with increased CARP beneficiaries, provided that complementary measures are taken, including more intensive research and extension, better provision of agricultural inputs and credits, and improvement of rural access and other market facilities. Also, SME's can play an important role in primary processing of agricultural produce and provision of agricultural inputs.

This strategy will also emphasize the development of other industries based on local resources such as tourism, some 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.

Industries processing agricultural output tend to locate close to the areas of agricultural production. Various services will locate associated with them. Thus the resultant

development pattern may be more dispersed under this strategy. Substantial SME growth is also expected as mentioned above. The degree of CARP implementation required or implied by this strategy is probably high.

(2) High industrialization strategy

Another distinct strategy may be to aim at the highest overall growth of industry. 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 SME's. Many of potential linkage industries are also located at present in Metro Manila. Thus this strategy corresponds largely to high spillover from Metro Manila.

The spillover will take place into the vicinity of Metro Manila or otherwise be accommodated in industrial areas elsewhere. Suburbanization in areas close to Metro Manila will proceed further under any strategy, absorbing the overspill, but distribution of population and economic activities in other areas of CALABARZON may be quite different depending on deliberate planning and location policies.

Under this high spillover strategy, two alternatives may be conceived in terms of spatial development:

(a) Acceleration of the suburbanization around Metro Manila, and

(b) More decentralized pattern of growth.

Attainment of equity under this strategy will depend on these alternatives as well as other factors common to any strategy.

(3) Implications of alternatives

The agro-based strategy and the high industrialization strategy are not mutually exclusive, but they have different implications for allocation of public resources. They also have different implications for the relative emphasis to be placed on each of the four regional development objectives discussed above.

The agro-based strategy will increase incomes in rural areas, promote the growth of small rural service centers, and realize a more decentralized spatial development pattern. As the rural economy is enhanced under this strategy, each rural center serving its hinterland will

grow into a size necessary to accommodate related service and manufacturing activities. The size will depend on specific functions and services expected to the center, economies of scale vis-a-vis costs of services, and creation of a desirable community environment.

Compared with a strategy of rapid industrialization, however, the overall growth would be slower, the GRDP per capita would be smaller, and limited new employment would be created as discussed in detail in Section 4.2.

The high industrialization strategy will realize high overall economic growth and higher per capita GRDP. Spatial development pattern under this strategy may vary but larger urban centers will be more important in creating employment opportunities and promoting active economic interactions. This strategy will call for more careful management of the social and natural environment under high urbanization pressure.

3.2.2 Basic elements of development strategy

The analysis on options available to attain the CALABARZON regional development objectives (subsection 3.1.2) has clarified that some structural changes will have to be caused in the CALABARZON economy to attain the objectives. Three major changes that will have to be realized to improve the economic structure are : 1) increase in agricultural productivity, 2) improvement of the industrial structure, and 3) strengthening of the service sector.

Important factors for formulating development alternatives have been identified, and broad development alternatives have been presented in subsection 3.2.1. Spatial development structure has been identified to be a critical aspect to distinguish the development alternatives particularly with respect to equity and environment.

These are important elements of any development alternative. Major changes expected to take place in CALABARZON related to each element are described.

(1) Economic structure

Agricultural productivity

Increase in agricultural productivity is both necessary and possible for the future development of CALABARZON agriculture. It is necessary, especially on prime agricultural lands close to Metro Manila, to compete with other land uses and give sufficient incentives for farmers to maintain land for agricultural uses.

There are two main reasons why substantial increase in agricultural productivity is possible in the Region. First, the present yields of most crops are lower in the Region than national averages. This is due primarily to low utilization of inputs and high yielding varieties, and lack of sufficient irrigation facilities for rice and vegetables. Second, the CALABARZON region has a marketing edge, particularly for high value-added products, due to its proximity to Metro Manila and the growing urban market within CALABARZON.

Main directions to increased agricultural productivity are the following. Crop production in areas of high land potential should shift to high value-added products such as horticultural crops, coffee, blackpepper and other industrial crops. Inter-cropping should be further promoted in coconut areas as well as rehabilitation. Mixed farming should be encouraged in sugarcane areas, upland areas of Cavite and Laguna and other areas where the rural poverty is widespread at present. Mixed farming with fishery may be an important option for the rural poor in lowlands.

Input intensive farming will become increasingly common in areas near Metro Manila on prime agricultural lands. Main crops are rice and horticultural crops. Irrigation will be provided not only to these areas but also to other lowland areas.

Marginal agricultural lands currently left as unproductive grasslands, or used extensively with low productivity, can be utilized for fruit tree planting and limited livestock. To support the livestock development, the production of corn and other feed grains should be increased.

Industrial structure

The industrial structure in CALABARZON is characterized by large foreign export-oriented firms and other large domestic firms on the one hand, and a large number of small/cottage industries on the other with little linkages between them. Government policies have been taken on financing, export and investment promotion in general and also aiming at SME's, but their full effects are yet to be seen.

Dissolution of the duality in industry as outlined above will be realized among others by encouragement of industries based on domestic raw materials and by upbringing of SME's supplying parts and inputs to or subcontracting from large firms. More diversified industrial base will be realized with internationally competitive industries integrated with downstream industries. Utilization of small firms/cottage industries will contribute to stabilizing industrial output and realizing more equitable distribution of industrial income.

Government macro policies and direct measures such as financing, technology upgrading and basic infrastructure will be important to realize these changes.

Service sector

The service sector of CALABARZON needs to be much strengthened to support industrialization, to integrate urban and rural areas, and to improve the livelihood of people in urban and rural areas. The following should be realized for this purpose:

a) Selective improvement of urban functions of those centers which have superior development potentials;

b) Improvement of service delivery by rural service centers to their hinterlands for the provision of inputs to agriculture, primary processing, basic daily necessities and social services for the rural population; and

c) Establishment of new kinds of service activities, including:

   1) higher-order services such as communication/conference and higher education/technology development,

   2) administrative services related to new regional/provincial centers, and

   3) tourism- and international trade-related services.

The location of government services at all levels of administrative hierarchy will be an important tool in influencing the location of private service establishments.

(2) Spatial structure

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 inter-related by way of the economy of Metro Manila. Taking account of further suburbanization 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.

Within CALABARZON, the industrial location in the Greater Capital Region has occurred in areas contiguous to Metro Manila without a corresponding development in housing, services and other urban functions. This pattern is likely to continue without major interventions. One possible intervention is to lead the industrial growth into major locations not adjacent to Metro Manila. These locations, in turn, will be converted into full urban communities by supporting the development of small industry districts, housing, urban infrastructure, and services in health and education.

In the case of Southern Tagalog region, the issue is whether Batangas can be developed as a regional center at the same level as Cebu and Davao in the national hierarchy. The alternative is to develop it into a second-tier center together with two to five other urban centers in CALABARZON.

Major thrusts of the CALABARZON spatial development may also have different implications for the two regional systems. These are discussed below under the headings of 1) improvement of access to rural areas, 2) strengthening of artery network, and 3) establishment of clearer hierarchical structure of urban centers.

Rural access

Improvement of the access to rural areas is an effective measure for increasing the production of high value-added products for urban markets envisioned above. It will facilitate marketing of agro-products, improve input distribution and also serve rural industries. Another important effect of rural access improvement is its contribution to the welfare of the rural population by better delivery of social services. This is equally important for the two regional systems.

Artery network

The artery network in CALABARZON can be strengthened in such a way as to direct industrial location, to serve the new kinds of service activities as mentioned above, and to dissolve network deficiencies and inter-connect different parts of the Region. Main emphasis for the Greater Capital Region is how to strengthen the interactions with Metro Manila. For the Southern Tagalog Region, interactions between Batangas and other outer provinces, and links with other urban areas in the Region should be emphasized.

Urban hierarchy

Intermediate size urban centers are not well developed in the Region largely due to polarization effects of Metro Manila. Several urban centers should be selected and built into second-tier centers.

Within the Greater Capital Region, possibilities for establishing such second-tier centers are limited. Most large centers in the vicinity of Metro Manila would depend on it for specialized services rather than develop a full range of services. Other centers in the peripheries of the Greater Capital Region are small, although a few of them may have potential to develop into second-tier centers.

Second-tier centers will have a better chance to develop in the Southern Tagalog Region, especially in Batangas. This may be a mid-to long-term possibility, but the location of administrative facilities at provincial, regional and national levels would help to accelerate such development.

3.3 Objectives and Strategy for Agricultural Development

(1) Constraints to development

Based on the analysis on present conditions of agriculture in CALABARZON (subsection 2.2.3), the major constraints to agricultural development is summarized as follows.

Water resources

Unreliable and scarce rainfalls during the dry season make crop production lower and extensive stock grazing more widespread in parts of Cavite, Batangas and Rizal. Large-scale irrigation development is not expected in Cavite as watersheds are small. The on-going Small Water Impounding Projects (SWIP's) of DA may be an option to be considered. Irrigation development by tapping Taal lake water is envisioned by the provincial government of Batangas, but needs further elaboration. For water resources development in Rizal, reforestation in the Marikina watershed would be concomitantly implemented.

Soil erosion

Areas of porous and light texture soil of volcanic ash origin, found in the upland of Cavite and widely in Batangas, are susceptible to soil erosion. Mountainous areas in Laguna and the upper catchment areas of the Marikina river in Rizal are also serious erosion areas. Erosion hazards are particularly severe at the beginning of wet season. Without counter-measures such as contour tillage, buffer strip cropping and mulching, land productivity in these areas will be reduced and siltation problems of lakes furthered. Agro-forestry, permanent crop cover and inter-cropping are other possible options to reduce erosion.

Land conversion

Expansion of urbanized areas from Metro Manila has been applying conversion pressure on prime agricultural lands. The similar problems are observed around other secondary towns. Land use plans of provincial governments are only indicative, and effectiveness of existing laws and regulations to control land use is still uncertain.

In cases where a city/municipality land use plan was approved by June 15, 1988, land transactions in line with the plan are not subject to CARP. Otherwise, land conversion from agricultural land to other used must follow the Administrative Orders No. 1 and No. 2.

Land use plans have not been prepared for the majority of cities/municipalities in the CALABARZON region. Land use regulations, when the land use plan exists for any city/municipality, have not been enforced effectively for such a city/municipality.

Infrastructure

As described above, the network of rural access roads in remote areas including most part of Quezon, irrigation facilities especially in Batangas and some post-harvest facilities such as driers and warehouses are insufficient.

Marketing

Two important commercial crops in the CALABARZON region are sugarcane and coconut. Coffee and blackpeppers are becoming more important in recent years. Prices of these crops, being internationally traded commodities, are inevitably subject to fluctuations depending on world supply-demand. Multi-cropping of coconut with coffee, blackpepper or fruits is becoming common, which would contribute to the stabilization of farmers' income. Mixed farming with livestock and poultry is also promising. Sugarcane monoculture poses a fundamental problem in livelihood development through agriculture. For production expansion of some primary products in Quezon such as aqua-products, fruits and vegetables, the establishment of markets is a prerequisite. Due to poor conditions of rural roads in Quezon, most agro- and aqua-products are sold to middlemen offering low prices to account for transportation costs.

Problems in fishery

Fishery production in Laguna de Bay has recently decreased drastically. Possible reasons are (1) pollution of lake water by industrial and domestic effluents, (2) over production in the past, and (3) siltation due to deforestation in the upper catchment areas and runoff from agricultural lands.

Marine fishery activities in Manila Bay were seriously affected by recent red tides. Marine fishery along the Quezon coasts is constrained by the lack of proper management and reliable assessment of fish resources. In both areas, large scale fishery by enterprises tends to reduce the production of small fishermen.

(2) Objectives

The objectives for agricultural development in CALABARZON, including crop cultivation, livestock and fishery, are established in line with the CALABARZON regional

development objectives (Subsection 3.1.2) in order to overcome the constraints described above.

1) To raise the income level in rural areas by enhancing agricultural productivity through (a) selection of high-value crops, (b) utilization of higher level input, (c) intensive use of agricultural land such as inter-cropping or multi-story vegetation, and (d) mixed farming combining crop cultivation with livestock/poultry and fishery production;

2) To stabilize farm incomes by providing supportive measures such as irrigation and drainage facilities, reliable market information, improved farm to market roads, post-harvest facilities and crop insurance; and

3) To create sufficient employment opportunities in primary agriculture, agro-based industries and related services in order to minimize the drift of people out of rural areas.

(3) Basic strategy for agricultural development

Grain production

Paddy yield should be further increased by extension of on-going national programs. The Rice Production Enhancement Program III will provide subsidies for fertilizer and certified seed as well as technical assistance. The Integrated Pest Management Program is also expected to improve paddy yield. Also, communal irrigation projects should be implemented in potential areas where the CARP implementation will increase land owner-farmers, and associated support measures taken. Post-harvest facilities are among the important support measures.

Corn production should be increased by converting partly the present sugarcane and coconut areas to meet the growing demand for livestock and poultry. The Corn Production Enhancement Program is expected to contribute to this through the introduction of hybrid and/or open-pollinated seed and fertilizer. In view of extended dry season in parts of CALABARZON, sorghum and millet should be established through field research efforts.

Livestock and poultry

Livestock and dairy production should be expanded to supply rapidly growing markets for meat and dairy products especially in Metro Manila. For this, indiscriminate slaughtering should be stopped, more breeding stock imported, and artificial insemination widely applied. These activities should be promoted mainly on community or cooperative basis,

organizing backyard livestock activities of individual farmers. Also, veterinary services should be enforced.

The livestock and poultry subsector is expected to provide inputs to processing industries. Meat products and dairy processing plants should be established and managed by cooperatives.

Crop diversification

More diversified crops should be established in combination with tree crops for inter-cropping or multi-story vegetation, and livestock, poultry or fishery for mixed farming. Even in irrigated paddy fields, vegetables and other high value crops will be introduced by establishing proper cropping pattern and schedule vis-a-vis marketing opportunities..

Fishery

Three elements of the fishery development strategy are (a) expansion of fish production, (b) efficient fish and fishery product utilization and marketing, and (c) fishery law enforcement and conservation.

The first component relies on expanded fingerling production and dispersal, research and extension, improvement of existing fishing crafts and motorization of fishing crafts for aquaculture and municipal fisheries. For commercial fisheries, to be developed in Batangas and Cavite, the government assistance includes extension on boat design, identification of new fishing grounds, and credit support.

The marketing component emphasizes proper handling, storage and processing. The law enforcement tries to prevent illegal fishing methods such as use of dynamite and cyanide chemical fishing. Reliable assessment of fish resources is a prerequisite for proper management of fishery.

3.4 Objectives and Strategy for Industrial Development

As a part of the National Industrial Core Region, the industrial development of CALABARZON depends largely on macro policies and performance of the Philippine economy. Future industrial performance of the Philippine economy will continue to take advantage of locational conditions of the Country, the Generalized System of Preferences (GSP) privileges, manpower availability, communication capability in English and others. The first advantage of locational conditions may be enhanced further as the globalization of industrial production by multi-national corporations proceeds in the Asia-Pacific region. The industrial development objectives and strategy for CALABARZON are conceived within this broad framework as well as based on specific regional conditions.

(1) Regional industrial development objectives

Compared with the rest of the Country, CALABARZON has more industrial enterprises that are relatively large in size and export oriented, located mostly near Metro Manila. At the same time, industries in CALABARZON are dominated by a large number of small enterprises, located throughout the Region, just like the rest of the Country. Linkages between the large and the small enterprises are not well developed nor is the well-mixed sub-sector structure.

Industrial development objectives for CALABARZON are defined to further emphasize the positive characteristics and to rectify the negative ones outlined above. Specific objectives are:

1) To expand domestic and export markets through the production of goods with international competitiveness within the industrial globalization framework of the Asia-Pacific region, based as much on indigenous resources as possible;

2) To increase domestic contents and domestic value-added in export production, utilizing indigenous resources;

3) To realize a stronger and more diversified industrial base through the strengthening of forward and backward linkages, emphasizing particularly small and medium size enterprises (SME's); and

4) To contribute to the spatially balanced development by creating employment opportunities in urban and rural areas, while maintaining sound balance with agriculture and environment.

(2) Industrial development strategy

In order to attain the objectives, the industrial development strategy for CALABARZON emphasizes inter-industry linkages, enhancement of production capacity through manpower development, technology upgrading and other means, and infrastructure and other support facilities. Roles of small and medium enterprises (SME's) are also emphasized. These aspects of the development strategy are described below under four headings : (1) common strategy, (2) growth strategy, (3) locational strategy, and (4) regional integration strategy.

Common strategy

Inducement of foreign capital has strategic importance not only to mitigate the constraint of limited capital availability but also to ensure export channels and source of new technology. Foreign capital investments in the Philippines account for 40 to 50% of the total equity investments in recent years. CALABARZON will continue to be major target areas for the inducement of foreign capital.

Promotion of SME's is another important element of the CALABARZON industrial strategy in line with the national industrial policy. SME's will continue to be main generators of employment opportunities and income. Their roles will become more important for processing agro- and aqua - products and supplying parts / components for large industries. As they will be transformed into efficient production units, they will also serve for effective inter - industry linkages.

Promotion of venture businesses is a strategic option in the long run. As the industrialization in CALABARZON progresses, more people having strong entrepreneurship and technology seed will spin out of or retire from large enterprises and enter into venture businesses. They will play a role of driving force for upgraded production and R & D activities in CALABARZON just like in other advanced countries.

Growth strategy

Enhancement of industrial production capability is essential to cope with the industrial globalization foreseen and to ensure international competitiveness. This can be attained through the improvement of production processes, quality control, products development, and skill and manpower training. Technology upgrading in general including acquisition of

new machinery, development of standards, and encouragement of horizontal integration among sub-contractors and parts suppliers would contribute to this as well as marketing and finance.

Formation of industrial complex is a strategic means to the realization of built - in growth structure. Large export oriented firms at present import a large part of their inputs, confining themselves to assembly operations. Factors contributing to this are the lack of adequate parts suppliers and delay in import substitution. These are also related to the small market for parts and component manufacturers and the low quality of parts available in the domestic market. The first problem of market size will be overcome when the number and size of end-users increase. The low quality is a real problem.

Development of engineering industries, including fabricated metal industry, is critical for supporting automotive and consumer durables industries, which will be the most promising growth industries in CALABARZON in view of recent investment trends and market potentials. There are also substantial opportunities for supplying parts and components to large multinational corporations in ASEAN. The expected increase in regional demand for construction related metal products, the demand for agricultural machinery, and food processing equipment would provide a strong domestic base for developing these industries.

The first priority in this aspect should be given to three sub-sectors: viz. fabricated metal products, plastics, and food processing. The sub-sectors of fabricated metal products and plastics are comparatively less developed in the Region. Plastic products constitute a large part of consumer electronics, and the resin production will be important also in supporting the local textile industry. Agro-based processing will include the processing of both regional agricultural output and raw materials imported from other regions, primarily from the island provinces of Region IV. These sub-sectors are strategically important also because they are dominated by SME's, except for the resin production.

Locational strategy

This strategy deals with the industrial spill over from Metro Manila to realize more balanced spatial development pattern. It has two aspects corresponding to the two regional systems: viz. (1) expansion / relocation of Manila based industries into the Greater Capital Region, and (2) decentralization of industries from Manila into the Southern Tagalog Region.

The locational strategy for the Greater Capital Region is to promote the expansion/relocation of Manila based industries such as large market - oriented (durable

consumer goods and food processing), export oriented (electronics, apparel etc), airport - oriented (electronics, precision instruments etc), and technology intensive industries. For the Southern Tagalog Region, the strategic location of Batangas with deep natural harbours will be effectively utilized. To be promoted in the medium term are port - oriented, labour - intensive and agro - and resource - based processing industries. In the long run, more Manila based industries will locate in Batangas to make it the regional industrial center.

Regional integration strategy

Under this strategy, infrastructure and utilities should be improved selectively. Other support facilities for technology upgrading, quality control and manpower development should be located accordingly as well as housing and other facilities for social services. This does not mean concentration of these facilities and employment opportunities in selected urban centers. Substantial employment opportunities will be generated in rural areas as well through the encouragement of SME's operating in rural areas and the assurance of their access to markets including subcontracting firms in urban areas.

CHAPTER 4

Chapter 4. DEVELOPMENT SCENARIOS AND FRAMEWORKS

4.1 Development Alternatives

Three alternatives are defined to guide the formulation of a long-term development plan for the CALABARZON region. These alternatives emphasize in different degrees the two distinct alternatives for development strategy presented in subsection 3.2.1.

(1) Alternative 1 : Agro-based development

This alternative emphasizes the agro-based strategy. More attention is directed to the rural population. Relationships between rural service centers and their respective hinterlands will be more important in overall development of the Region. In addition to agriculture and agro-related industries, various services will play important roles in employment creation and economic growth based on rural economy. Economic activities based on other indigenous resources will also be important.

(2) Alternative 2 : High industrialization

This alternative emphasizes the high industrialization strategy. High rates of increase in labour productivity and large spill over from Metro Manila are assumed. CALABARZON development under this alternative will be led by high industrialization particularly in the suburbanization areas near Metro Manila, and other areas will develop primarily by promoting linkages with Metro Manila and its vicinity.

(3) Alternative 3 : Leap-frog development

This alternative represents an intermediate path between Alternative 1 and Alternative 2. Growth momentum centering on Metro Manila will be effectively utilized, but the development will be directed also to selected urban centers in the outer areas. Spill over from Metro Manila will be moderate, and thus accommodated in CALABARZON in a more orderly manner.

4.2 Development Frameworks

4.2.1 Socio-economic framework

A socio-economic framework or macro-frame for regional development planning specifies development targets or the level of development in some target year by selected socio-economic indices projected in a mutually consistent way. The indices used are the gross regional domestic products (GRDP) and its breakdown into agriculture, industry and services, population, employment and the per capita GRDP. The base year for projection is taken to be 1988. Base year conditions are given in Section 2.2.

(1) Projection method

A socio-economic framework is worked out for each alternative presented above by projecting the selected socio-economic indices in a mutually consistent way. The following summarize the projection method.

i) For Alternative 1 of agro-based development, the value-added in the agriculture sector is projected by determining crop production by major crop and livestock, poultry and fishery production individually. Growth of the industry sector under this alternative in assumed separately for the period upto 1995, the period 1996 - 2000, and the period 2001 - 2010.

ii) For Alternative 2 of high industrialization and Alternative 3 of leap-frog development, the value-added in the industry sector is projected by determining the level of spill over from Metro Manila and the resultant change in sub-sector composition. Growth of the agriculture sector under these alternatives is assumed at a rate lower than attained under Alternative 1.

iii) Service sector multiplier is assumed separately for agriculture and for industry in 1988 to reproduce the estimated service sector value-added in the same year. The multiplier value is relatively low especially for industry, reflecting the dependance on Metro Manila for various services. The multiplier value is assumed to increase differently under Alternatives 1, 2, and 3.

iv) Rate of increase in labour productivity is 3.0% per annum for all the sectors under Alternative 1, 3.0% for agriculture and 3.5% for industry and services under Alternatives 2 and 3.

(2) Projection results

Alternative 1 : Agro-based development

Projection results are summarized below.

Value-Added and its Projection for Agro-Based Development (Alternative 1), CALABARZON

(10^6 ₱; % share in parenthesis)

	Estimate	Projection		Growth rate (% p.a.)			
	1988	2000	2010	'88-'95	'96-2000	2000-'10	'88-'10
Agriculture, forestry, & fishery	18,180 (18.8)	26,500 (11.4)	39,200 (8.2)	2.9	3.6	4.0	3.6
Industry	40,800 (42.2)	105,500 (45.4)	227,800 (47.8)	7.0	10.0	8.0	8.1
Services	37,680 (39.0)	100,300 (43.2)	209,700 (44.0)	7.2	10.3	7.7	8.1
GRDP	96,660	232,300	476,700	6.4	9.3	7.5	7.5

Employment and its Projection for Agro-Based Development (Alternative 1), CALABARZON

(10^3; % share in parenthesis)

	Estimate	Projection		Growth rate (% p.a.)
	1988	2000	2010	1988 - 2010
Agriculture, forestry & fishery	606 (29.0)	619 (18.4)	682 (13.6)	0.5
Industry	544 (26.0)	987 (29.3)	1,585 (31.7)	5.0
Services	942 (45.0)	1,759 (52.3)	2,736 (54.7)	5.0
Total	2,092	3,365	5,003	4.0

The gross regional domestic products (GRDP) of CALABARZON is projected to grow from ₱ 96,660 million in 1988 to ₱ 476,700 million in 2010 (in 1988 price) at an average annual rate of 7.5%. The total employment is projected to increase from 2,092,000 in 1988 to 5,003,000 in 2010 at 4.0% per annum. The population in CALABARZON is separately projected by assuming 3.3% per annum average increase from 6,349,000 in 1990 to 12,154,000 in 2010. The ratio of total employment to population is 41.2%, consistent with the expected labour force coefficient and labour participation ratio as shown below.

	1988	2010	Note
Population (10^3)		12,154	3.3% p.a.
Employment (10^3)	2,092	5,003	41.2% of population
Labour force coefficient (%)	60.8	65.0	
Labour participation ratio (%)	58.4	65.0	
Employment/Population (%)	35.5	42.3	

Alternative 2 : High industrialization

Projection results for Alternatives 2 and 3 are summarized below.

Value-Added and its Projection for High Industrialization (Alternative 2) and Leap-Frog Development (Alternative 3), CALABARZON

(10^6 ₱; % share in parenthesis)

	Estimate	Alternative 2		Alternative 3	
	1988	Projection 2010	Growth rate (% p.a.)	Projection 2010	Growth rate (% p.a.)
Agriculture, forestry & fishery	18,180 (18.8)	34,100 (4.5)	2.9 (5.5)	34,100	2.9
Industry	40,800 (42.2)	372,200 (48.6)	10.6 (47.7)	294,900	9.4
Services	37,680 (39.0)	358,900 (46.9)	10.8 (46.8)	289,300	9.7
GRDP	96,660	765,200	9.9	618,300	8.8

Employment and its Projection for High Industrialization (Alternative 2) and Leap-Frog Development (Alternative 3), CALABARZON

(10^3; % share in parenthesis)

	Estimate	Alternative 2		Alternative 3	
	1988	Projection 2010	Growth rate (% p.a.)	Projection 2010	Growth rate (% p.a.)
Agriculture, forestry & fishery	606 (29.0)	593 (8.3)	- (10.2)	593	-
Industry	544 (26.0)	2,328 (32.7)	6.8 (31.6)	1,844	5.7
Services	942 (45.0)	4,209 (59.0)	7.0 (58.2)	3,393	6.0
Total	2,092	7,130	5.7	5,830	4.8

GRDP of CALABARZON is projected to ₱765,200 million in 2010, representing the average annual growth of 9.9%. The share of agriculture will be 4.5%, while the other two sectors will claim close to 50% share, respectively. The total employment is projected to increase to 7,130,000 in 2010 at 5.7% per annum. The service sector employment will be 59% of the total.