

Japan International Cooperation Agency
Department of Trade and Industry
Republic of the Philippines

THE MASTER PLAN STUDY FOR
CENTRAL LUZON DEVELOPMENT PROGRAM

FINAL REPORT Volume II
Main Report : CLDP Master Plan



September 1995

Nippon Koei Co., Ltd.
Pacific Consultants International

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**Department of Trade and Industry
Republic of the Philippines**

**THE MASTER PLAN STUDY
FOR
CENTRAL LUZON DEVELOPMENT
PROGRAM**

FINAL REPORT

Volume II

Main Report : CLDP Master Plan



September 1995

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List of Reports

<u>Volume</u>	<u>Title</u>
I	Executive Summary Report
II	Main Report : CLDP Master Plan
III	Sector Report 1 : Agriculture and Rural Development
IV	Sector Report 2 : Industry, Tourism and Trade
V	Sector Report 3 : Infrastructure
VI	Sector Report 4 : Environment and Land Husbandry
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PREFACE

In response to a request from the Government of the Republic of the Philippines the Government of Japan decided to conduct a master plan study for Central Luzon Development Program and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a study team headed by Dr. Tsuyoshi Hashimoto and composed of members of Nippon Koei Co., Ltd. and Pacific Consultants International from October, 1993 to August, 1995.

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

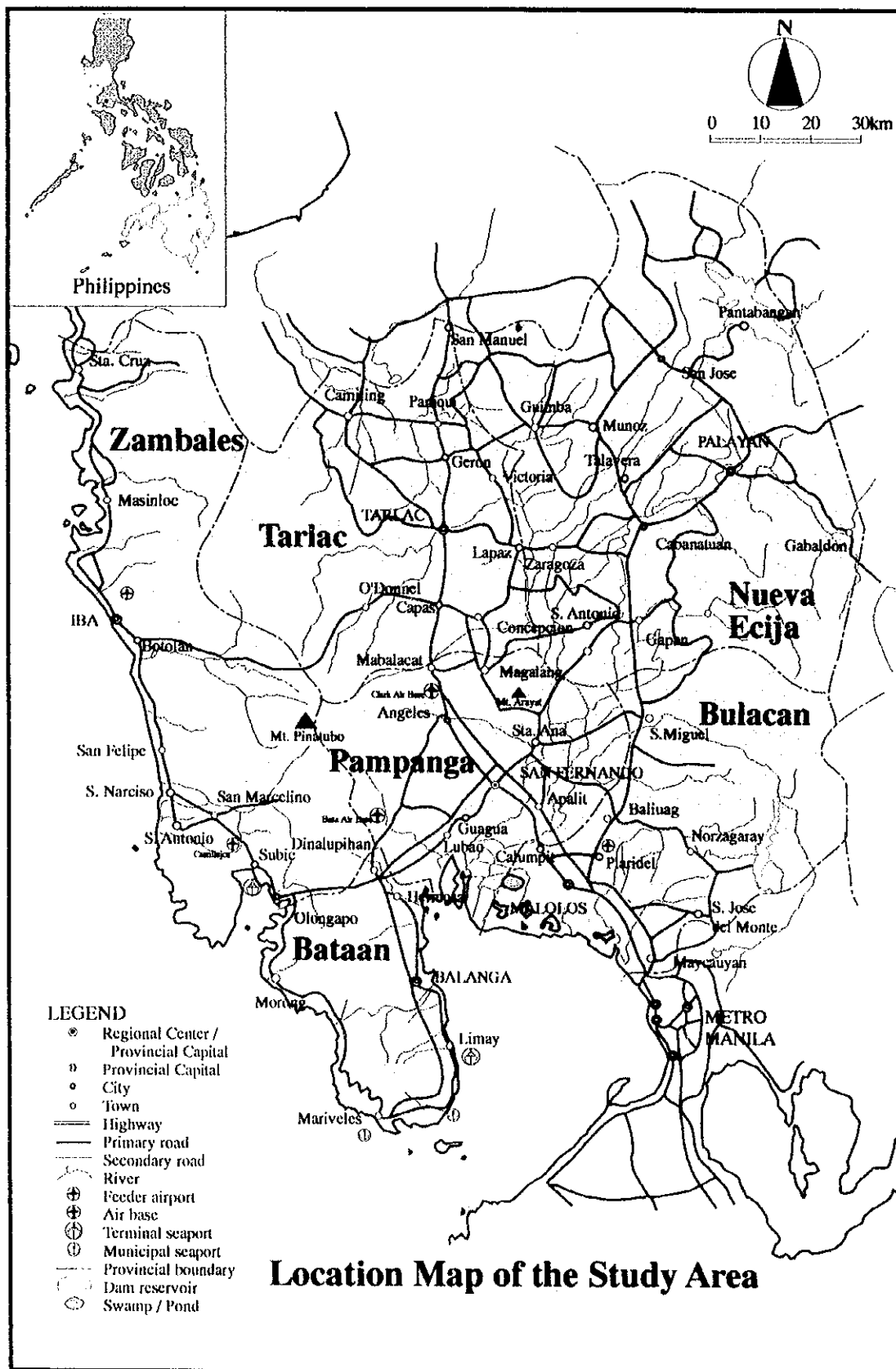
I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

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

September, 1995



Kimio Fujita
President
Japan International Cooperation Agency



MAIN REPORT : CLDP MASTER PLAN

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List of Abbreviations

AFTA	-	Asean Free Trade Area
APEC	-	Asian Pacific Economic Cooperation
ARCs	-	Agrarian Reform Communities
ASEAN	-	Association of South East Asian Nations
BEPZ	-	Bataan Export Processing Zone
BOI	-	Board of Investments
BSWM	-	Bureau of Soil and Water Management
CAR	-	Cordillera Autonomous Region
CDC	-	Clark Development Corporation
CENRO	-	Community Environment and Natural Resources Office
CFPI	-	Cooperative Foundation of the Philippines Inc.
CLDP	-	Central Luzon Development Program
CLSU	-	Central Luzon State University
DA	-	Department of Agriculture
DAR	-	Department of Agrarian Reform
DECS	-	Department of Education, Culture and Sports
DENR	-	Department of Environment and Natural Resources
DILG	-	Department of Interior and Local Government
DOH	-	Department of Health
DOLE	-	Department of Labor and Employment
DOST	-	Department of Science and Technology
DOT	-	Department of Tourism
DOTC	-	Department of Transportation and Communications
DPWH	-	Department of Public Works and Highways
DSWD	-	Department of Social Welfare and Development
DTI	-	Department of Trade and Industry
EIA	-	Environmental Impact Assessment
EPZ	-	Export Processing Zone
EU	-	European Union
GDP	-	Gross Domestic Products
GIS	-	Geographic Information System
GNP	-	Gross National Product
GO	-	Government Organizations
GRDP	-	Gross Regional Domestic Products
GVA	-	Gross Value Added
HAIE	-	Hermosa Agro-Industrial Estate
IAs	-	Industrial Associations
IE	-	Industrial Estate
IRA	-	Internal Revenue Allotment
JICA	-	Japan International Cooperation Agency
LGU	-	Local Government Unit
LMU	-	Land Management Units
LWUA	-	Local Water Utilities Administration
MPC	-	Mount Pinatubo Commission
MSC	-	Manila-Subic-Clark
NAFTA	-	North American Free Trade Area
NCR	-	National Capital Region
NEDA	-	National Economic Development Authority
NFA	-	National Food Authority
NGO	-	Non-Government Organization
NIA	-	National Irrigation Administration
NIC	-	Newly Industrialized Country
NIPAS	-	National Integrated Protected Area System
NSO	-	National Statistics Office

NWRC	-	National Water Resources Council
PENRO	-	Provincial Environment and Natural Resources Office
PO	-	People's Organization
POS	-	Point of Sale
PRRM	-	Philippine Rural Reconstruction Movement
RDC	-	Regional Development Council
RSCs	-	Regional Service Centers
SBMA	-	Subic Bay Metropolitan Authority
SEPZ	-	Special Economic and Freeport Zone
SEZ	-	Special Economic Zone
SME	-	Small and Medium Enterprise
SRS	-	Social Reconnaissance Survey

Abbreviations of Measures

Length

mm	=	milimrter
cm	=	centimeter
m	=	meter
km	=	kilometer
mbgs	=	meter below grounf surface

Weight

mg	=	miligram
g	=	gram
kg	=	kilogram
ton (MT)	=	metric ton
1 cavan	=	50 kilograms

Area

cm ²	=	square centimeter
m ²	=	square meter
Km ²	=	square kilometer (sq. km)
ha	=	hectare

Volume

cm ³	=	cubic centimeter (cu. m)
lit	=	liter
lb	=	pound
m ³	=	cubic meter
MCM	=	million cubic meter

Other Measures

%	=	percent
m ³ /s	=	cubic meter per second
lit /s	=	liter per second

Money

P	=	Philippine Peso
¥	=	Japanese Yen
US\$	=	US Dollor

Government of the Philippines Fiscal Year

From January 1 to December 31

CHAPTER 1

1972-1973

CHAPTER I INTRODUCTION

1.1 Background

(1) Study background

The West Central Luzon Development Program was conceived originally in 1987 by the Board of Investments (BOI) of the Department of Trade and Industry (DTI) in close consultation with the Bataan government and Congressman F. C. Payumo. A proposal for its master planning submitted to the National Economic Development Authority (NEDA) Region III in the same year was revised in 1988 to cover the whole of Zambales and Bataan provinces, and coastal municipalities of Pampanga and Bulacan. It was favorably endorsed by the Regional Development Council (RDC) Executive Committee in 1990.

The Government of the Republic of the Philippines requested the Government of Japan for technical cooperation to prepare an integrated regional development master plan for the West Central Luzon Development Program. Through communications between the two governments, the background and specific contents of the request have been clarified. The implementing arrangement for this technical cooperation was agreed between DTI-BOI and the Japan International Cooperation Agency (JICA), the official agency of the Japanese Government responsible for her technical cooperation, and signed by respective representatives on 31 March 1993.

This technical cooperation is now referred to as the Master Plan Study for Central Luzon Development Program. By mutual agreement, the Central Luzon Program area has been expanded to cover all the six provinces of Region III or Central Luzon.

(2) Study objectives

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

- 1) to prepare an integrated regional development master plan with the target year of 2010 for the balanced agricultural and industrial, socio-economic and physical development of the Study Area defined hereunder, out of which priority projects and programs shall be shortlisted; and
- 2) to make recommendations necessary for the effective implementation of the master plan, including investment promotion measures and organizational/ institutional arrangements.

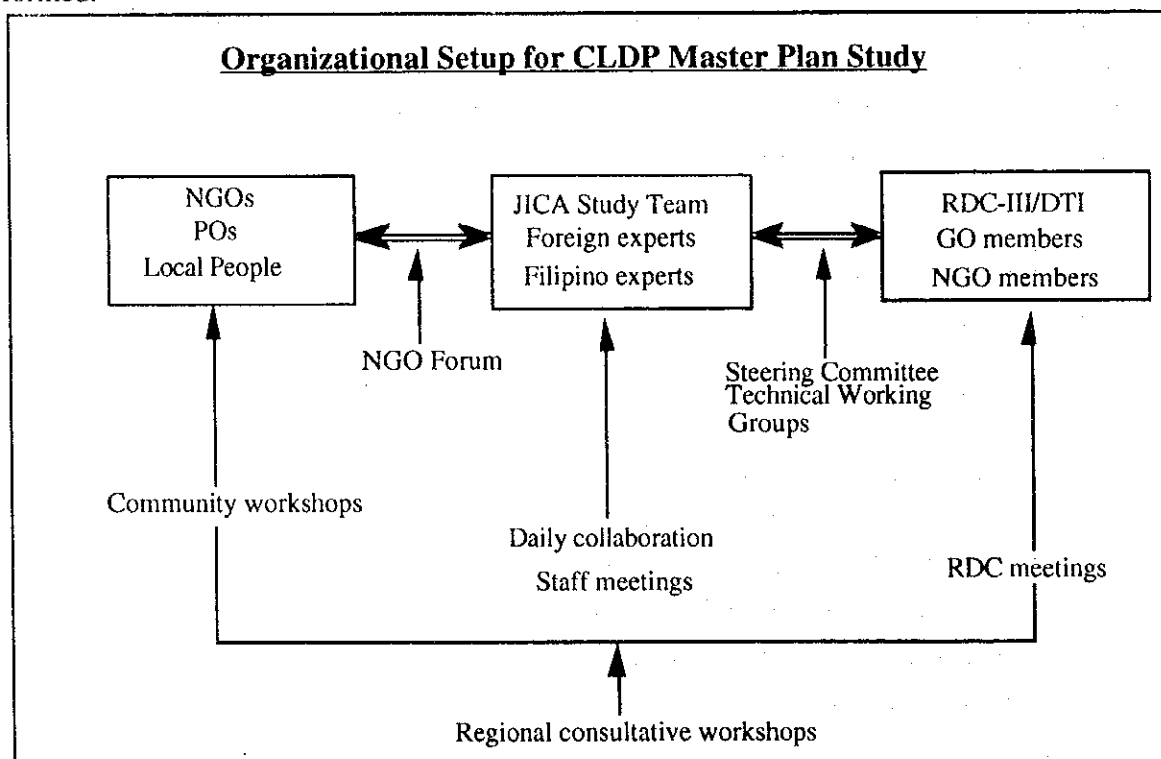
(3) Study Area

The Study Area covers the six provinces of Bataan, Zambales, Tarlac, Pampanga, Bulacan and Nueva Ecija. This corresponds to the entire Region III or Central Luzon. The Study Area has 18,230 km², corresponding to 6.1% of the total national land. Its population was 6,199,000 in 1990, accounting for 10% of the total population in the Philippines.

(4) Study organization

The Master Plan Study for Central Luzon Development Program (CLDP) represents the first JICA attempt to effect a bottom-up approach to development planning. A big challenge is of course how to effect participatory development within the established ODA framework.

The organizational setup for the CLDP Master Plan Study is illustrated below. The Regional Development Council (RDC) for Region III (Central Luzon) and the Department of Trade and Industry (DTI) are co-proponents of the CLDP and counterpart agencies for the execution of the CLDP Master Plan Study. As formal channels of communications between RCD-III/DTI and the JICA Study Team, a Steering Committee and Technical Working Groups have been formed.



The Steering Committee is supposed to meet occasionally to discuss and resolve critical issues related to the CLDP strategy. Technical Working Groups are supposed to discuss more specific sector issues involved in the master planning, covering development

administration, macro economy, infrastructure development, economic development, and social development. In reality, the Study Team has been communicating with member agencies of TWGs individually to collect data, exchange views and discuss on sector specific issues. This portion of the organizational setup is common to any JICA funded development survey projects.

What is new about the CLDP Master Plan Study is the cooperation with NGOs from the beginning of the Study. During Phase 1 of the Study for the analysis of existing conditions, a social reconnaissance survey (SRS) was conducted with the cooperation of selected NGOs. NGOs conducted a series of community workshops to clarify existing conditions and identity issues as perceived at the grassroots level.

An NGO Forum has been established by those NGOs participated in the SRS and the JICA Study Team first to discuss methods, procedure and the scope of the SRS. The NGO Forum has been maintained through the subsequent phases for the NGOs and the Study Team to exchange views and discuss on development issues. During Phase 2 for project formulation, provincial workshops have been convened by the NGOs to discuss on and define specific projects to meet development needs identified through the SRS.

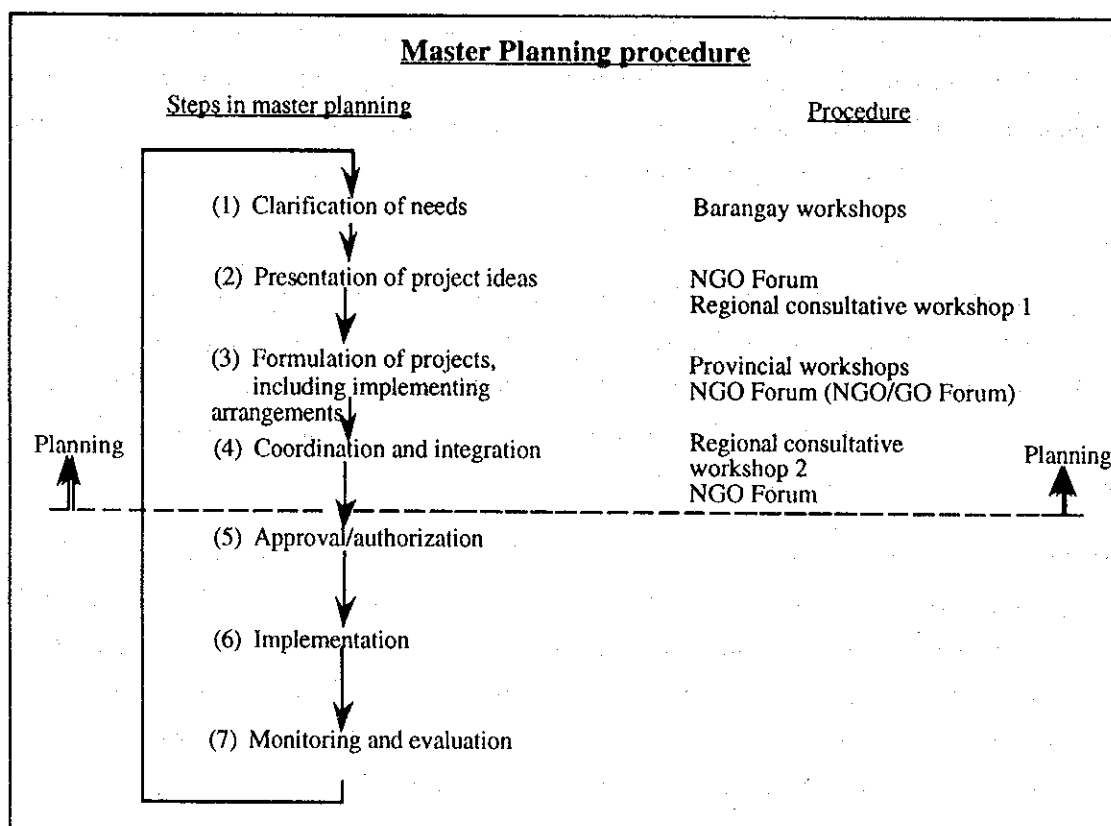
A regional consultative workshop was meant to provide an opportunity to get all the entities in this organizational setup together. Two workshops have been convened by DTI: the first one to discuss critical issues by sector identified during Phase 1 and the second one to discuss objectives, strategy and projects/programs.

1.2 Study Procedure and Work Progress

1.2.1 Study procedure with local participation

(1) Master planning procedure

The steps in master planning and procedure followed are illustrated below. The master planning procedure has been highly participatory. Many workshops at the barangay and the provincial levels, several NGO Fora and two regional consultative workshops have been organized at various stages of the planning. In addition, DTI has conducted a series of dialogues at the municipality/city level.



(2) Social reconnaissance survey

Survey framework

As important part of the Study, a social reconnaissance survey has been conducted to effect the participatory approach to development planning within the framework of official development assistance. The basic idea is to let local communities and people in Central Luzon involved in the planning process from the beginning so that a better development plan will be formulated, reflecting needs at grassroots level. Other expectations are to develop a sense of participation in the Central Luzon Development Program among local communities, and to open a channel of communication between local communities and government agencies necessary for the successful implementation of the CLDP.

The survey has been entrusted to a group of NGO's selected through a series of dialogues during the initial stage of the Study. The Philippine Rural Reconstruction Movement (PRRM) had been nominated by JICA as a contact NGO for the JICA Study Team. Lead NGO(s) have been selected through dialogues between PRRM and other NGOs for each province as follows:

Bataan	:	PRRM
Bulacan	:	Cooperative Foundation of the Philippines Inc. (CFPI)

Pampanga	:	PRODEV, Saup Lugud Foundation, Inc.
Nueva Ecija	:	ACES, BIDANI and PRRM
Tarlac	:	Education for Life, Institute for Popular Democracy
Zambales	:	NNZO/SAMBALI

Scope and methods of survey

The terms of reference for the survey were discussed and agreed between the representatives of PRRM and the JICA Study Team. The survey covers the following:

- 1) To review and integrate existing literature and initiatives of organized social sectors relevant to a regional development plan; this will include data and analysis of problems and issues of the social sectors and communities, critiques of existing official development plans and programs and proposed alternatives;
- 2) To conduct workshops to validate and enhance results of No. 1 among NGOs and POs at the provincial level; and
- 3) To conduct purposive social surveys at the barrio level to surface critical issues and problems in each province.

The survey has been carried out by the following methods:

- 1) key informant interview with NGO/PO leaders,
 - 2) research on existing literature and secondary data,
 - 3) conduct of provincial level workshops, and
 - 4) conduct of rapid appraisal using a common instrument agreed upon among the participating NGO's through:
 - participant observation
 - key informant interviews, and
 - conduct of workshops
- (3) Continuous participation

Participation from the very beginning of the planning is the basic condition for participatory planning. Continuous participation is even more important. Information related to the Master Plan proposals has been open, and opportunities existed for dialogues between the top-down planners and the bottom-up participants. This set-up is expected to be institutionalized for the Master Plan implementation.

1.2.2 Work progress

(1) Phase I

A team of consultants of Nippon Koei Co., Ltd. and Pacific Consultants International (the Study Team) has been appointed by JICA to carry out the Study. After preparatory works in Japan, the Study Team arrived in the Philippines on 12 October 1993 for the first field investigation period.

At the beginning, the Study Team had a series of discussions with DTI and other government agencies and provincial governments as well as NGO representatives on the schedule, objectives, methods and other related matters of the Study based on a draft Inception Report. The JICA Advisory Team for the Study visited the Country during 25-31 October 1993. The Advisory Team had a briefing from the Study Team on the study progress and exchanged views with DTI on the Central Luzon Development Program (CLDP). The first meeting of the Steering Committee for the CLDP was convened at DTI-BOI in Manila on 29 October 1993. The Steering Committee generally endorsed the contents of the draft Inception Report and made additional comments on the Study as summarized in the Minutes of Meetings.

The Study Team presented itself at a meeting of the Regional Development Council (RDC) Region III held on 14 October in Tarlac and asked for the cooperation for the Study. The Study Team made the first round of official visits to the six constituent provinces according to the following schedule.

October	18	Tarlac
	19	Pampanga
	20	Bulacan
	22	Nueva Ecija
November	3	Bataan
	5	Zambales

In each province, the Study Team had a briefing from the respective provincial government on existing conditions of the province, collected some basic data and materials, and exchanged views on development constraints and prospects with officials and private sector representatives.

The Study Team had a series of discussions with NGO representatives in different groups on how they can cooperate to prepare a better master plan. It was agreed that a task force be established by NGO representatives in cooperation with the Study Team to conduct a social reconnaissance survey (SRS), to monitor and evaluate the master planning process and master plan proposals, and to facilitate communications with government agencies related to development issues of the CLDP.

Members, both Filipino and foreign, of the Study Team in charge of different sectors have visited many government agencies and provincial offices to collect data and materials necessary for the Study. Surveys on some specific aspects have been entrusted separately to Filipino experts.

Foreign members of the Study Team left the Country in early December after submitting the Inception Report containing the design of the Study, and preliminary analyses and findings during the inception period. Their works in the Philippines resumed on 5 January 1994. Existing conditions of the Study Area have been further analyzed, constraints to development clarified and development potentials evaluated. Output of a few surveys carried out mainly by Philippine experts has provided useful input to the analyses. They include surveys on socio-economy, agricultural activities, manufacturing establishments, and non-conventional energy.

The SRS was carried out mainly during this latter half of the first field investigation period. Major activities of PO's and NGO's have been clarified, main development issues identified, and preliminary proposals made by province. A series of workshops have been conducted to discuss and verify these findings and proposals.

The Progress Report I was compiled including most of the outcomes during the first field investigation period. Some survey results, however, had not been fully analyzed and thus not been included in the Report. Discussions and findings through the workshops of the SRS had not been reflected in the Report, as most workshops took place during March.

(2) Phase 2

The Study resumed upon the arrival of the JICA Study Team on 19 May 1994 after the contract between JICA and the same consultant team was renewed. This phase through the end of August has been for intensive consultation with a wide range of people and agencies related to development issues of Central Luzon and project formulation.

The task force established by NGO representatives in cooperation with the Study Team to carry out the social reconnaissance survey (SRS) during Phase 1 was maintained based on the mutual agreement on the both sides. Meetings of the task force, called the NGO Forum, were convened occasionally to discuss development issues and check the work progress.

For this phase, the scope of work for the NGOs was agreed to cover the following:

- 1) to conduct a critique on the Progress Report I,
- 2) to discuss with the Study Team to clarify the results of the SRS, and
- 3) to prepare profiles of projects to meet the development needs identified through the SRS.

As a method for these tasks, NGO workshops were planned for the six provinces.

Sector experts of the Study Team visited many government agencies and provincial offices individually to obtain existing development programs and proposals for specific projects. They visited also sites for some projects proposed or newly conceived by these agencies and the Study Team.

Throughout this phase, intensive consultation was conducted by the initiative of DTI-III to explain preliminary proposals and development frameworks for CLDP regional development and to receive comments. Many barangays in some 80 cities/municipalities were covered, and consultation efforts continued thereafter. DTI-III held dialogues with local business communities and other segments of the society as well.

The first Regional Consultative Workshop was convened by RDC-III/DTI on 13 July 1994. Representatives of provincial and municipal governments, regional offices of Central Government agencies, local business communities, NGOs and POs were invited, and 263 participated, including also DTI staff, the JICA Advisory Team as well as the JICA Study Team. Critical development issues identified through Phase 1 works were discussed in four groups: economic development, social development, land use and environment, and infrastructure.

The NGO workshops were convened in the six provinces according to the following schedule.

July	28 - 19	Zambales (North)
	29	Bulacan
August	6	Bataan
	8 - 9	Pampanga
	11	Zambales (South)
	18	Tarlac
September	10	Nueva Ecija

The Study Team was invited to and participated in the most workshops.

On 22 August, a NGO/GO Forum was held with the support of the Study Team to encourage direct communications between NGOs and government agencies concerning the planning and implementation of the CLDP. Active discussion took place among participants, consisting of 34 NGOs, 18 GOs, and the JICA Study Team.

The Interim Report was compiled based on the works and outcomes during Phase 2. It presented a first draft of the CLDP Master Plan. Most of the proposals on specific projects received by the Study Team from various NGOs, government agencies and concerned

individuals were reviewed and reflected in the draft Master Plan. Some proposals, especially those received in late August, however, had not been reflected.

(3) Phase 3

The Study continued after the submission of the Interim Report. This period through December 17 was for extensive consultation and dialogues on the draft Master Plan in general and specific projects and programs contained in the Plan in particular. Members of the Study Team visited related government agencies to discuss on projects/programs of their concerns respectively and elaborate on them.

In order to discuss on the Interim Report collectively, the second Regional Consultative Workshop was convened by RDC-III/DTI on 11 November 1994. Some 250 participants representing both GOs and NGOs discussed the development objectives, strategy and projects/programs in five groups: (1) anchor infrastructure, (2) rural and agricultural development, (3) industry, trade and urban development, (4) social development, and (5) environmental development.

The cooperation with the NGOs continued through this phase. To discuss on projects/programs, two meetings of the NGO Forum were held on 12 and 24 November. Project proposals prepared by the NGOs were extensively discussed and implementing arrangements for these NGO projects and other GO - initiated projects were worked out through collaborative efforts of the NGOs and the Study Team.

The Steering Committee met on 12 December to discuss further revisions of the draft Master Plan and some of project proposals. Modifications of the draft Master Plan and the project list after the second workshop were clarified by the Study Team, and the revised project set was in principle endorsed by the Committee.

The Progress Report II was compiled based on the works during Phase 3 outlined above. It contains a revised Master Plan with an updated list of projects and programs. For selected projects/programs, more detailed profiles were prepared.

All the field works for the Study completed on 17 December 1994, when the Study Team left the Philippines. Sector reports were compiled in Japan as part of the Draft Final Report. The revised Master Plan contained in the Progress Report II was further elaborated, and an indicative investment schedule and an action plan prepared.

After the submission of the Draft Final Report, the Study has entered a promotion phase of the CLDP Master Plan and its implementation. Promotion activities have been conducted mainly by the initiative of DTI and related Philippine agencies, but JICA and the Study Team

have provided some occasional supports. They made short visits to the Philippines during this final phase of the Study. In April, they participated in the workshop to promote the Master Plan and explained the Master Plan proposals to concerned GOs and NGOs. In July, the Study Team provided technical supports for the promotion of selected priority projects. Finally in August, JICA and the Study Team participated in the CLDP promotion seminar and presented the Master Plan to international aid organizations and other participants.

The Final Report of the Master Plan Study for Central Luzon Development Program has been prepared incorporating further input from the Philippine side during this final phase of the Study. It represents a final elaboration of the Draft Final Report.

1.3 Report Structure and Organization

1.3.1 Report structure

The Final Report consists of eight volumes as follows:

<u>Volume</u>	<u>Title</u>
I	Executive Summary Report
II	Main Report: CLDP Master Plan
III	Sector Report 1: Agriculture and Rural Development
IV	Sector Report 2: Industry, Tourism and Trade
V	Sector Report 3: Infrastructure
VI	Sector Report 4: Environment and Land Husbandry
VII	Sector Report 5: Social Services and Development
VIII	Project Report

1.3.2 Organization of the Main Report

The remaining part of the Final Report, Volume II: Main Report is organized in the following way. In Chapter II, the CLDP paradigm is presented. The position of Central Luzon in national socio-economic and spatial development is clarified first, which justifies the region to pursue a new paradigm. The basic strategy to meet the challenge posed by the new paradigm is presented, and development alternatives are defined to clarify the range of options that may be taken to realize the paradigm. The best option is defined as the CLDP paradigm.

The CLDP paradigm will be supported by subsequent chapters. Chapter III presents development objectives and strategy. Critical issues facing Central Luzon and constraints to

development are examined first. Overall regional development objectives are established covering economic, social and environmental aspects. Objectives and strategy are presented respectively for economic development, social development and environmental development. Some policy recommendation is also made in this chapter.

Development scenarios and frameworks are presented in Chapter IV. Spatial frameworks are described with respect to land suitability, water distribution, urban hierarchy and artery network. Land use plans are proposed for the alternative development scenarios. Economic growth under alternative development scenarios is clarified and the population distribution under the best alternative is presented as socio-economic frameworks for the regional development. Development phasing is described broadly for Phase I (upto 1998), Phase II (1999-2004), and Phase III (2005-2010).

Chapter V presents specific projects and programs, and institutional measures that constitute the CLDP Master Plan. The projects/programs consist of regional and local projects/programs, and special programs. The regional projects are classified into three categories: (1) agro-industrial-trade support, (2) spatial transformation, and (3) community development. The special programs address three issues characteristic of Central Luzon: (1) indigenous people issues, (2) gender concerns, and (3) disaster preparedness and response. The local projects/programs are presented under three categories: (1) community-initiative, (2) government initiative with strong NGO/PO components, and (3) refocussed government supports. Each project/program is outlined in the context of the overall regional development. Institutional measures emphasize increasing public participation in the development planning and administration.

CHAPTER 2

CHAPTER II CENTRAL LUZON DEVELOPMENT PARADIGM

2.1 Central Luzon's Position and Challenge

Central Luzon is well qualified to pursue a new development paradigm through its regional development. A few characteristics justify this. First, Central Luzon holds a unique position in the socio-economic and the spatial development of the Philippines as clarified in subsection 2.1.1. Central Luzon is expected to lead rather than to follow the rest of the Country. Second, imminent development issues facing Central Luzon, described in subsection 2.1.2, call for more emphasis to be placed on the social and the environmental aspects in planning for the regional development. Third, Central Luzon would have to meet the challenge presented by the "Philippine 2000" as described in subsection 2.1.3. Fourth, as participatory development is becoming increasingly popular along with a diversifying development concept as described in subsection 2.1.4, Central Luzon has a definite advantage with a tradition of better organized people's activities at the grassroots level.

2.1.1 Position of Central Luzon

(1) Central Luzon in national socio-economy

The position of Central Luzon in the socio-economy of the Philippines has been clarified through analysis on existing conditions by sector. At present, Central Luzon is regarded roughly as a "ten percent region" in the national socio-economy, but it is expected to grow faster as a part of the National Industrial Core Region. The most important indigenous resources Central Luzon has are the productive land with highly established agriculture, and rich human resources better educated, more organized and trainable. Each of these characteristic is described below.

Ten percent region of the Country

Socio-economically, Central Luzon is a 10% region of the Philippines. The population in 1990 is 6.2 million, accounting for 10.2% of the national population, and the gross regional domestic products (GRDP) contributed 9.0% to the gross domestic products (GDP) in 1992. These are substantially larger than the territorial share of Central Luzon at 6.1% (18,231 km² out of the national land 300,000 km²).

Leading industrial area within the National Industrial Core Region

Central Luzon constitutes part of the National Industrial Core Region, together with the National Capital Region (NCR) and part of Region IV. The Core Region contributed to 70% of manufacturing value added in the Philippines in 1988. The manufacturing GRDP of Central Luzon corresponds to 9.5% of the manufacturing GDP. Central Luzon is also the

third largest mineral producer accounting for 13.7% of the total production value in the Country in 1990, following Region VI (19.9%) and the CAR (17.3%).

Rice bowl of the Philippines

Central Luzon is commonly referred to as a rice bowl of the Philippines. The region in fact has highly established agriculture as the mainstay of the regional economy, and its contribution goes well beyond just rice. Based on the average production over 1988-92, rice production in Central Luzon contributes to 18% of the national production, sugarcane to 10%, mango to 20%, and few vegetables to over 13% such as eggplant (15%), tomato (13%) and mongo (13%) of the respective national production. Livestock and poultry inventories in Central Luzon also contribute significantly to the national inventories, led by hog (13%), chicken (15%) and duck (22%).

Rich human resources

Human resources in Central Luzon are generally better prepared and better organized. The participation rate at the primary and the secondary education in Central Luzon is at 94.2% and 86.1%, respectively much higher than the national average of 85.7% and 66.1% in 1993. The death rate in Central Luzon, 3.4 per 1,000 population in 1992, is much lower than the national average (6.9 in 1993) as well as the birth rate. The infant mortality rate is significantly lower in Central Luzon than the national average.

According to the 1988 NSO survey, the average family income for the Philippines is estimated to be P40,408 at current price. The average family income in Central Luzon is estimated at P46,855 in 1988. Only in Nueva Ecija and Tarlac, the average family income is lower than the national average. The poverty incidence in Central Luzon was 31.3% in urban areas and 35.4% in rural areas in 1991, lower than the respective incidence at 32.2% and 49.1% in the Philippines.

Central Luzon is known for better organization of people at the grassroots level. There exist comparatively more NGOs, cooperatives and other people's organizations active and directly involved in various development activities. They have extensive experiences in community-based development activities, and Mt. Pinatubo related activities in recent years have further enhanced the totality of their experiences.

(2) Central Luzon in national spatial development

Central Luzon holds an important position in the national spatial development as summarized below.

More urbanized and more rapidly urbanizing region

The ratio of urban population to the total population or the urbanization ratio was 60.3% in Central Luzon, the highest of all the 13 regions except the NCR. Central Luzon contained 12.6% of the total urban population in the Country or 17.2% of the urban population outside Metro Manila, both in 1990. The urban population in Central Luzon increased from 2,009,000 in 1980 to 3,705,000 in 1990 at the average annual rate of 6.3%, much higher than the corresponding rate of 5.1% per annum at the national level.

Receiving area of spillover from Metro Manila

Central Luzon is the second largest receiving region of out-migrants from Metro Manila, next only to Region IV. Between 1985 and 1990, the region received 56,270 in-migrants from the NCR or 9.5% of the total out-migrated from the NCR, while Region IV received 173,869 or 29.4% of the total. No other region received more than 20,000 migrants from the NCR. As a relocation site for industries that are otherwise located in the NCR, Central Luzon is not so important yet as its potential.

Receiving area for in-migration from northern regions

Central Luzon received 22,233 migrants from Region I and Region II between 1985 and 1990, larger than any other regions, except the NCR that received 64,615 migrants during the same period. This indicates that Central Luzon has a potential to capture and accommodate more migrants from the northern regions who would otherwise move further into Metro Manila.

More concentrated urbanization pattern

Central Luzon is not only more urbanized, but its urbanization pattern is more concentrated. Three broad areas of urban population concentration may be identified : (i) areas in Bulacan along highways leading from Metro Manila, (ii) San Fernando-Angeles City-Mabalacat corridor area, and (iii) Subic-Dinalupihan area. The total population in these areas is over 2.0 million, of which over 90% is urban, corresponding to a half of the total urban population in Central Luzon. As a result of the more rapid urbanization mentioned above, the rural population in Central Luzon declined from 2,794,000 in 1980 to 2,486,000 in 1990. This more concentrated pattern of urbanization could be an advantage to attract more population, investments and economic activities.

2.1.2 Imminent development issues

Despite its potentials due to its position in the national socio-economic and spatial development, Central Luzon faces an array of problems. More essential problems from a long-term regional development point of view are analyzed in Section 3.1, and problems facing different sectors are identified in the subsequent sections.

More imminent development issues in Central Luzon evolve around the poverty, a fundamental issue in regional development, which has been complicated by recent natural and man-made calamities. Despite the relatively advanced status of its socio-economy, the poverty is still widespread in Central Luzon. Of the total families in Central Luzon, 33% or 394,612 families live below the poverty threshold as of 1991. Although this is lower than the national average of 40.7%, the poverty incidence has actually increased in Central Luzon in the recent past.

The unemployment rate in Central Luzon is among the highest of all the regions in the Philippines. The closure of the U.S. military bases created unemployment of 79,000 base workers directly and affected the livelihood of over 400,000 people engaged in various services and related activities.

The Mt. Pinatubo eruption and subsequent lahar have only added to already degrading environmental conditions. As of 1993, the total area of 52,320 ha or 2.9% of the Central Luzon land was covered by lahar, and additional 47,625 ha have been determined to be lahar hazard prone. Damages extend from degradation of upland communities and environment to increased flood susceptibility in lowland and further deterioration of coastal and marine resources and environment. People evacuated by the eruption and lahar hazard have created another segment of the critical social sector.

2.1.3 Philippines 2000 and Central Luzon

The Philippines, under the present administration, is gearing up toward becoming a newly industrialized country (NIC) by the year 2000. The Medium-Term Philippine Development Plan 1993-98 spells out policies and strategy along this line and sets various targets. In terms of growth, the Plan envisions the growth of gross domestic products at the average annual rate of 7.4% during 1993-98. With the reduction in population growth from 2.4% in 1993 to 2.28% by 1998 and increasing overseas remittance and international tourism revenue, the per capita gross national product (GNP) is expected to grow at 6.7% per annum on the average over 1992-98.

These targets by themselves are quite ambitious, and as such commendable. Extrapolating the growth rates toward the end of the Plan period, the per capita GNP may reach the level of US\$1,500 by the year 2000, an 80% increase from the present level.

All the provinces/regions are expected to respond to this scenario in preparing their plans, interpreting what these high growth rates mean to respective provinces/regions. Moreover, the Philippine 2000 is embodied with the principles of sustainable development, people empowerment and better quality of life for, in short, growth with redistribution. If this

means, for one thing, rectification of inter-regional income disparity, less developed provinces/regions would have to grow even faster.

Quite naturally, Central Luzon is expected to grow faster than the national average. The Medium-Term Philippine Development Plan sets the growth target for the gross regional domestic product (GRDP) of Central Luzon at 8.5% per annum on the average during 1993-98, accelerating from 6.8% in 1994 to 12.3% in 1998. All the economic sectors, including agriculture, industry and services, are expected to grow at rates higher than the respective national average.

2.1.4 Participatory planning and development

Development concepts

Development is a diversifying concept in the rapidly changing world where various value has been pursued. Up to 1960's, development was almost a synonym of economic growth, which in turn was discussed often in relation to public investment in infrastructure as a prerequisite to the growth. This concept of development is of course largely outdated. High economic growth, even when it is achieved, was accompanied by environmental degradation and various social problems in many parts of the world.

Wide recognition of inherent environmental value in recent years has further foster a better understanding of development. The development in this context may be defined as the creation of better human environment: better in the sense of assuring a wider range of opportunities and higher levels of self-realization by individual human beings at present and in the future. Preservation of natural environment is just one factor for this as well as economic growth.

Encompassing all of these diversifying concepts, the development in an ultimate sense is defined as the human development, i.e. the development of capacity/capability of individual human beings or self-realization. It is clear then there is no development without participation.

Participatory development

Human development cannot take place in a vacuum. Ordinary human beings need media to develop themselves or environments to set their development. These media or environments are offered usually by a community they belong to in the form of social system. The social system is shared largely by all the members of the community. The members help each other within their social system for, in short, social development.

Central Luzon, as a planning unit, is much larger than any communities that can be conceived by any community members. Any development activities planned at the regional level,

however, would necessarily affect smaller communities. Conversely, communities and their members may achieve self-realization at higher levels, if they participate in planning for development activities at higher tiers.

2.1.5 Central Luzon's challenge

Regional development of Central Luzon would have to make effective use of its resources, and contribute to the national development goals. Central Luzon is expected to grow faster than the national average. A real question is not whether the economy of Central Luzon can attain such high growth rates, but rather how these growth rates can be attained without causing environmental degradation and social disruption. This is equivalent to saying the growth would have to be attained within the resource or environmental capacity so that the growth today would not jeopardize continued and sustainable growth thereafter.

Two most essential resources Central Luzon has are human resources and productive agricultural lands as noted earlier. Human resources, if well organized and properly trained as well as provided with basic human needs, are non-depletable resources. Central Luzon is known for well organized people and voluntary citizen's movements. In fact, the Philippines as a whole is one of most advanced countries in people-based development activities, and Central Luzon is leading the Country in this respect.

The paradigm of NICdom has in fact been already attained for some years as far as the capital region is concerned with not only its high income and flourishing commercial activities but also an array of environmental and social problems such as traffic congestion, air pollution, squatters, and inadequate disposal of solid wastes and wastewater. What makes the Philippines different from other NICs would be its agriculture and rural areas. Central Luzon leads the Country in this respect as well, being "the rice bowl of the country" and still comparatively rich in natural resources.

The real challenge Central Luzon faces is how to utilize these essential resources effectively not only to contribute to the national development goals and substantiate the national development vision but to go further. This would call for deviation from the NICdom paradigm from the beginning.

2.2 Development Alternatives

2.2.1 Two-pronged strategy

Central Luzon has all the right and qualification to pursue an alternative development paradigm. Such a paradigm would not only contribute to the national goal of growth with

redistribution, but would also safeguard an important option for the long-term development of the Philippines, leading the Country for participatory development.

Such a new paradigm, unlike the NICdom paradigm, would have to pay equal attention to economic, social, and environmental aspects. First, it would be supported by economic efficiency so that Central Luzon would be competitive in increasingly competitive and borderless economies in the world. Second, it would be based on the people or community initiative for social development to realize equitable development to benefit local people. Third, it would incorporate proper environmental management to ensure development within the resource capacity.

To satisfy these conditions collectively, a two-pronged strategy is conceived, consisting of the following components:

- (1) To promote people/community-based development for socially and environmentally sound and sustainable development; and
- (2) To drive internationalization for integrated and competitive local and regional socio-economies.

The first component means the utilization of indigenous resources by and for the benefit of local communities and people. The second component utilizes the industrial/trade anchors to induce re-vitalization of local economies.

The two components could also be complementary. For instance, the concentrated industrialization/urbanization in the industrial/trade anchors would allow easier protection of productive agricultural lands and vulnerable coastal environment. Also, the concentrated urbanization patterns would make the treatment of waste and wastewater more manageable and infrastructure and utility costs smaller.

2.2.2 Definition of development alternatives

Development alternatives can be defined by varying emphasis on the two components of the two-pronged strategy. Three distinct alternatives are defined as follows.

- (1) Localization

This alternative places emphasis on the first component of the two-pronged strategy. It represents the community-based development. To utilize indigenous resources effectively, agricultural productivity should be enhanced through crop diversification. Emphasis should be placed on those crops that are adaptable to multi-storey farming and mixed farming by small farmers. Backyard livestock/poultry would also be common. These forms of farming

would also expand the base for a range of rural industries for simple processing. In both ways, income in rural areas would increase.

Localization of industries would be based on human and other indigenous resources. In addition to agro-industries, handicraft and apparel industries would become more important, although their export performance may not improve much.

(2) Globalization

This alternative emphasizes the second component of the two-pronged strategy. It may be called industrial/trade anchor driven development. The industrial/trade anchors particularly at Subic and Clark would be utilized to the maximum extent mainly for export-oriented, labour-intensive industries. The existing BEPZ and other industrial estates would be linked and streamlined with better provision of infrastructure and utilities to improve their competitive edge. In agriculture, Central Luzon may be specialized in a few selected crops, other than rice and traditional crops, that can be exported either directly or after processing. Commercial scale operation would dominate both non-traditional crop production and livestock/poultry.

This alternative may be a volatile one, easily affected by changes in international markets. To maintain the competitive edge in manufacturing, skills need to be upgraded consistently, and products and technology development undertaken, or otherwise labour costs suppressed. Commercial operation of agriculture may involve more serious soil degradation and other environmental problems.

(3) Glocalization

This alternative combines advantages of the first two alternatives, while minimizing adverse social and environmental effects. It aims to realize the balanced and robust development. A key is to link localization and globalization activities by various linkage industries and non-industrial services. A full range of inter-related production activities would be established within the region by using indigenous resources with minimal wastes. This would increase value-added and expand markets. Some existing industries, including traditional ones, would be transformed into internationally competitive ones through market specific and branded products development.

Crop diversification would be important for this alternative as well. Emphasis should be on those crops that can be processed within the region into either final products or input to other industries as well as those that would supply to Metro Manila and export markets. Both commercial crops cultivation and livestock/poultry would be undertaken by organized farmers.

2.2.3 Evaluation of development alternatives

The development alternatives defined in the previous subsection are evaluated in the light of the basic concept of a new paradigm: i.e. the balance between economic growth, social development, and environment quality. It is clarified that the Glocalization alternative can be defined in such a way that would best fit the conceived paradigm.

(1) Economic growth

Economic growth under the three development alternatives has been estimated by broad economic sector (subsection 4.2.1). The following summarize the results in terms of average growth rates over 1990-2010.

Estimated Economic Growth Rates under Three Alternatives, 1990-2010

	(Unit: % p.a.)		
	Localization	Alternatives Globalization	Glocalization
Agriculture	4.3	3.9	4.5
Industry	4.8	8.7	9.2
Services	5.7	8.1	8.8
GRDP	5.1	7.6	8.2

These growth rates are compared with the growth targets set by the Philippines 2000. For agriculture, the Localization and the Glocalization alternatives exceed the growth target of 4.0% set for the Country by the Philippines 2000, but only the Glocalization matches the target set for Central Luzon. For industry, only the Glocalization alternative attains the growth rate higher than the Philippine 2000 target of 9.1% for the Country. The overall growth of the gross regional domestic products (GRDP) in Central Luzon exceeds the national target of 7.4% for the gross domestic products (GDP) under both the Globalization and the Glocalization.

(2) Social development

The Localization alternative would contribute naturally the best to social development. Comparatively more service activities would be induced by both agriculture and industry. More employment opportunities would be generated in rural areas not only by agriculture but also by rural industries and related services. Rural to urban intra-regional migration as well as out-migration from the region would be less significant.

The Globalization would generate much larger number of employment opportunities in urban areas by industry and related services. This would cause more significant rural to urban migration. Those industries conceived under the Glocalization may not induce much domestic industries, and rural areas may be left unvitalized.

The Glocalization means stronger linkages of various agricultural activities and rural industries in rural areas with industrial and service activities in urban areas. Intra-regional migration would be less significant than is the case under Globalization, and small and manageable inter-regional in-migration would take place.

(3) Environmental quality

The Localization alternative would be most environment friendly, as it is embodied with the concept of community-based resource management. The Globalization may face critical water shortages and more serious soil degradation.

Mixed, multi-storey and integrated farming conceived under the Localization and the Glocalization provides means to promote organic agriculture, enrich soil conditions and minimize soil degradation due to mono-cropping and chemical agriculture. Especially under the Glocalization, high economic growth would be attained substantively through linkages between various economic activities that would utilize effectively not only indigenous resources but also primary and intermediate products within the region. This includes use of wastes and by products and recycle-oriented activities.

(4) Alternative for CLDP paradigm

The Glocalization alternative would allow to attain economic growth higher than expected by the Philippines 2000. Moreover, such growth would be sustained beyond 2000 upto 2010. More local industries would be induced linked to one another as well as to foreign capital invested industries, and rural economies would be re-activated under the Glocalization. The Glocalization would use comparatively less natural resources for its economic growth as it would promote the full utilization of primary products with minimal wastes and the use of output from some activities as input to other activities within the region.

In what follows, the CLDP paradigm will be substantiated by defining the Glocalization alternative in specific terms. It will aim at attaining the highest economic growth possible within the resource or environmental capacity through the use and management of indigenous resources by and for local people and communities.

2.3 CLDP Paradigm

2.3.1 Conditions for CLDP paradigm

The CLDP paradigm would pursue the best balance between economic growth, social development, and environmental quality. As compared with the Philippines 2000, even more emphasis is placed on social welfare and environmental quality. This calls naturally for more people/community-based approach to regional development and planning.

The CLDP paradigm would be supported not only by specific development activities to benefit local people/communities and to protect/enhance environmental quality but also by mechanism or procedure to allow such activities to be planned and implemented. In other words, the CLDP paradigm would have to address both HOW to plan and implement development and WHAT to be planned.

Related to HOW to plan and implement development, the CLDP paradigm calls for increased participation of people in development planning and administration. The recent devolution provides good opportunities to increase and institutionalize the participation to strengthen development planning and administration at LGU levels. NGOs/POs hold a key to realize this. More substantial NGO/PO participation at LGU levels should be realized first for various social services.

In parallel, efforts to build up alternative mechanisms to allow people to serve themselves should be strengthened in steps on a project-wise basis. First, people should become main actors in production activities. For projects to introduce new crops or new agricultural activities, farmers should be organized to become more effective recipients of technical extension and other support services by government agencies as well as to negotiate better with traders and processors. Second, people should be involved increasingly more in post production operations. More storage, marketing and even processing facilities should be owned, managed and operated by farmers/fishfolks. For this also, people should be organized for efficient operations.

These people-based activities can be promoted on a project-wise basis. The Government is expected to support these activities directly and indirectly through the provision of credit facilities, technical extension and guidance, applied research, and improved infrastructure. NGOs/POs would be instrumental for community organizing and support in production activities and post production operations.

These people-based activities would become fully sustainable and self-reliant, only when finance is also dealt with by organized people. People-based finance can start again with the provision of social services. For other activities, people-based finance can be tested first for

specific projects. Ultimately, it would develop to cover most substantive investments to enhance land productivity and further to install post production facilities.

In the CLDP paradigm, HOW and WHAT aspects are thus inseparable. Alternative mechanisms or procedures are built into many individual projects and programs. Most CLDP projects related to production activities especially in rural areas are people-based to be supported by LGUs and NGOs/POs.

Government's roles are not less important for the CLDP paradigm than for the Philippines 2000 or the NICdom paradigms. They consist of public investments in key infrastructure facilities and appropriate policy measures to encourage private investments. Public investments should be devoted to two kinds: one to transform the spatial development structure of the region, overcoming inherent land and water resources related constraints, and the other to help restore environmental quality and bio-diversity.

2.3.2 Elements of CLDP paradigm

(1) Economic elements

In the pursuit of the CLDP paradigm, certain economic activities would be more important. More promising economic activities are described below to clarify WHAT to be planned.

Agriculture

Primary production activities would have to be placed in the center for the CLDP paradigm as they are based directly on indigenous resources. To utilize the indigenous resources effectively, the land productivity for agriculture should be enhanced and products of the primary sector fully utilized with minimal wastes.

To enhance land productivity without sacrificing the production of rice as the staple, mixed farming and multi-storey farming will be expanded and diversified. Rice production in 2010 will exceed the self-sufficiency level by 50%.

Promising crops and areas for mixed farming are the following.

<u>Crops</u>	<u>Areas</u>	<u>Markets</u>
Vegetables-eggplant, tomato, asparagus, etc.	Lowland rainfed paddy areas in Bulacan and Pampanga	Large domestic market in Metro Manila and urban centers
	Small lowland areas in southern Zambales	Subic Metropolitan area
	Same as above	Export in chilled form
Soybean, peanut and other pulses	Lowland paddy areas in Tarlac and Nueva Ecija	Domestic market including livestock industry

Promising crops and areas for multi-storey farming are listed below. These crops will be combined with vegetables and corn as well as forest trees. Other crops promising in upland areas include cassava in Tarlac and corn in Nueva Ecija and Tarlac. The latter will help to boost the livestock sector.

<u>Crops</u>	<u>Areas</u>	<u>Markets</u>
Cashew, coffee, cacao	Upland areas in Bataan and Zambales	Various domestic industries
Mango, banana Calamansi	Throughout the region Upland areas in Nueva Ecija	Domestic market Domestic market and processing industry

Other promising crops are those to be processed within the region. Horticulture of flowers and fresh vegetables by hydroponics are also promising for direct export as well as for supply to urban markets.

Livestock will be expanded based mainly on backyard raising by small farmers. Feed base will be expanded with corn production, and managed pastures in upland areas of Bataan, Tarlac and Nueva Ecija. Hog raising and poultry will expand as income levels and population increase. Cattle, carabao and goat will become more important in providing raw materials for leather products and dairy industries.

Industry and trade

The emphasis on the primary production sector should not in any way imply neglect of the secondary and tertiary activities. Within a broad framework of regional cooperation and international division of works, industrial and trade niches will be established, capitalizing on comparative advantages of Central Luzon.

The comparative advantages of Central Luzon include the geographic location between resource regions in the north and large markets in the south within the national context, and also in relation to Taiwan, Hong Kong and South China, availability of mineral, tourism and coastal/marine resources, productive land with highly established agriculture as the mainstay of the regional economy, and rich human resources. The CLDP paradigm calls for more emphasis on human resources related advantages.

Strategic industries heavily dependent on human resources are symbolically called DECS industries, representing Design, Engineering (and machinery), Communications, and Software industries. Design industry will be established capitalizing on inherent ingenuity and craftsmanship which abound in Central Luzon in traditional forms. It will encompass leather goods, jewelry, garments, gift toy-houseware (GTH), furniture, pottery/marble and metal craft industries. Communication industry is represented by tourism-related activities,

including international conference and communications. Software industry will support a wide range of activities and modernization of various industries , and promote a multi-media society. Including engineering and machinery, these are all linkage industries.

Sub-sector industries which will increase shares in the industrial structure are wearing apparel and footwear, furniture and fixture, chemicals and chemical products, fabricated metal products and electrical machinery and equipment. Wearing apparel and footwear, and electrical machinery and equipment will be distributed mainly in Bataan, Bulacan and Pampanga. Furniture and fixture will concentrate in Pampanga. Chemicals and chemical products will be dominated by a petro-chemical complex in Bataan.

(2) Spatial dimensions

In the pursuit of the CLDP paradigm, government investments should be directed more to key infrastructure to transform the spatial development structure of Central Luzon and to restoration of environmental quality and bio-diversity as described in the previous subsection. One specific embodiment of these ideas is the concentrated or contained urbanization/industrialization, as opposed to ribbon type urbanization or corridor type development along transportation arteries. This will help to protect prime agricultural lands and environmentally sensitive areas from disorderly urbanization/industrialization. Also, the concentrated urbanization/industrialization will allow easier management of wastes and wastewater. For these purposes, the existing industrial/trade anchors at Subic and Clark should be effectively utilized.

Another concern in transforming the spatial development structure of Central Luzon is to reduce the dependence on Metro Manila. Strengthening physical links would further the economic dependence on, and aggravate urban problems in Metro Manila as well. Rather, intra-regional links should be strengthened, and a new intra-regional artery should be established with such an alignment that would intercept the dominant flow of goods and movement of people from the north and divert them away from Metro Manila.

Stronger intra-regional links will help to develop economic linkages between activities in rural and urban areas. In this connection, a hierarchical structure of urban centers should also be established with clear division of functions among urban centers at different tiers. Each rural service center will have unique characteristics reflecting socio-economic conditions of its hinterland rural area, while urban centers at higher tiers will be fully equipped as multi-functional urban centers.

(3) Institutional aspects

Another key for the CLDP paradigm is how to link between the region and its constituent communities with respect to development planning and administration. A realistic question is how to effect participatory development within the framework of public sector development planning and administration, reconciling the top-down and the bottom-up approaches.

Three fundamental conditions would have to be satisfied for the top-down approach to incorporate effectively the bottom-up mechanism.

- 1) Information should be open as to planned development activities and their possible effects;
- 2) Opportunities should exist for dialogues between the top-down planners and the bottom-up participants; and
- 3) Judgment on planned development activities should be made as a matter of principle by those to be affected by those activities.

2.3.3 Ultimate characterization of Central Luzon

Central Luzon will be ultimately characterized by established reputations in selected fields, where the region has comparative advantages. They include the following:

- 1) World leader in people/community-based development activities,
- 2) World center for environmental education,
- 3) Showcase of recycle-oriented rural activities and bio-diversity preserving organic agriculture,
- 4) Industrial heartland of the Philippines with diversified industrial structure,
- 5) World center for fashion and interior design related industries,
- 6) International transshipment hub serving Southeast Asian countries with free seaport and airport, and
- 7) Communication center between Filipino people and other peoples of different backgrounds through conference, tourism and related service activities.

CHAPTER 3

CHAPTER III DEVELOPMENT OBJECTIVES AND STRATEGY

3.1 Regional Development Objectives

3.1.1 Problem structure of Central Luzon

(1) Problem structure analysis

Central Luzon faces various problems which combined would work as constraints to further development. Many of these problems are inter-related through complexity of cause-effect relationships. A problem structure analysis is a method to clarify these inter-relationships in a macroscopic way. The analysis would allow to maintain a broad perspective without getting into details to identify more important factors and more essential problems to be alleviated through planned development efforts.

A problem structure analysis has been conducted for Central Luzon. First, issues and problems were enumerated based on the analysis on existing conditions by sector during Phase I of the Study. More issues and problems were taken from the social reconnaissance survey conducted by the cooperation of NGOs. Some problems were combined into broader problems, less important problems eliminated, and causal relationships among more important problems analyzed. Results are shown in Figure 3.1.

(2) Critical problems

As shown in Figure 3.1, the problems facing Central Luzon may be collectively summarized as follows:

- (1) lack of capital accumulation due to income leakage and low income that constrains the expansion of productive activities by small and big entrepreneurs, farmers and fish folks,
- (2) widespread poverty in upland, lowland and coastal areas as well as resettlement areas, and
- (3) degrading health and moral conditions particularly of people marginalized by socio-political structure and calamities, including landless farmers, fishfolks and upland people.

More specifically, critical problems from the perspective of local communities and people are identified as follows. Each problem is related to a varying degree to economic, social and environmental aspects as shown.

<u>Critical Problems</u>	<u>Aspect more strongly related</u>		
	<u>Economic</u>	<u>Social</u>	<u>Environmental</u>
Low income from agriculture	*	*	
Insufficient employment and income generation by industry	*	*	
Degrading coastal and marine resources and environment	*		*
Degradation of upland communities and environment		*	*
Limited or unstable livelihood opportunities for calamity victims	*	*	

A number of factors are behind these critical problems and intertwined. These factors in turn may be traced back to two fundamental problems: (1) insufficient or inconsistent supports at different government levels, and (2) regional economic structure lacking active linkages between agriculture and industry, production and services, and traditional and modern economies. The latter itself is the problem to be addressed by planned development efforts. The former problem has an added dimension due to the enactment of the 1991 LGC. Derived problems include the unclear division of responsibilities between the Central Government and LGUs, insufficient development planning and management capabilities of LGUs, and lack of adequate participation by local communities and people in decision-making processes related to development.

These institutional problems related to "how" to plan and implement the development are behind many of the substantive problems observed in the region and shown in the problem structure. The problem structure analysis here deals with substantive problems related to "what" to plan and develop.

(3) Problem interactions

Several problems facing agriculture in Central Luzon are related more directly to government supports or rather lack of them. They include inequitable land tenure situations, insufficient post harvest facilities, insufficient irrigation and drainage facilities, and constriction of formal financial system.

The inequitable land tenure has two aspects. On the one hand, there exist many landless farmers, and land tenure is often insecure. This works against investments into land productivity improvements, resulting in less diversified agriculture as observed at present. On the other hand, large land owners are more prone to dependence on chemical agriculture, and absentee landholders are more amenable to conversion of agricultural lands to urban/industrial uses.

The insufficient post harvest facilities apply to both traditional and non-traditional crops. Existing post harvest facilities in Central Luzon are largely privately-owned. Government

facilities owned by the National Food Authority (NFA) absorb 18% of rice production and process 8%. Dominance of rice market by traders/usurers tend to lead to suppressed prices. There are no trading centers for non-grain crops such as fruits and vegetables.

Some farmers face the risk of losing their farmlands by default to usurers, furthering the inequitable land tenure situations. The lack of incentives and established markets for most non-traditional crops and the dominance of rice monoculture make the bargaining position of farmers weak against traders.

Fertilizer application and the use of certified seed are still low in Central Luzon. Constriction of formal financial system is a factor for this together with low income, low credit-worthiness especially of landless farmers, and insufficient extension.

All of these factors contribute to the low agricultural productivity. Combined with suppressed prices, low income from agriculture prevails for majority of farmers.

The constriction of formal financial system constrains also the industrial development. Another constraint is pointed out as inadequate education curricula, represented by emphasis on obtaining employment rather than developing entrepreneurship, lack of links with career needs, and insufficient value education. Lack of emphasis on importance of agriculture is also pointed out as another case of inadequate curricula. These factors are linked to the difficulty in capital raising and technology upgrading particularly by SMEs.

The lack of capital accumulation, a fundamental problem, and the underdeveloped domestic markets for non-consumer goods industry cause dependence on foreign capitals and export markets. Limited linkages between agriculture and industry due mainly to the less diversified agriculture as outlined above, limited inducement of local economies by foreign invested industries, and the difficulties faced by SMEs are accountable for insufficient employment and income generation by industry.

Forest denudation has proceeded rapidly in Central Luzon due to extensive logging, illegal cutting of trees for fuelwood, and upland farming as well as kaingin practice. The inequitable land tenure situations and the widespread poverty have not a long way to contribute to this as well. The forest denudation and the dependence on chemical agriculture have caused soil erosion and degradation, which in turn tend to reduce the agricultural productivity.

Pollution from industrial and household wastes and wastewater, and soil erosion contribute to the degrading coastal and marine resources and environment as well as illegal fishing. Together with destruction of mangroves for large fishponds and enclosure of fishing grounds, livelihood of fishfolks has been undermined.

The forest denudation has led also to the degradation of upland communities and environment. The recent eruption of Mt. Pinatubo and the continuing lahar hazard have only aggravated the situation. Including victims of habitual typhoons and floods as well as the Mt. Pinatubo derived disasters, limited or unstable livelihood opportunities for calamity victims constitute another major problem area. Insufficient social services and support infrastructure are at the root of these problems for marginalized people.

3.1.2 Development objectives for Central Luzon

The problem structure analysis in the previous section has clarified main problems that local people and communities face at the grassroots level. They are (1) low income from agriculture, (2) insufficient employment and income generation by industry, (3) degrading coastal and marine resources and environment, (4) degradation of upland communities and environment, and (5) limited or unstable livelihood opportunities for calamity victims. Each of these problems has economic, social and environmental dimensions to a different degree.

Low income from agriculture and insufficient employment and income generation by industry are more directly linked to the poverty, which is a social and economic issue. Degrading coastal and marine resources and environment constitute one of most serious environmental problems, which undermines the livelihood of fishfolks. Degradation of upland communities and environment refers particularly to Aeta issues. Limited or unstable livelihood opportunities for calamity victims have more serious implications for those evacuated and resettled by the Mt. Pinatubo derived disasters.

The CLDP paradigm also has the three broad dimensions:

- (1) economic efficiency for international competitiveness,
- (2) social development or people/community-based development, and
- (3) environmental management to ensure growth within environmental or resource capacity.

Development objectives for the Central Luzon regional development would have to address collectively these economic, social and environmental issues, and provide for both enhancing livelihood of people at the grassroots level and attaining the balance between these three aspects envisioned by the CLDP paradigm.

First, economic growth is necessary. As long as the Philippines continues to take open policy as she should, the lack of growth would mean subordination to foreign capitals and control. To grow within the increasingly more competitive and globalizing economies, the Country would have to establish industrial and trade niches of her own. Such niches should be manifestation of what the people and the Country have collectively.

The first objective related more directly to the economic aspect may thus be expressed as follows.

- (1) To contribute to the establishment of industrial and trade niches of the Philippines within the globalizing economies based on traditional value and available resources.

Second, fruits of economic growth should be enjoyed by the people in a more equitable way. This is the issue of distribution. The best distribution would be expected when the people become actors of distribution as well as production processes rather than staying at the receiving end of wealth distributed by someone else.

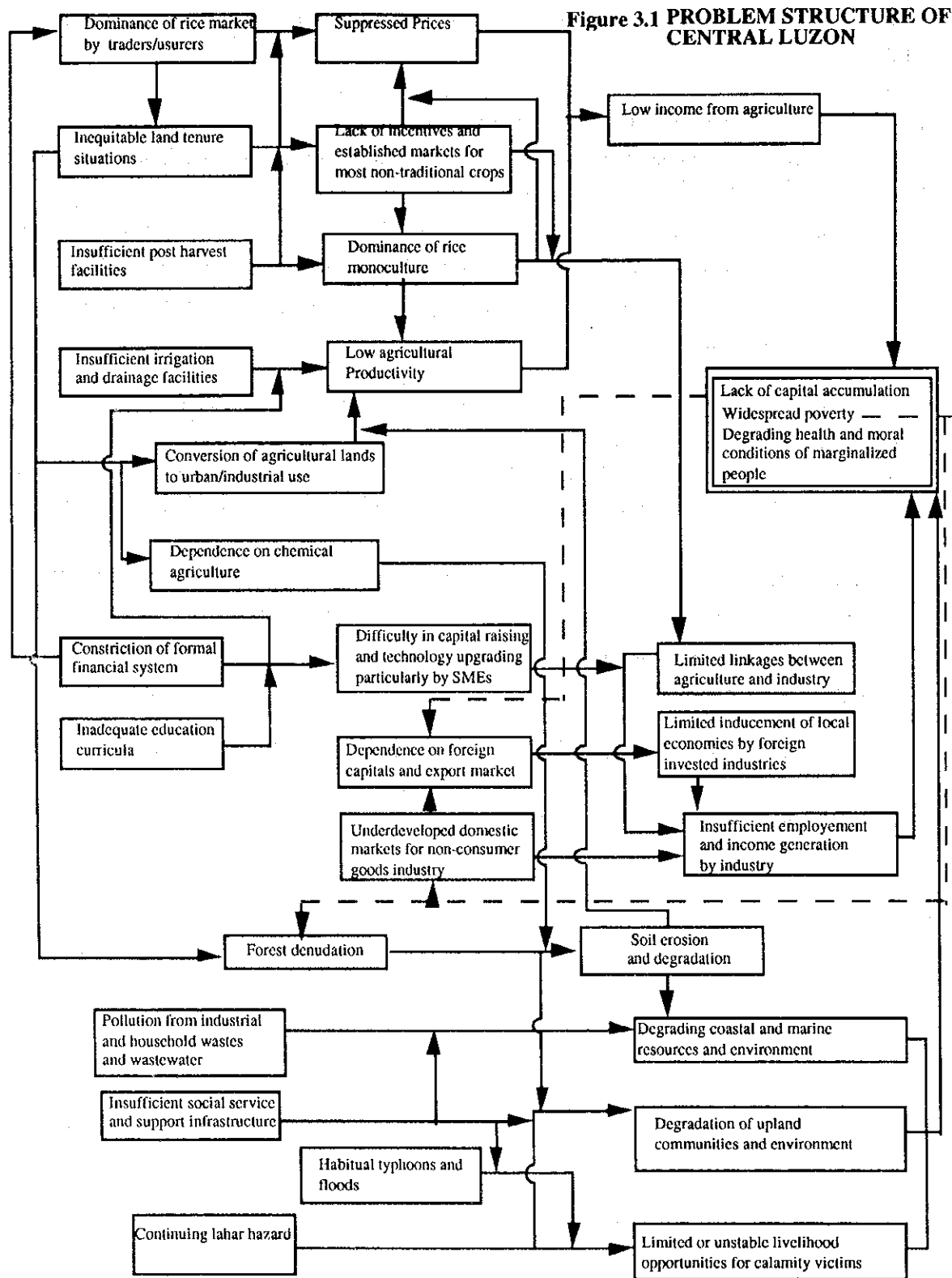
The second objective representing the social aspect may, therefore, be established as follows.

- (2) To empower people through eradication of widespread poverty, provision for the basic human needs, and assurance of access to a wide range of opportunities.

Third, the growth would have to be within environmental or resource capacity so that the growth today would not jeopardize continued growth thereafter. This is the basic condition for sustainable development and inter-generation equity. It is to be noted also that environmental capacity can be augmented.

The third objective expressing the environmental concern may be stated as follows.

- (3) To protect, create and restore the environment of sufficient diversity to support various socio-economic activities on a sustainable basis.



3.2 Objectives and Strategy for Economic Development

3.2.1 Agriculture

(1) Constraints to agricultural development in Central Luzon

Natural constraints

Water availability and soil conditions are generally favourable for agricultural development in Central Luzon. To attain higher productivity, however, water needs to be regulated for irrigation and drainage as well as flood control, and extensive land area requires proper soil fertility and conservation management.

The eruption of Mt. Pinatubo damaged 13,600 ha of agricultural lands. While some affected paddy fields may be converted for other crops, other areas may be useless for some time. Also occasional typhoons, like those hit the region in 1993, not only damage crops but also tend to prevent farmers to make sizable investments into new crops and technology.

Low input utilization

Given the soil conditions, fertilizer application is a key to increasing productivity. Fertilizer application and use of certified seed are still low in Central Luzon due to low income and insufficient credit and extension. Only about 80% of the irrigated and 69% of the rained paddies utilize fertilizer, and the application level is less than half of the recommended level. Of rice farmers, 13.5% use certified seed, and 45% mixed seed.

Inadequate management of irrigation

Despite the relatively high percentage of irrigation development in Central Luzon, many irrigation service areas are not actually served completely. The ratio of irrigated area to service area for the last five years was 58% and 67% for dry and wet seasons, respectively.

Constraints in marketing

Existing warehouses can absorb only 18% of the total paddy production, and rice milling capacities can process only 8% of the total rice consumption in Central Luzon. These conditions reduce marketable value both through high post-harvest losses and low sales prices.

Market information is insufficient to allow farmers timely procurement of input and marketing of products at reasonable prices. In addition, there are no trading centers for non-grain crops such as fruits and vegetables.

Constraints to livestock development

Lack of supports particularly for the dominant backyard raising constrains the livestock development in Central Luzon. This shows in deteriorating breeds due to lack of breeding stations and high cost pure stocks, poorly maintained artificial insemination centers and insufficient extension for technology upgrading including feeding technology.

Constraints to forestry

Central Luzon's forest cover of 12.5% is well below the ideal 40:60 ratio of forest land versus alienable and disposable lands. Deforestation continued at average 7,000 ha annually from 1987 to 1991. In 1990, 270 km² of forests are reported under kaingin (slash and burn cultivation), and 2,700 km² were destroyed by forest fire. Weakness of the government law enforcement capabilities and insufficient technical and financial supports under the existing programs continue to constrain the forestry sector.

Constraints to fishery

Constraints to fishery in Central Luzon, as most other regions, are listed as follows.

- Competition and conflicts between small-scale (municipal) and commercial-scale fishermen for declining fisheries resources;
- Resource degradation due to destructive harvesting methods (ex. blast or chemical fishing);
- Inadequate enforcement of law;
- Siltation and pollution due to deforestation in upland areas, discharge of wastewater and waste dumping;
- Poor post-harvest infrastructure; and
- Tariff and trade disincentives.

(2) Objectives for agricultural development

The goal of agricultural development is to improve quality of life and human populace. For this, objectives for agricultural development in Central Luzon are established in line with the regional development objectives, representing economic, social and environmental aspects. The economic aspect has an added dimension due to a Central Luzon's position as a rice bowl of the Country.

- 1) To increase paddy production to maintain at least 100% self-sufficiency and contribute as much as possible to other regions' requirements;
- 2) To improve income of farmers, fishfolks and rural laborers by enhancing agricultural and fishery productivity and expanding raw materials base for simple processing in rural areas;
- 3) To generate sufficient employment opportunities in rural areas to minimize out-migration and social disruption; and

4) To contribute to the diversification of region's economy and biosphere.

(3) Strategy for agricultural development

Enhancement of land productivity

Despite the generally favourable land and water resources endowment, agriculture in Central Luzon is characterized by low productivity and dominance of rice monoculture as outlined in Section 3.1. Agricultural productivity may be enhanced through crop diversification in favour of high value-added crops and those for export and processing within the region.

To diversify crops without sacrificing paddy production, mixed farming and integrated farming should be expanded in lowland and in upland. Mixed farming would combine paddy and vegetable/pulses such as tomato, onion, eggplant, squash and okra as well as mungbean. Some high value crops may be exported in a chilled form such as asparagus and leafy vegetables. Soybean and peanut can also be combined with rice for mixed farming.

More promising crops for multi-storey farming include coffee, cacao and cashew as well as mango and banana. Vegetables and corn may also be combined. Some crops can be combined with livestock, poultry or fishery for integrated farming.

Paddy production should be increased also by extending irrigation and introducing double cropping under irrigation, where applicable. Fertilizer application needs to be increased in favour of organic fertilizer, and distribution of certified seed expanded especially where irrigation is provided.

Organization of farmers holds a key for most of these activities. Agro-processing of diversified crops can provide most reliable market outlet, but for this option to benefit farmers, they would have to be organized. Organized farmers can obtain better terms under contract farming with processing enterprises, or they can even own some processing facilities through cooperatives.

Promotion of sustainable agriculture

Agricultural practices should be seen as part of land and water resources management, and sustainable agriculture should be pursued such as agro-forestry and organic agriculture.

In particular, damages by the Mt. Pinatubo eruption and subsequent lahar should be taken as presenting opportunities for wide application of organic agriculture. Natural regeneration of productive capacity of damaged lands can be accelerated by application of organic agriculture.

Effective utilization of primary products

Post harvest losses are quite high for most industrial crops. This in part is due to the lack of established market for non-traditional crops. Even for paddy, products are not fully utilized

such as rice husk and bran, and inadequate storage and processing facilities tend to reduce marketable value of this prime crop.

Effective utilization of primary products would involve strengthening of marketing systems including production linkages. For instance, in addition to cashew kernel which is a high value nut, cashew shell can be used to extract industrial oil having a wide range of use. Cashew fruit (or apple) may be used to produce wine and vinegar. Rice bran can be used to extract edible oil or as a raw material for cosmetics. Rice husk can provide supplemental fuel for various uses including power generation.

Farmers themselves would better participate in post-harvest operation and marketing of their products. Cooperatives would be instrumental for collective ownership of storage, processing and marketing facilities.

Livestock industry improvement

Livestock in Central Luzon has much room for expansion due to the rapidly growing demand for meat and dairy products in Metro Manila and urban centers in the region, and agro-ecological conditions suitable for managed pasture and feed production. Central Luzon is already rich in agricultural by-products that can be used for feed such as cassava leaves and chips, rice bran, and sugarcane tops as well as corn. Central Luzon also has extensive grasslands/shrublands which can be used for feed production, managed pasture and grazing.

At present, cattle raising is confined largely to fattening of imported calves without breeding, and carabao and goat raising suffers from lack of supports. The dominant backyard livestock raising should be supported for integrated farming through expansion of feed base, establishment of breeding stations, improvement of artificial insemination centers and extension for the state-of-art technology. Dairy operations should be expanded.

Agrarian reform

The agrarian reform would be most effective as a redistributive mechanism of production resources to the landless and marginalized farmers. It would improve the credit-worthiness of individual farmers and provide incentives for them to invest into their lands to enhance agricultural productivity. Its implementation should be accelerated with a broader coverage for land transfer.

The agrarian reform may also result in lower production efficiency through segmentation of large farms and plantations. Cooperatives have important roles to play in this area as well for joint procurement of input, operation of farm lands and marketing of products. To complement the constriction of formal financial system, an alternative rural financial system needs to be developed based also on cooperatives to meet financial requirements of farmers after the agrarian reform.

Fishery rationalization

Fishery will continue to be a small but important part of economy in Central Luzon for both income earning and nutrition. It suffers at present from degradation of coastal and marine environment and indiscriminate fishing by both small fishermen and commercial operators. Rationalization is necessary to restore sound fishery through the following:

- 1) protection/enhancement of fishery resources in Manila Bay and China sea coastal zones based on comprehensive resources assessment,
- 2) restoration of coastal and Manila Bay environment, and
- 3) adoption of appropriate technologies for both inland and captive fishery.

Fishery in Central Luzon should be oriented to more domestic markets. This would prevent exploitable fishing methods, make traditional fishing methods viable with improvements and support facilities, and help to protect/restore coastal and marine environment.

(4) Policy directions for agricultural development

General

In line with the Medium-Term Philippine Development Plan (1993-98), many government agencies have adopted the people-oriented and community-based approach to regional and rural development and been implementing various programs. These efforts themselves are valuable. What seems lacking, however, is clear and concrete presentation of rural and agricultural policies of the National Government as a whole. Roles of each agency should be clearly defined under such policies to avoid duplication of efforts which seem to be ubiquitous at present.

Research and extension

The last reorganization of the Department of Agriculture (DA) and the implementation of the 1991 Local government Code (LGC) created some setback in the delivery of services. Agricultural technicians became generalists in the field after the last DA reorganization. After the implementation of the 1991 LGC, the supervision for these technicians were transferred to the local governments. The primary concern of the Bureau of Agricultural Research are to develop agricultural technologies and to establish a working linkage between research and extension. The National Government through DA shall support the proliferation of site specific researchers by strengthening the capability of field research stations devolved to Local Government Units (LGUs) and the local technicians.

Credit

Philippine policies on rural finance in the past two decades were characterized mainly by the liberal provision of subsidized credit by government agencies and the implementation of selective credit policies. Various regulatory and targeting mechanisms were used to induce

the flow of credit to the rural sector. These policies adversely affected the rural financial system and the welfare of the small farmers in several ways.

The Government is now taking a new stance by shifting from the subsidized credit policy and gradually moving towards its present policy of interest rate liberalization. The new framework for rural credit policy now contains the following basic elements:

- a greater role for the market mechanism in the allocation of financial resources,
- the termination of direct lending activities of non-financial government institutions, and
- increased private participation.

Post-harvest and marketing

Increase in yield is not only viewed in the context of improving production technology but reduction of post-harvest losses as well. Under this policy, NAPHIRE shall undertake an assessment of the availability and adequacy of post-harvest facilities to create benchmark data which will be the basis of a comprehensive plan for post-harvest development of grains.

The Government envisions the increased participation of the private sector in the marketing of agricultural products. This shall be promoted through increase in infrastructure such as roads and corresponding transport facilities, communication and trading centers. For small farmers to compete, cooperative development shall be strengthened.

3.2.2 Industry

(1) International context of industrial development

Economic area integration

Globalization of the economy is a logical outcome of efficient capital investment by multi-nationals, which operate in a borderless and self-multiplying manner. This promotes common markets as represented by recent formation of the European Union (EU), the North American Free Trade Area (NAFTA) and the ASEAN Free Trade Area (AFTA).

AFTA has a strategic meaning, if the Philippines is to continue her "open policy". Once fully established in 2008, AFTA would give the Philippines access to a much larger common market. The Country would benefit from the investment boom in the ASEAN countries and the safety net it would provide, improving over-dependence on two major markets of USA and Japan.

Subregional alliances

Strategic subregional alliances have been leading a borderless economy among the Southeast Asian nations such as Hongkong-Guangdong and Taiwan-Fujian. This is a growth strategy

to pursue an optimum allotment of development resources among member subregions: e.g. Hong Kong providing capital and technology and Guangdong offering land and labour.

The Philippines has an advantage for subregional alliance formation. It is strategically located in relation to other ASEAN or Southeast Asian countries, and can offer rich human and natural resources.

(2) Vision of industrial development in Central Luzon

Central Luzon can seek a subregional alliance of "Growth Quadrangle" linked with Taiwan, Hongkong and South China. This is natural since Taiwan after 1997 would need an alternative conduit for flow of goods, capital, human and information to/from China.

Further, Central Luzon is envisioned to become an industrial heartland in Asia-Pacific by the maximum use of its resources for both transshipment hub functions and industrial/urban functions. Transshipment hub functions will be supported by international free seaport and airport (Subic Bay, Clark Field), free banking system, and reasonable business cost including low income tax and other incentives. Industrial/urban functions will be supported by proximity to domestic mass market and information center of Metro Manila, agglomeration of diversified industries/manufacturing, availability of rich human resources/manpower, good residential environments including amenity and entertainment, and peace and order.

For transshipment hub functions, combined use of port and airports at Subic and Clark would allow the development of high value export commodities industries having relatively high air transport ratio in total foreign trade. The high ratio industries, over 40% in Japan's foreign trade by commodity, comprise precious metal/goods, aircraft, furskins or leather products, pharmaceuticals, special transactions such as consigned works of electronic device, and precision instruments, categorically called "Gram Industry". "Kilogram Industry" is also a good user of air transport such as electric and electronic equipment, wearing apparel, some quality textiles and ceramics, organic chemicals and toys. These are prospective locators in Central Luzon.

For industrial/urban functions, proximity to domestic mass market and information center of Metro Manila strongly supports Central Luzon to become an industrial heartland. Existing agglomeration of industries in Central Luzon is already well diversified, such as food processing, garments, furniture, leather goods, jewelry, metal processing and semiconductors. These are conducive to active international business activities.

(3) Objectives of industrial development in Central Luzon

Objectives of industrial development in Central Luzon are established in line with its vision as an industrial heartland.

- 1) To establish industrial niches within the globalizing economies with free trade zones and other supportive facilities and functions, using Central Luzon's locational advantages, existing agglomeration of various industries and indigenous resources;
- 2) To promote agro-industrial rural (rural urban) communities through localization of the economy with strengthened linkages between agriculture and industry; and
- 3) To contribute to the improvement of human environment through minimization of pollution loads to natural environment and provision of improved physical environment.

(4) Spatial strategy for industrial development

International strategic alliances

A recent development in the globalization process is for foreign direct investment to be devoted to exclusive industrial land development for the origin country's firms. The agreement between SBMA and the Taiwanese government is a case in point. Further linkages with Hongkong and South China should be sought to establish "Growth Quadrangle". Strengthened linkages with other ASEAN countries, USA, Japan and Australia would lead to the formation of an industrial heartland in Central Luzon.

Inter-regional strategy

Central Luzon's industrial development should take advantage of spill over from Metro Manila. This momentum should be effectively combined with potentials of existing industrial/trade anchors to form the Metro Manila-Subic-Clark (MSC) Triad. Metro Manila's transshipment functions would be shouldered in steps by the Subic Bay and the Clark Field, while Metro Manila would specialize in higher order urban functions.

Linkages with Northern Luzon will continue to be important. Primary products from Northern Luzon would be processed increasingly more within Central Luzon rather than Central Luzon serving mainly as an inter-regional distribution center supplying and selling for Metro Manila.

Intra-regional strategy

Existing and planned/proposed industrial estates concentrate in the area along the Manila North Road and the North Luzon Expressway (Figure 3.2). In the short to medium term, industrial land demand will be satisfied by these existing and planned/proposed estates with an aggregate area of some 2,000 ha. Additional industrial lands should be developed to integrate provinces in Central Luzon and to link Northern Luzon more directly and strongly

with Subic-Clark rather than Metro Manila. In particular, they should be allocated more to Tarlac and Nueva Ecija.

Aside from industrial estates, factories in areas of industrial agglomeration especially in Bulacan will face shortages of land for expansion. In these areas, land development should be strategically implemented along with urban renewal and industry modernization.

(5) Sector strategy for industrial development

In line with the agro-industrialization and formation of an industrial heartland, industrial development in Central Luzon should be pursued along with the following:

- Open policy-based development toward globalization,
- People-oriented and indigenous resource-based development toward localization, and
- Global-local (glocal) mix-oriented development.

Country- and product-specific export strategy

The Medium-Term Philippine Export Development Plan sets priority products and target markets. Priority products consist of (1) agro- and resources-based products -- carrageenan and seaweed, shrimps and prawns, processed tropical fruits and marble, (2) consumer products -- garments, furniture, gifts and housewares, ceramics and jewelry, and (3) industrial products -- electronic products, metal components and parts, and computer software. These "export winners" are mostly the main export industries in Central Luzon. In addition, leather and leather goods industry is promising.

Indigenous resource expansion

Agro-processing industries are currently constrained by availability and procurement of raw materials. Expansion of indigenous resources is an important strategy, such as various industrial crops, livestock, rattan and bamboo. Agricultural wastes and by-products constitute another kind of indigenous resources. Resource recycling or ecological manufacturing should also be pursued.

Creation of domestic markets

Tourism development would provide an effective market outlet for a variety of agro-products and handicrafts -- Central Luzon's specialties. Use of agro-products as input to other industries is another effective way to create domestic markets, such as cashew oil for leather goods and furniture industries and rice bran oil for cosmetics.

Specialization and subcontracting

Development of inter-industry linkages would reduce the dependence on imported raw and intermediate materials. Import dependence ratio is over 50% in wearing apparel and

footwear, leather and leather products, electrical machinery and transport equipment according to the input-output relation of the Philippines (Table 3.1). These industries are target areas of new investment and subcontracting for raw materials, parts and components.

Specialization and subcontracting provide a strategic solution for high productivity. Central Luzon's manufacturing, especially SMEs tend to internalize all functions and processes of production. Subcontracting and externalizing such functions as transportation and business services would lead not only to cost reduction but also to the formation of integrated industrial clusters. This strategy is applicable particularly to garments, gift-toy-houseware (GTH), furniture, leather goods and metal craft.

Priority development of SME's

SMEs, including micro and cottage industries, provide sources of livelihood, large number of employment opportunities, subcontractors, main actors of industrial clusters, and platforms of spin-off ventures. This is a vital element of industrial strategy.

Effective institution-building

Establishment of industrial associations by SMEs' specified groups would contribute to strengthening their capability to solve common problems. Cooperatives are instruments to promote equity, social justice and people's empowerment for economic development. Cooperatives are granted with a wide range of privileges and have their own distribution systems, which would be conducive particularly to supporting agro-industries. Enhancement of cooperative activities would help also to clarify monopoly or market control that hinders the growth of SMEs. NGOs are active in assisting SMEs for raw materials procurement, marketing and rural/livelihood development.

(6) Strengthening of existing policy measures

Existing policy measures for industrial development are quite comprehensive and well accommodated. They cover (1) product design and quality development, (2) technology development and transfer, (3) manpower and entrepreneurship development, (4) marketing and subcontracting, (5) raw materials procurement and bulk buying, (6) institution - building and facility modernization, (7) financing, (8) investment incentives and promotion, and (9) foreign assistance. Increasing emphasis seems to be placed on support measures for SMEs. These measures should be further strengthened/streamlined toward "strong SMEs" and the formation of an "industrial heartland".

Spatial strategy related measures

Three broad measures support the international strategic alliances: (1) exclusive industrial land development, (2) strengthening of Special Economic and Freeport Zone (SEFZ) functions, and (3) expansion of Special Economic Zone (SEZ). The inter-regional strategy is

supported by (4) industrial estate (IE) development in Bulacan, and the intra-regional strategy by (5) industrial land development in Tarlac and Nueva Ecija in line with an intra-regional artery, and (6) urban renewal and industrial modernization.

1) Exclusive industrial land development

Arrangements similar to those between SBMA and Taiwan should be worked out for exclusive industrial land development to accommodate enterprises from Japan, USA., Korea, Hongkong, Australia, and ASEAN countries, respectively.

2) Strengthening of SEFZ functions

The Special Economic and Freeport Zone (SEFZ) is independent from the customs territory but subject to the customs law. If SEFZ is not subject to the customs law, SEFZ enterprises can import regulated or quota commodities for storing and selling responding to changes in international markets.

A "tax shelter" functions of SEFZ with 5% tax on gross income is attractive, but enterprises accounting is subject to the ordinary complicated system. Replacement of income tax by transaction tax would contribute to the simplification of accounting and cost reduction. This transaction tax would be supported by a computer real-time network that comprises shipping and cargo information system, point of sale (POS) system and the like.

3) Expansion of SEZ

Expansion of the Special Economic Zone (SEZ) or Ecozone is under examination at the House of Representatives Committee on economic affairs. Two ways are considered to streamline the SEZ system. One is to permit SEZ functions to export factories rather than to zones or areas. The other is to allow new SEZs only in areas other than Luzon. In addition, bonded manufacturing is expected to be expanded to some export industry's clustered areas in Bulacan and Pampanga on the conditions of strict self-customs management by factories and bonded transportation.

4) IE development in Bulacan

In the medium to long term, existing industrial estates in Bulacan will be filled up and there is no plan for IE development. To capture spill over from Metro Manila, new IE development is necessary.

5) Industrial land development along intra-regional artery

Expansion of existing IEs and new IE development in Tarlac and Nueva Ecija should be considered in relation to a future road network, which would integrate Central Luzon and strengthen links with Northern Luzon.

6) Urban renewal and industrial modernization

Industrial modernization should be realized together with urban renewal of highly urbanized areas. Meycauyan is a viable candidate with clustered industries centering on jewelry and leather goods. Other SMEs in Bulacan will be another focus.

Sector strategy related measures

In line with the sector strategy for industrial development, existing policies should be strengthened in the following 10 areas.

1) Orientation to markets of less developed countries

The Medium - Term Philippine Export Development Plan adopts the country- and product - specific strategy aiming only at advanced countries. For most SMEs, less developed countries offer markets for their goods of ordinary quality and technology. Multi-facet export promotion aiming at both kinds of markets would be effective.

2) Indigenous resource expansion

To expand raw materials base for furniture industry, the following actions should be taken:

- Coordinate with DENR to get priority access to confiscated lumber.
- Create a Task Force to inspect and certify items for export which are declared as finished wooden products.
- Request exemption of imported raw materials from SGS inspection.
- Coordinate with DOST (PCARD & FRRDI) on dissemination of information on the use of alternative furniture materials or wood species.
- Continue to liaise with PWPA on industry requirement for rattan and lumber.
- Study viability of rattan plantation operations and promote the development of plantations for alternative wood species.
- Undertake reforestation projects with PWPA and other agencies or associations.
- Implement immediately the bulk-buying scheme (Manila, Cebu, Pampanga).

Development of livestock industry is a prerequisite for expanding leather and leather goods industry. For this, farm mechanization should be promoted along with deregulation of ban on young carabao's use for leather, and cattle production

increased by expanding feed base, breeding, artificial insemination and other support measures.

3) Development of resource recycling industry

DOST is active in R & D for wastes utilization. To encourage resource recycling industry, the following should be undertaken.

- Grant BOI incentives to resource recycling industries.
- Conduct a survey to identify the volume and distribution of wastes and to develop optimum collection system.
- Make a model of recycling industry complex with closed forward and backward linkages.

4) Linkages with tourism

Handicraft, wood carving, pottery, and some GTH products are suitable for factory tours. Jewelry making would also attract tourists by providing a window laboratory and jewelry products at reasonable prices. The planned jewelry center in Meycauayan is expected to serve for this purpose.

5) Support measures for accreditation of ISO9000 and PNS

Despite the on-going campaign by DTI-III for ISO9000 accreditation, there exists no significant support measure, except duty-free equipment import or tax credit to projects classified into the Modernization and Rehabilitation Program. An accelerated depreciation is expected to be introduced to give incentives for manufacturers to make additional investment necessary for the accreditation.

6) Expansion of regional testing and R & D functions

The Metal Industry Research and Development Center has a plan to establish a Regional Service Centers (RSCs) for SMEs. RSCs are envisioned to have the following functions:

- Consultancy for problem-solving of production and process engineering,
- Training for technical and craft-level skills,
- Facilities sharing for product development,
- Testing and quality control for metal products and processes,
- Relevant applied research, and
- Technology incubator function, where all the above functions are directed to nurture small potential enterprises until they can productively utilized that particular technology (on a larger frame).

Central Luzon's RSC is to be established targeted at heat treatment, tool and die, and forging. In line with the devolution, some functions of RSC may be shouldered by provincial or city government such as consultancy for problem-solving, training for technical and craft-level skills, testing and quality control.

7) Manpower training

A mismatch between training programs and needs of industry must be corrected. One way may be to coordinate and integrate duplicated training into one with upgraded component, and thereby to satisfy needs of manufacturers. Another way is to assist on-the-job training. SMEs can apply for BOI incentives which allow an additional deduction for labour expenses. A direct subsidy may be more effective for on-the-job training.

8) Strategic subcontract financing

The Taiwanese government introduced the Center - Satellite (C-S) Factory System to the Philippines. An idea is to assist SMEs through loans and technical assistance, which would link to particular types of center factories. Three types are identified for initial implementation:

	<u>Center factories</u>	<u>Satellite factories</u>
Type I	Assembly factory	Direct parts supplier
Type II	Upstream raw material supplier	Receiver of materials
Type III	Trading company or turn-key exporting company	Entrusted manufacturer

This system can be expanded toward the formation of industrial clusters of garment, furniture, GTH, jewelry, leathergoods and metal craft in Central Luzon.

9) SME support facilities

To compensate for the insufficiency of SMEs own facilities, the provision of following functions and common services should be expanded:

- Joint bulk buying of raw materials and common facilities such as storing, transportation and so on (furniture, jewelry, leather goods),
- Joint reception of orders and joint or combined selling,
- Common facilities of cutting, finishing and packaging (garments)-pursuit of economic scale merits, and wastes treatment or recycling (leather goods),
- Show room (furniture, GTH),

- Common service such as conduit finance, documentation for export, and maintenance service (garments and other industries), and
- Common facilities for the employees (health, recreation, etc.; garments).

Cooperative development of trucking and export services for SMEs would contribute to cost reduction and productivity increase. Division of works by externalizing these and other non-industrial services is a way to strengthen competitiveness of Central Luzon's manufacturing and export through inter-industry linkages.

A mutual benefit association may be encouraged to establish a common fund for low interest loans, working capital and welfare of SMEs. In Japan, members of such an association deposit money, the amount of which is deducted from taxable personal income, and can borrow money at low interest rates without collateral nor guarantor.

10) Business or industrial associations

Business cooperatives or industrial associations (IAs) are conduits or bodies for subsidy to promote SME's product development, marketing, training, working environment improvement, public finance, and special incentives for taxation. These organizations may lead, with the support of DTI- III, to formation of regional and national federations. Multi-layered IAs can shoulder roles initiated by DTI-III such as promotion/enlightened activities, manpower and entrepreneurship development, marketing, subcontract intermediation and financing for respective industries. Furthermore, an association of commerce and industry at the municipality level would be instrumental in systematically enhancing small industries or business in cooperation with LGUs.

3.2.3 Tourism and trade

(1) Constraints and prospects for tourism and trade in Central Luzon

Constraints to tourism

The following unfavorable factors constrain the tourism development in Central Luzon.

- 1) unfavourable image due to small scale and scattered tourism areas and the lack of regional promotion campaign as well as the socio-political instability;
- 2) insufficient government control to allow small scale development for quick returns often resulting in environmental degradation and enclosure type development without integration;
- 3) presence of the rainy season coinciding with the high time for tourism in East Asia, Europe and North America; and

- 4) damages to a resort image due to proposed industrial development.

Prospects for tourism

Despite the constraints listed above, Central Luzon has advantages for further developing tourism. They include the following.

- 1) recent recovery of international tourist arrivals reflecting regained political stability;
- 2) proximity to Metro Manila, which is the tourism gateway and the location of rich tourism attractions for tourists staying in Central Luzon;
- 3) proximity to the fastest growing tourism market of East Asia;
- 4) tourism resources suitable for the development of international beach resorts found in Mariveles, Bagac and Morong in Bataan, San Antonio, Cabangan, Botolan, Iba, Palauig and Masinloc in Zambales;
- 5) tourism resources suitable for cool mountain resorts to provide mainly for Metro Manila residents, including the Pantabangan dam area in Nueva Ecija, Bustos-Angat in Bulacan, and Mt. Arayat in Pampanga;
- 6) tourism potential in the Pinatubo volcano with its crater lake, museum and local handicrafts; and
- 7) presence of local industries exploitable for tourism which could serve as a market channel for various handicrafts and other goods.

Constraints to trade and related services

The following are major factors constraining trade and related service activities in Central Luzon:

- 1) decline of service industries in the former US base towns,
- 2) insufficient distribution system for small and medium sized enterprises, and
- 3) government restriction on foreign enterprises to enter into wholesale and retail trade.

Prospects for trade and related services

The major advantage of Central Luzon for trade and related services is its geographic location between resource regions of North Luzon and the large market of Metro Manila and also in relation to the rapidly expanding economies of the Asia-Pacific. Conversion of the former US bases and even the devastation by Mt. Pinatubo would present opportunities for new kind of trade and related service activities.

(2) Objectives for tourism and trade development

Tourism is a kind of linkage industries. Particularly in Central Luzon, international class resorts can be developed based on local industries, traditional value and indigenous resources. In the full spectrum of envisioned tourism development in Central Luzon, local

people would find various opportunities to participate and communicate with international community.

Trade and other services provide another kind of linking factors. Agricultural activities are linked to industrial activities through transport, finance and trade services as well as government services. Non-industrial services link between various industries.

Tourism and trade development in Central Luzon, therefore, naturally fits well with and supports the Glocalization scenario. Its objectives may be established as follows.

- 1) To provide sources of income and employment opportunities to local people in rural and urban areas;
- 2) To enlighten people through participation in various aspects of tourism and trade development and communication with a wide range of people from outside; and
- 3) To contribute to the improvement of images and environmental quality of Central Luzon.

(3) Strategy for tourism development

Market segments

Central Luzon constitutes a part of the Luzon cluster defined by the Tourism Master Plan of 1991 prepared by DOT. Within the Luzon cluster, Central Luzon tourism should aim at "high volume, low income" or mass tourism, making use of its locational advantage and relatively developed infrastructure. This applies to both international and domestic markets.

As tourism resources in the region is of "short-haul" international tourists level, prospective market segment of international tourists for Central Luzon would be budget conscious tourists from East Asia. For them, Central Luzon is one of the nearest and the least expensive tropical rural destinations.

There are numerous market opportunities targeted at recreational needs of Metro Manila residents. With the progress of urbanization, tourist facilities presenting typical rural life as attraction could come to appeal to Manileños. As income increases, various man-made attractions would become viable such as amusement parks, pool resorts and tourists farms. Due to its proximity to Metro Manila and East Asia, convention, seminar and exposition markets would also be promising.

Basic strategy for tourism development

1) Market oriented tourism

The comparative advantage of Central Luzon tourism lies in its strategic location to markets rather than its tourism resources. Following the noted categorization for

industrial development patterns, Central Luzon should aim at developing market oriented tourism rather than resource based tourism.

Tourism in Central Luzon had been heavily dependent on the two US bases for decades. Withdrawal of the bases, however, is forcing Central Luzon tourism a drastic change in its strategy. Identified new target markets are Metro Manila residents that seek for attractions within easy reach, and the international tourists from East Asia that seek for inexpensive tropical beach resorts. Tourism in the region must learn and adapt to the new potential customers.

2) Revision of spatial pattern

Spatial pattern of Central Luzon tourism must be revised in order to enforce its competitiveness to the new markets, in consideration also of the Luzon island as a whole, expansion of Metro Manila and Subic. In order to enforce its competitiveness, Central Luzon must collaborate with CALABARZON to establish a resort belt in the area, to which NAIA and the proposed Clark International Airport serve as gateways.

As Metro Manila expands, it has to locate new leisure facilities outside the city. Similarly, as SBMA reaches a new status as a business and convention center, functional assignments for SBMA and its surrounding area requires a revision.

3) Linkages between tourism and other industries

To maximize tourism impacts on regional economy, inter-industry linkages need to be strengthened. The Glocalization scenario also requires the utilization of local industries and traditions as resources for tourism objectives with global appeal.

Components of tourism development strategy

There are nine components in the tourism development strategy for Central Luzon. They are related to the basic strategy as illustrated in Figure 3.3.

- 1) Creation of man-made attractions and tourist facilities to augment and complement natural attractions;
- 2) Targeting at family market which is promising due to low transportation costs and short travel time and better security in the region than in Metro Manila;
- 3) Formulation of West Luzon resorts belt to enhance competitiveness particularly in the international market, linking with sea transport between the Ternate-Nasugbu area in CALABARZON through Ternate or Nasugbu and the western part of Bataan and Zambales through Subic;

- 4) Creation of satellite resorts from Subic with the revision of roles of Olongapo City more as a service town rather than a resort town providing convention and exposition facilities, entertainment and shopping attractions to the satellite resorts;
- 5) Intensive but physically unobtrusive development with sufficient investment in environmental infrastructure through coordinated efforts of LGUs, local communities and tourism enterprises;
- 6) Resort areas equipped with more commercial functions for shopping and entertainment for more lively resort atmospheres;
- 7) Promotion of convention tourism to tap corporate market and to reduce seasonality of tourist visits;
- 8) Introduction of tourist attractions with "tropical rural life" as the principal concept to reinforce links between tourism and agriculture/fishery;
- 9) Development of local industry-based tourism to differentiate Central Luzon from other destinations and to use tourism as a marketing channel for local products; and
- 10) Promotion of local cuisine (e.g. Pampanga cuisine) to lure out domestic tourists to Central Luzon and also to improve a very poor image of the Philippines as a gourmet destination.

Tourism cluster for Central Luzon

Tourist destinations should be integrated into tourism zones to strengthen competitive position. The Luzon cluster of tourism would have three zones: the North Luzon Mountain Circuit, Manila Bay Touring Circuit, and West Luzon Resort Belt (Figure 3.4). Central Luzon constitutes part of the Manila Bay Touring Circuit and the West Luzon Resort Belt.

The Subic Bay area is proposed as the core of the West Luzon Resort Belt. It comprises Olongapo City as a center for conventions, shopping and entertainment, and satellite resorts in San Antonio, Morong and Bagac. A jet foil service would link Looc Hacienda in CALABARZON and Subic with a short stop at Corregidor.

(4) Strategy for trade and related services

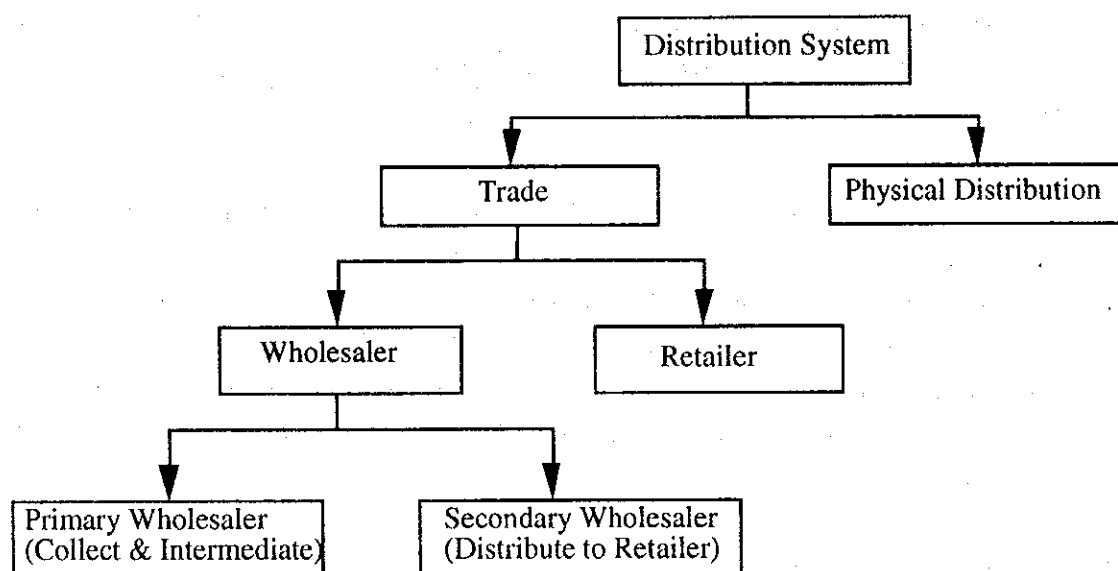
Specialization within the distribution system

The trade and transportation establishments and organizations that take part in the distribution system in Central Luzon needs more division of, and specialization in roles in the system to reduce marketing cost for the producers in the region. It is the small and medium sized establishments that need efficient distribution channels.

To increase efficiency, the distribution process needs to be divided as follows: Producer-Primary Wholesaler (collector and intermediary) -Secondary Wholesaler (distributor to retailers) - Retailer - Consumer. The process assumes the separation of retailers from

wholesalers, and primary wholesalers or primary wholesale functions that gather intermediate products from secondary wholesalers that distribute products to retailers.

Moreover, Metro Manila needs separation of physical distribution part of Manila's distribution system.



Wholesale function

The primary wholesale function is to collect products or products information and to find buyers that need the products, and to feed back market information to producers. Central Luzon has very limited capability for the function and needs to strengthen the function to market regional products more widely and internationally.

There are two types of approaches to the strategy. One is to establish integrated distributors based in Central Luzon. The distributors with transportation, warehousing, financing and primary wholesale functions, should be coordinators for production rather than wholesalers. They would feed back market information to producers and could arrange producers to provide products that market needs. The distributors should be of the private sector but DTI should help and promote the establishment of this type of regional wholesalers.

Another approach is to establish a trade center run by the public or third sector for local producers to meet potential buyers of their products. The center could be combined with the proposed convention and exposition center.

Physical distribution function

Central Luzon should undertake a part of physical distribution system of Metro Manila. The Divisoria market that is the principal wholesale center for Metro Manila and Central Luzon

does not fit for large vehicle transportation because of the limited road capacity in the city center. A few physical distribution centers located in the outskirts of Metro Manila would reduce traffic generation and as results soothe traffic congestion in the city center, improve the efficiency of the physical distribution, and promote the Divisoria market's specialization in non-physical trade.

The southern part of Bulacan is suitable for one of the physical distribution centers as it is close to the proposed intersections of the North Luzon Expressway and C-5 and C-6. The distribution center in Bulacan would work as the physical distribution center that delivers goods to the northern part of Metro Manila.

The center should have a truck terminal, a wholesale market, processing factories and warehouses. A freight depot with dry port facility for Manila North Harbor could better be combined with the center.

Transshipment between the North and Metro Manila

Central Luzon is also the meeting point of the Cagayan road and the North Luzon Expressway. This would provide an opportunity for a wholesale center that intermediates and transships products from the North to Central Luzon and Metro Manila. The proposed distribution center in Bulacan that would undertake the physical part of distribution for Metro Manila could also have the intermediary and transshipment functions.

Commercial function in resort areas

This strategy aims to develop retail trade and various services including restaurants and entertainment together with tourism development, as already described for tourism development.

Table 3.1 Import-Dependence Ratio in the Philippines in 1998

	(A) Output Value	(B) Export	(C) Total Inputs (Cost)	(D) Imported Inputs	(A/B) Export Ratio (%)	(D/C) Import Depen- dence Ratio (%)	(B - D) Export Import Balance
(in billion pesos)							
TOTAL	1,475.9	226.4	699.7	152.6	15.3	21.8	73.8
Primary Sector	229.9	16.6	59.1	6.6	7.2	11.2	10.0
Agriculture	171.6	6.1	45.5	5.6	3.5	12.2	0.5
Fishery	40.0	10.5	9.9	0.8	26.1	8.1	9.7
Forestry & logging	18.3	0.1	3.7	0.3	0.4	7.2	-0.2
Secondary Sector	725.3	122.3	472.2	120.9	16.9	25.6	1.5
Mining	29.6	16.6	11.8	3.8	56.1	32.3	12.8
Construction, electricity, etc.	114.6	0.4	53.1	8.2	0.4	15.4	-7.8
Manufacturing	581.1	105.3	407.3	108.9	18.1	26.7	-3.6
Food manufacturing	251.0	26.7	170.1	12.0	10.6	7.0	14.7
Beverage industries	21.0	0.3	11.1	0.5	1.4	4.9	-0.2
Tobacco manufactures	18.2	0.5	11.4	3.0	2.6	26.7	-2.6
Textiles, textile goods	24.2	9.9	18.2	6.9	41.1	38.1	3.0
Wearing apparel and footwear	25.2	16.5	19.0	10.7	65.2	56.6	5.7
Leather and leather products	0.6	0.1	0.3	0.2	16.5	61.8	-0.1
Wood and cork products	18.3	5.7	15.0	0.5	31.0	3.7	5.1
Furniture & fixtures	7.5	3.0	4.4	0.2	40.3	3.6	2.9
Paper and paper products	10.6	0.7	6.5	2.6	6.8	39.3	-1.8
Publishing & printing	6.8	0.3	5.1	1.2	4.3	23.8	-0.9
Rubber products	7.7	1.6	5.7	2.2	20.6	38.3	-0.6
Chemical and chemical products	41.9	5.9	29.1	13.4	14.2	46.1	-7.5
Petroleum refineries	50.9	3.7	37.6	24.7	7.3	65.8	-21.0
Non-metallic mineral products	12.3	0.5	8.0	1.1	4.4	14.3	-0.6
Basic metal industries	24.8	5.9	25.3	8.0	23.6	31.6	-2.1
Fabricated metal products	12.2	0.5	7.6	2.6	4.3	34.7	-2.1
Machinery exc. electrical	2.5	1.0	1.7	0.6	38.7	35.2	0.3
Electrical machinery	29.4	17.8	22.2	13.9	60.4	62.7	3.8
Transport equipment	6.9	0.8	5.7	3.8	12.1	65.7	-2.9
Miscellaneous manufactures	8.9	3.8	3.2	0.6	42.8	17.3	3.2
Tertiary Sector	520.6	87.5	168.5	25.1	16.8	14.9	62.4

Source: 1988 I/O Table

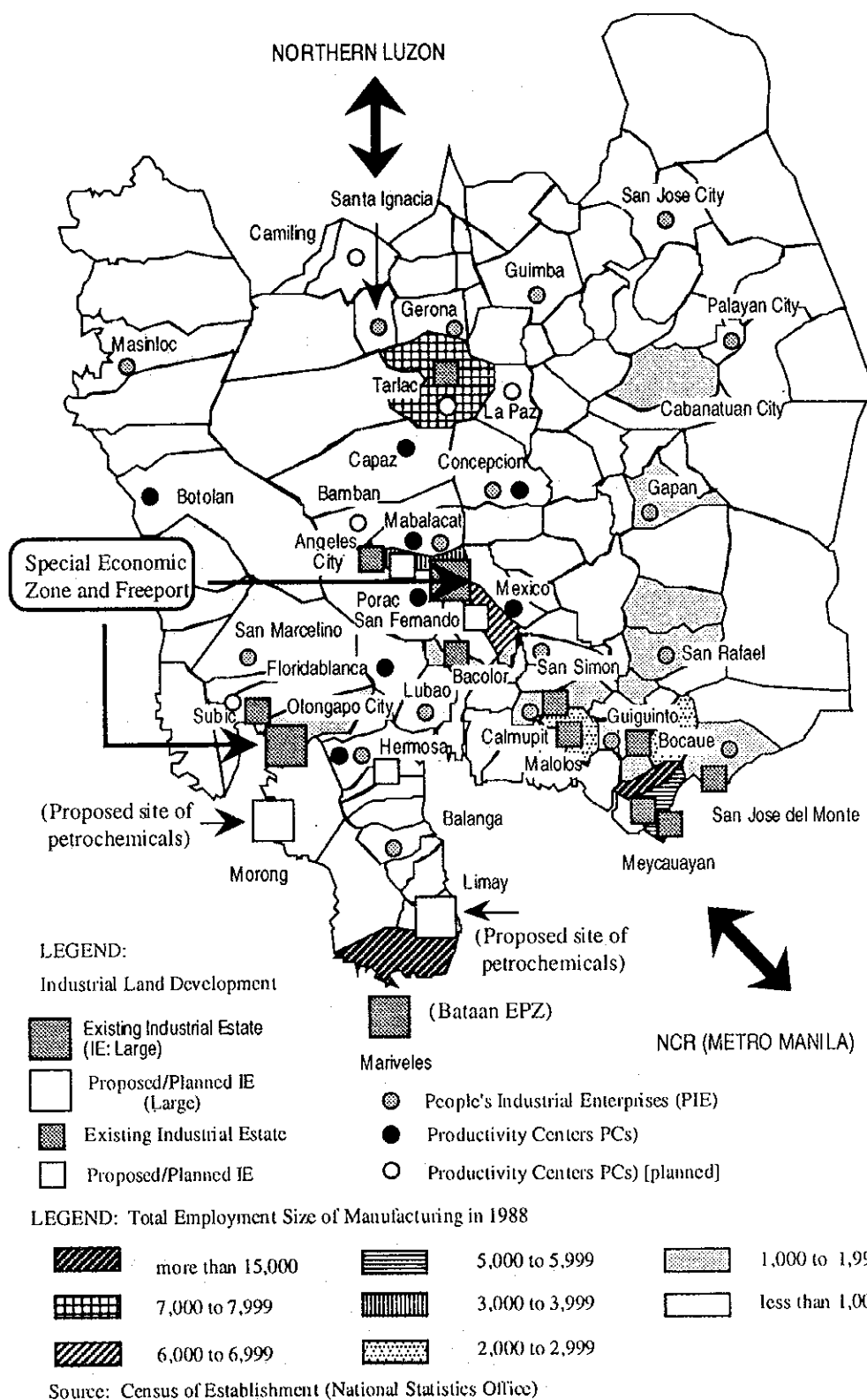


Figure 3.2 Spatial Distribution of IEs and Manufacturing in Central Luzon

Figure 3.3 Nine Components of Tourism Development Strategy

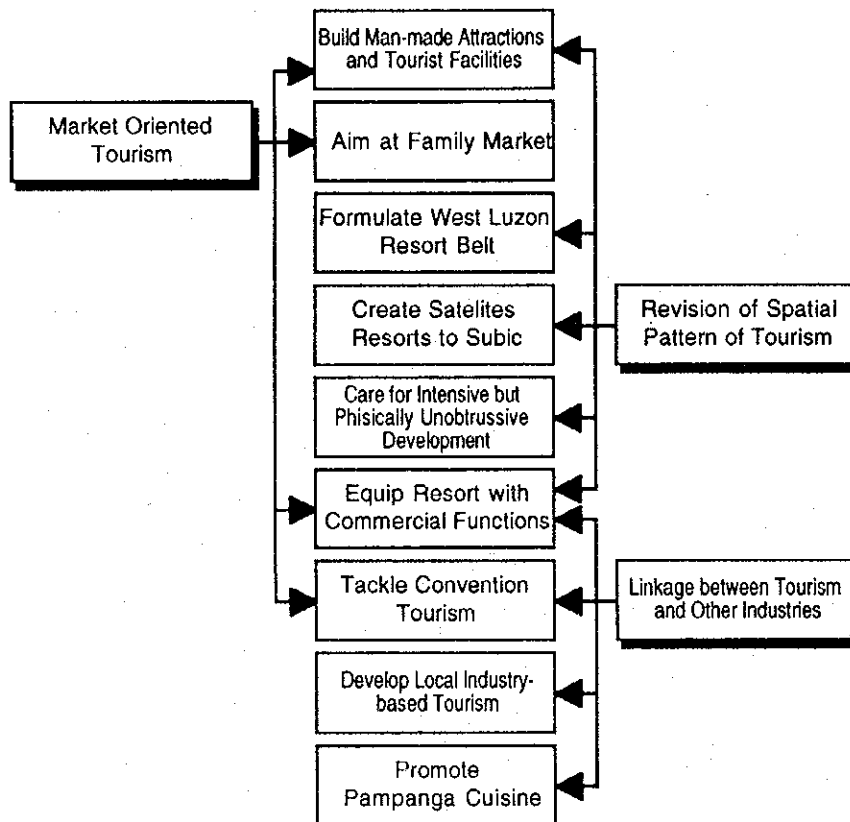
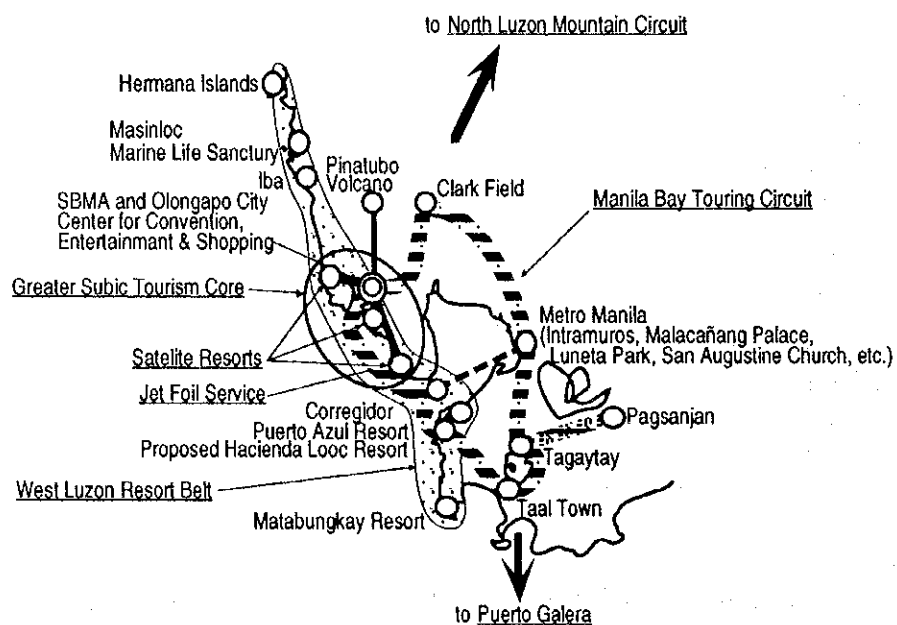


Figure 3.4 Luzon Cluster of Tourism



3.3 Objectives and Strategy for Social Development

3.3.1 Constraints to social services delivery

(1) Overall constraints

Budget allocation

Allocation of government budget to social service agencies has been small in total and declining on a per capita basis. The per capita expenditure of DECS, DOH and DSWD declined over 1987-91 by 26.3% to become P190, 20.0% to P50, and 33.3% to P3, respectively. Additional needs arising from the Mt. Pinatubo disaster have made these allotments even less adequate.

Devolution

The delivery of social services faces difficulty after the devolution due to limited knowledge, capacities and resources of LGUs, especially in low income class municipalities. In Central Luzon, municipalities in the 5th and 6th income class account for 56% of all the municipalities. Social service programs in some LGUs are not given high priority in budget allocation, influenced by political considerations of the chiefs of LGUs.

Devolved social services staff suffer from their unstable status and unfamiliar work environment, communication and information gaps with the chiefs of LGUs, and inadequate supplies. They have no or insufficient transportation means to reach the poorest in remote, isolated areas.

(2) Constraints by subsector

Social welfare

Social welfare works in the field of Central Luzon are limited only to one for 3,280 persons, compared to the national standard of one for 800 persons. Especially after the devolution, some trained workers required for most social welfare programs have been transferred to LGUs to reduce effectiveness of their operations.

Central Luzon has the highest ratio of barangays having a day care center at 65.7%, compared to the national average of 41.0%. Still this is short of one day care center for each barangay required by the law. Also many existing day care centers do not have permanent structures and use space in barangay halls or churches. Many are sponsored by parents committees without government supports.

Health

Spatial distribution of hospitals is imbalanced in Central Luzon. Of the total of 168 hospitals existing in 1992, 69% (27 government and 90 private hospitals) are located in urbanized areas. Government hospitals, which are more accessible financially by the poor, account for only 32% of all the hospitals, providing 61% of hospital beds.

Availability of health manpower is much lower in Central Luzon than the national standard: one physician per 58,644 persons (the standard 20,000), one nurse per 45,933 (20,000), one midwife per 32,499 (5,000), and one dentist per 366,511 (50,000). One barangay hospital serves on an average 5,011 persons in Central Luzon, comparable to the national standard of one for 5,000 persons. A hospital bed to population ratio is 1 to 1,065 in Central Luzon, lower than the national standard of 1 to 500, and a rural health center to population ratio is 1:27,277 in Central Luzon, also lower than the national standard of 1:20,000.

Education

Filipino people's high regard for education is supported by the Constitution and reflected in the budget allocation. The 1993 budget provides P42 billion for education, culture and manpower development, of which P35 billion goes to DECS and the rest to various state colleges and institutes. Despite this prominence, the subsector faces further challenges.

Although the enrollment in elementary schools are relatively high and that in secondary schools rapidly increasing owing to the free primary and secondary education policy, the performance is not yet satisfactory. The Cohort survival rate is still relatively low, lower than 80% at the elementary level and about 80% at the secondary level. Despite the free education, this has much to do with the poverty issue. Of children coming from households with per capita annual income of over P30,000, 87% complete the elementary grades, while this ratio is only 57% for those of less than P10,000 annual income.

Education curricula are considered inadequate in some aspects. More aspects pointed out include (1) weak linkages between education and training institutes and the business sector, (2) emphasis on the "employment potential" of a degree/course rather than developing a curriculum that exposes and prepares the youth to entrepreneurship or self-employment, (3) lack of emphasis on agriculture as a "career" option, and (4) insufficient value education.

Side by side with the observed downward trend of the quality of graduates is the perception that the quality of teacher has likewise deteriorated. One cause is that the teaching profession does not pay well and therefore cannot attract the better graduates. Another cause is the lack of teaching skills upgrading provided to teachers on a regular and sustained manner.

Employment

Large-scale unemployment was created by the closure of the American bases and the Mt. Pinatubo eruption. The closure of the American bases directly affected some 40,000 base workers with their families and also indirectly affected workers in local business establishments providing goods and services for the bases. The eruption of Mt. Pinatubo and subsequent lahar have displaced many families and individuals, of which the majority have not re-established their livelihood.

A large number of overseas contract workers is a result of insufficient and inadequate employment opportunities. The mismatch of skills with the demand of the business sector causes many to take opportunities overseas, resulting eventually in a shortage of qualified professionals and skilled workers. Social costs of overseas employment are high due to children growing up in solo-parent/absentee parent households, breaking up of nuclear families, exploitation of Filipino workers and other problems.

3.3.2 Problems faced in critical social sector

(1) Depressed communities

Identification of depressed barangays

The Government initiated in 1991 the Rapid Rural Appraisal under the Poverty Alleviation Program with the view to defining poor families at the local level, locating them, and clarifying strategy to be adopted to address their needs. A nationwide poverty mapping planned to be conducted collectively by DSWD, NEDA and LGUs had accomplished little before some functions of DSWD was devolved to LGUs.

The task of identifying depressed communities is now entirely in the hands of LGUs, which have adopted various criteria for this task. Criteria used by LGUs to identify depressed barangays within their jurisdictions include the following:

- high incidence of families below the poverty threshold,
- blighted communities such as slum areas, high risk/danger zones like esteros, highways, railways, seawall, under bridges and riverbanks,
- communities in crisis situation such as those affected by calamities and disasters, natural or man-made,
- high incidence of low income families vis-a-vis high cost of commodities especially for food and fuel,
- prevalence of malnutrition among pre-schoolers (ages 0-6 years old),
- fringe communities without source of safe water and toilets, with distance and transportation difficulties and lack of funds for the construction of necessary facilities, and

- limited access to literacy and employment opportunities.

According to the lists of depressed barangays submitted by LGUs and compiled by DSWD in its 1991 report, there existed 619 barangays in Central Luzon considered depressed. They account for 22% of the 2,856 total barangays in the region.

Classification of depressed communities

Depressed communities in Central Luzon may be broadly classified by geographic location. In urban areas, even of the first class cities or the first/second class municipalities, depressed communities occupy some portions of the areas such as slum areas and high risk/danger zones. They live on a hand to mouth existence through scavenging, peddling, mendicancy, and various odd jobs.

Depressed communities in rural upland are found mostly in the 5th or 6th class municipalities. They include landless or small farmers with average landholding of 1 to 1.5 ha., indigenous cultural minorities, calamity victims who have not been resettled, rebel returnees and forest products gatherers.

Depressed communities in rural lowland have similar characteristics as those in rural upland, but are found in more accessible 6th class municipalities. They are inhabited with landless or marginal farmers and seasonal wage earners.

Depressed communities in coastal areas are populated by those who subsist on municipal fishing. These communities are found mostly in Bataan, Bulacan and Zambales and also a few in Pampanga.

The Mt. Pinatubo eruption gave rise to another group of marginal people who are found in designated resettlement sites. These communities are still considered depressed because of insufficient or lack of social services and sustainable livelihood. Most of the families survive on meager income or in some cases on dole-outs from government and non-government organizations.

Problems in depressed communities

Some problems are common to many depressed communities in urban and rural areas. Typical problems faced by depressed communities are outlined by geographic location. Basic data on representative barangays in each category are summarized in Table 3.2.

1) Urban areas

Unemployment rates are high in depressed communities in urban areas. Particularly in Angeles City, Olongapo City and some industrial areas, the poorest are the hardest hit by the closure of factories or withdrawal of the military bases.

Poor families in urban areas concentrate in high risk/danger zones such as on railways right-of-way, along river banks, under bridges, or in slum areas. Their houses are made of weak or recycled materials. These conditions make them vulnerable to fires, flooding, lahar and other calamities.

Health conditions and education levels are poor in depressed urban communities due to the lack of access to these social services and LGUs' inability to sustain a long-term program for the poor. This problem causes also moral degradation of these people. The poverty itself is a main reason for low educational attainment. Relocation of these people by LGUs would not solve the problem without concomitant provision of livelihood opportunities; they would just resettle back to the same urban areas, where they can find better jobs.

2) Rural areas

In depressed rural barangays, the average annual income of farm households is typically in the range of P3,000 - 4,000 for non-irrigated farms and only slightly higher for irrigated farms. Alternative livelihood opportunities are limited due to lack of access to new and appropriate technology to upgrade traditional farming methods and lack of skills to pursue other activities. Most farmers suffer from insufficient or lack of post harvest facilities and other support infrastructure, and limited access to credit facilities.

At the root of these problems are the inequitable land tenure situations. Due to insecure or lack of land titles, farmers have little incentive to invest for enhancing the productivity of land they till. Some farmers face the risk of losing their farmlands by default to traders/usurers; or landless farmers are threatened by eviction due to conversion of agricultural lands they till to urban/industrial uses.

Depressed rural barangays commonly suffer from insufficient basic facilities such as sanitary toilets and potable water supply. Due to lack of telephones, they are often completely isolated when access roads are disrupted by flooding and other natural causes.

Additional problems are faced by depressed rural communities in different geographic locations. In upland areas, poor accessibility and forest denudation due to illegal logging and improper farming practices are noted as more serious problems. Depressed communities in lowland have a potential advantage of finding job opportunities in nearby towns, but they are constrained by poor road conditions and mismatch of available skills against employment demand.

Marginal fisherfolks in coastal areas are direct victims of degrading coastal and marine resources due to pollution and erosion as well as illegal fishing practices.

Their fishing gears and technology do not allow them to compete with commercial fishery. Also, destruction of mangroves for large fishponds and enclosure of fishing grounds by commercial operations constrain activities of common fishfolks.

(2) Resettlement sites

Overview

At present, there are 34 identified resettlement sites with 15 sites located in Pampanga, 6 in Tarlac, 8 in Zambales, 3 in Nueva Ecija and 2 off-sites in Bukidnon and Mindoro. Of this total, 11 lowland sites and 10 upland sites are administered by the Mt. Pinatubo Commission, while the rest are managed by non-government organizations and other government agencies such as DAR and LGU's. As of October 1993, there was a total population of 56,309 in 26 resettlement sites, of which 55% or 30,878 were in the lowland and 46% or 25,341 in the upland. Target capacity of all resettlement sites is 45,040 families. Basic data on the 21 sites administered by MPC are given in Table 3.3.

Problems in resettlement sites

Among the marginalized groups in Central Luzon, the victims of the Mt. Pinatubo eruption were given considerable attention by government and non-government organizations. This is due to the following reasons: (1) large-scale displacement of thousand of families at a given time (2) high visibility of victims (3) availability of government program on disaster (5% of internal revenue allotment is earmarked for calamity funds) and (4) magnitude of damage to lives, crops and properties which prompted the government to create a special body and release fund specifically for this purpose.

Despite the collective efforts by government agencies and NGOs, most resettlement sites still face various problems. Also, there is continuing threat of lahar flows which may displace more families and force resettled families to be further relocated.

The most serious problem in resettlement sites is the lack of sufficient livelihood opportunities and means. According to a DSWD survey in 1992 for 22 resettlement sites, 39% of the people in labour force were unemployed. The highest unemployment rate at 79% was found among people with no skills, followed by small traders/businessmen (56%), fishermen (55%), farmers (37%), laborers/wage earners (19%) and professionals (14%). The per capita monthly income below P2,000 accounted for 54%, and additional 28% had no income. The average was mere P1,400, much lower than the poverty threshold of P2,881 for 1992 in Central Luzon.

Housing backlogs in lowland resettlement sites were 71% of the targeted total in 1992. Initial resettlement site planning was conducted without involving LGUs. Small homelot of 94m²

and house with floor area of 25m² per family limit settlers to make additional improvement and accommodate extended families.

All the resettlement sites are not provided equally with various facilities. While a few sites are equipped with almost complete facilities including primary and secondary schools, community facilities such as clinic, day care center, town hall, police and fire stations, market, and recreation center, water and electricity as well as civil works and housing, other sites are less fortunate. Training facilities and a community library are not available in most sites, and installation of communication facilities is constrained by the lack of budget. Productivity centers are provided in selected lowlands sites, but their functions are underdeveloped.

Flooding is another problem confronting resettlers in lowland, which could isolate the already alienated resettlers. In upland, culture and behaviour of the indigenous people add another dimension to the existing problems, including their ancestral land rights.

3.3.3 Objectives for social development

The objectives for Central Luzon regional development represent economic, social and environmental aspects (subsection 4.1.2). Social objectives for Central Luzon are established to support economic development, to express social concerns, and to improve environmental management. This dual structure of overall and sector objectives mutually supporting one another would ensure better the observance of balance between these three aspects.

- (1) To ensure all the people access to basic education, primary health care and sanitation, and shelters as prerequisites to their participation in various economic activities;
- (2) To enhance individual and collective capability of people and awareness on gender and development by strengthening various community organizations and providing training and education; and
- (3) To establish community-based resource management for environmentally sound and sustainable resource use for the benefit of people/communities.

3.3.4 Strategy for social development

The CLDP Master Plan strategy is to establish/strengthen various socio-economic linkages within the region to make effective use of the industrial/trade anchors for globalization on the one hand, and to effect the community-based development for localization on the other. However, to make sure that even the poorest and the least privileged would not be left out of the development, their problems would have to be addressed separately through the provision of better social services. Strategy for social development is spelled out below in the light of this concern.

(1) Social welfare

Assistance to the socially disadvantaged/displaced

Man-made and natural calamities experienced in Central Luzon have affected most severely the poorest and the least privileged. They include coastal fishfolks, landless farmers, upland people, and those dislocated. Assistance for livelihood development is a first prerequisite for them to participate in the main stream of development. Their start up potentials should be enhanced through skills training, community organizing, and capital assistance as well as services for family development.

Supports for youth and children

Supports for the youth and children should be prioritized not only because they are most vulnerable but also because their potentials can be enhanced most effectively. This segment of the society includes street children, abused, neglected and exploited children and out-of-school youth. Another main concern is to enhance women's participation in all spheres of development and governance. Community-based development activities, often in collaboration with NGOs/POs, provide ideal opportunities to improve their worth by using it.

Training for social welfare workers

Most social welfare programs require well trained social workers with special skills and experiences. Although the function of training social workers is retained by DSWD even after the devolution, each province in Central Luzon should have their own training facilities to meet their own needs so that more target specific training could be designed.

(2) Health

Community-based health facilities

Functions of rural health units such as rural health centers and barangay health stations should be strengthened/upgraded as the community health centers mainly for comprehensive primary health care services targeting at the poor in marginal areas. Rural health midwives at barangay health stations should be well trained to be able to cope with more advanced treatment. In close coordination with the community health centers, community-based volunteer health workers should be strengthened as community health managers. Involvement and participation of local communities in the delivery of basic health services should be encouraged with the cooperation of NGOs/POs.

Upgrading of existing hospitals

Existing hospitals should be reinforced to serve as area-wide health centers for curative health care services. Each hospital should be linked to the community health centers for better overall health services.

Health education

The community health centers should serve also for health education to prevent diseases and improve health conditions of the people at grassroots level. Medical researches should focus on traditional and indigenous medical measures including the use of herbal medicine as well as preventive measures. Networking of health facilities and mobile units should be combined for effective delivery of health services and health education.

Health related infrastructure

Water supply, toilet facilities and solid waste management are strongly related to health conditions of local people. Problems related to those infrastructure facilities tend to be more acute in marginized areas. In these areas, the priority is to secure safe water supply.

(3) Education

Improvement of accessibility and survival rate

To ensure accessibility to the primary education is the absolute must, although it is only a necessary condition. More school facilities should be provided in remote villages, and more teachers assigned to teach multi-grade programs. Provision of road access and transportation is equally important. Social programs to cater for marginalized families should be expanded together with more textbooks and school supplies.

Improving quality of education

Capability of teachers needs to be upgraded by in-service training and teacher development program (INSET), and more scholarship opportunities. Teaching could be made more effective by the provision of audio-visual materials and use of multi-media. Also, formal education could be complemented by the participation of parents and relatives, and communities and NGOs. Curricula improvement should follow the recommendation of the Congressional Commission to Review and Assess Philippine Education.

Re-orientation to match demand

The education system should be made more responsive to the needs of the business sector. The Local School Boards and other mechanisms should be fully activated to provide an effective feedback mechanism between business demands and learning institutions. An information-education-communication (IEC) program should be introduced to influence choices of students for more market-oriented courses.

Strengthening of non-formal education

Non-formal education is meant to help the unemployed/underemployed to acquire skills through short-term, non-degree courses. NGOs have much to do in strengthening the non-formal education providing selected types of learning targetted at particular group of population.

(4) Employment

Labour/management relationship

A harmonious labour/management climate should be cultivated especially in areas where intensive economic activities are expected to take place such as Subic, Clark, and Bataan EPZ. While these areas are under the jurisdiction of special government agencies. DOLE regional and provincial offices should be involved in the process to establish occupational, health and safety standards.

(5) Poverty alleviation

Although LGUs are charged with the task to identify depressed communities, the strong LGU initiative may not be expected to alleviate poverty, considering their financial position and political priorities of the chiefs of LGUs. It is therefore imperative that renewed focus should be clarified first by the Government on the poverty issue. Under the clarified policy, a strong institutional mechanism should be established in LGUs. This should start with the institutionalization of barangay profiling. LGUs' capability should be enhanced through the conduct of barangay profiling, including needs identification, program formation, and impact assessment. For this, ample experiences of NGOs in rapid appraisal, ecoscan and other participatory approaches should be tapped. As a prerequisite, NGOs with good track records should be accredited by a democratic process (e.g. through a legitimate caucus of NGOs).

The capacity building of LGUs through barangay profiling should aim at establishing eventually a rural database. In the process, structure, plan and methodology of various social surveys will be formulated and systematized. Programs formulated through the profiling will be implemented and monitored. Monitored results will be evaluated on the basis of the rural database, which in turn will be updated. Through this entire process, credibility of NGOs will also be enhanced. They will be accredited in development councils at various LGU levels.

Alleviation of absolute poverty calls usually for a separate approach. Common expectation on so called trickled-down effects can not be justified. A target beneficiary approach is considered effective to complement inclusive or community approach. An absolute prerequisite is that comparatively more resources should be allocated to the marginalized sector for basic human needs such as basic education, primary health care and sanitation, and shelters.

A possible way to augment the resources for poverty alleviation is to involve the business sector. Investors can be encouraged to establish in depressed barangays to adopt the communities effectively. They can participate in providing basic social infrastructure and

services in their respective barangays. Employment requirements should also be sourced from the adopted barangays. They will be given in return additional incentives such as tax rebates.

(6) Resettlement and livelihood development

It should be clearly established by the Government that the ultimate goal of resettlement is to create viable new barangay communities. Then it is realized that community organizing is an important part of resettlement and livelihood development. A group of key leaders can be identified in each resettlement site, who have high and entrepreneurial spirits. Capacity building will focus on this group for skills training, community organizing, and business development. They may develop even a common vision for their resettlement sites through communications with other resettlers.

Basic facilities need to be provided for all the resettlement sites with additional and continuing Government supports. Provision of additional facilities should be clarified for each resettlement site. Planning and implementation for the provision of additional facilities should be fully participatory. Especially, unemployed resettlers will be more than willing to provide their labour for construction of the facilities they have planned. Resettlement sites will be converted into a barangay government status, depending on these self-help efforts of members. Regular funds will then be made available to sustain and expand their effort.

Options for livelihood development depend among others on original occupations of resettlers and physical characteristics of resettlement sites. Urban workers can find new jobs more easily if they are resettled close enough to existing urban centers. They need to be assisted only by additional training and improvement of access roads. More serious problems are faced by upland people resettled in lowland and farmers settled without allocation of farm lot.

More intensive use of upland areas is recommended by the Master Plan through multi-storey farming and integrated farming of various forms. Livelihood development of upland people should be supported by the establishment of viable multi-storey and integrated farming systems that will fit to the culture and value of these people. Incorporation of forest trees, nut-bearing trees and integration with goat may be among the options. In this connection, clarification of land use and land potential in designated forest areas by DENR should be expedited so that agro-forestry and other productive activities by upland resettlers will be allowed in portions of these area.

Farmer - resettlers can be assisted by proper extension also for upland farming of various forms. Those farmer-resettlers may pioneer in new crops/crop varieties, cropping patterns, and alternative systems of production as proposed by the Master Plan, if they are properly

motivated and provided with extension and other supports. They may engage in organic agriculture even on lahar affected lands.

More resettlers will engage in industrial and urban-based service activities. Resettlement sites having dominant population of urban workers may be re-planned in line with the potential urban/industrial lands identified by the Master Plan (Figure 3.5).

Table 3.2 Basic Data on Representative Depressed Barangays by Category

Indicators	Rural Coastal		Rural Lowland		Rural Upland		Urban	
	Panghulo (Bulacan)	Uacon (Zambales)	San Pablo Bata (Nueva Ecija)	Pinagrealan (Zambales)	Sulucan (Bulacan)	Bangkal (Bataan)	San Rafael (Tarlac)	M.S Garcia (Nueva Ecija)
1 Land Area (in has.)	10	148.7	101,700	873.64	2	200	2,000	20
2 Dist. Poblacion Area (km)	2	6	3	6	1.5	15	1.5	0.5
3 Major Economic Activities	Farming Services	Manufacturing	Farming Fishing	Farming Fishing Services	Farming Service	Farming	Farming Fishing Manufacturing	Services
4 Population (no.)	10,000	2,113	1,296	1,300	3,000	353	25,000	2,000
5 No. of Household	1,200	352	260	80	500	79	2,500	1,000
6 Ave. size of Families	6	6	6	6	6	5	5	7
7 No. of birth per annum	20	10	10	20	12	9	70	100
8 No. of death per annum	10	5	5	1	10	0	12	10
9 Labor Force	5,000	600	838	433	1,000	282	7,500	600
10 Level of Educ. (% of pop.)								
Primary		20	0	50	0	10	5	0
Intermediate	25	40	25	40	20	30	40	60
Secondary	55	30	75	10	60	10	40	40
Tertiary	20	10	0	0	20	0	5	0
Post Graduate	0	0	0	0	0	0	0	0
Vocational	0	0	5	0	0	0	3	2
11 Ave. Family Income per Annum	2,000	4,600	12,000	4,000	4,000	2,000	24,000	30,000
12 Ave. Family Expenditure per Annum	2,000	4,600	12,000	4,000	4,000	2,000	24,000	30,000
13 Commercial Establishments(no.)	15	16	12	2	18	4	14	31
14 Transportation								
a. Road Length (in meters)								
Concrete	3,500	150	80,000	450	1,500	0	0	0
Asphalt	0	100	0	0	0	0	0	0
Gravel	2,000	200	2,000	3,000	2,000	13,000	20,000	2,000
b. Means of Trans.	Jeepney Tricycle	None	Jeepney Tricycle	None	Tricycle	Jeepney	Bus Jeepney Tricycle	Jeepney Tricycle
15 Source of Domestic Water Supply	Artesian Well	Shallow Well	Artesian Well Shallow Well	Pub. Faucet Artesian Well Shallow Well	Artesian Well	Spring	Water System Artesian Well	Water System Artesian Well
16 Sew.-Toilet Facilities (%)								
Water Sealed	100	3	60	5	45		60	80
Open pit		10	30	5	50	50	10	
None		87	10	90	5	50	30	20
17 Communication Facilities	Telephone Telegraph Radio	none	Radio	None	Radio	None	Telephone Radio	Radio
18 Power (% Electrified)	100	80	90	33	90	0	90	100
19 Education Facilities	Elem. Sch.	Elem. Sch.	Elem. Sch.	Elem. Sch.	Elem. Sch.	Elem. Sch. Sec. Sch. Voc. Sch.	Pre-school Elem. Sch.	Pre-School
20 Health Fac./Personnel	Health Center Physicians Nurse	Day C. Center Health W.	Health Center Health W.	Health Center Health Worker	Health Center Midwife Health Worker	Health Center Day Care Center Midwife Health Worker	Health Center Medical Clinic Physician Nurse Midwife Dentist Health Worker	none
21 Problems	-no public mkt. -flooding -no high school -no barangay hall	-lack of capital for livelihood -lack of sanitary toilets -irrigation system -lack of skills	-irrigation system -lack of health fac. -no day care center -lack of livelihood	-lack of capital for livelihood -no electricity -inadequate road system -no toilet facil. -no medical facilities	-lack of capital for livelihood -lack of health facilities -erosion -insufficient access roads	-poor access road -poor water system -insufficient livelihood support -no school	-poor access road & drainage facil. -unemployment -no high school	-no school -poor access roads -insufficient health facilities

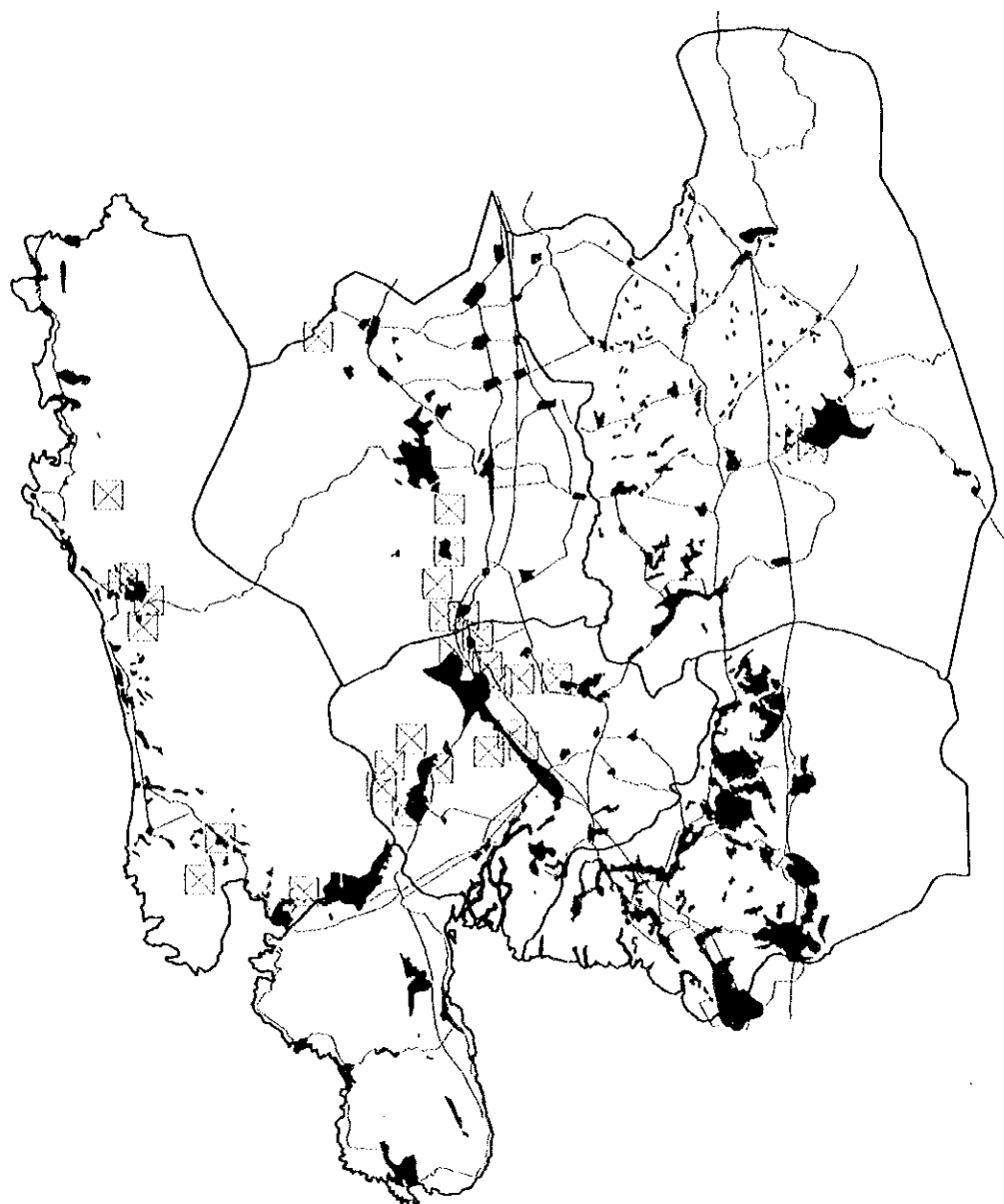
Source: JICA Study Team Barangay Survey

Table 3.3 Basic Data on Resettlement Sites Administered by Mt. Pinatubo Commission

Resettlement Site	Location (barangay, municipality, province)	Land Conditions	Area (ha)	Capacity (Lots)	Farm lot (ha)	Productivity Center	Schools	Social Infrastructure and Utilities* Community Facilities	Water Facilities	Electrification	Communication
O'Donnel Dap-Dap Kalangitan	O'Donnel, Capas, TA Anapui, Bamban, TA Kalangitan, Capas, TA	Lowland Lowland Upland, rolling terrain	348 150 75	12,448 6,200 570	- - 675	2 units 2 units -	o o Δ	o o Δ	o o Δ	o Δ x	x x x
Dueg	Dueg, San Clemente, TA	Upland, rolling hills and mountains	15	600	(total area 1,234 ha)	-	Δ	Δ	Δ	x	x
Villa Maria	Villa Maria, Porac, PA	Upland, valley surrounded by hills and mountains	10.4	350	-	-	Δ	Δ	Δ	x	x
Camias	Pasbul, Porac, PA	Upland, rolling terrain/mountainous	12	300	300	-	Δ	Δ	Δ	x	x
Nabuklod	Nabuklod, Floridablanca, PA	Upland, brushland with patches of graves	10	400	31	-	Δ	Δ	Δ	x	x
Camachile Pandacaqui EPZA	Camachile, Mabalacat, PA Pandacaqui, Mexico, PA Pulang Caeutod, Angeles City	Lowland Lowland Lowland	26.8 63 34.5	1,213 2,974 2,003	- - -	- 3 units -	Δ o o	Δ o Δ	o o Δ	Δ o Δ	x x x
Bubon	Bubon, San Fernando, PA	Lowland	79.9	4,001	-	-	Δ	Δ	Δ	-	x
Mauaque	Mauaque, Mabalacat, PA	Lowland	47	2,800	-	-	o	o	o	-	x
Floridablanca	Basa, Floridablanca, PA	Lowland	85	3,985	(to be acquired)	3 units	o	o	o	o	x
Porac	Pto, Porac, PA	Lowland	50	1,839	-	-	o	o	-	-	x
Cawag	Cawag, Subic, ZA	Upland, rolling terrain, bushland	30	500	794	-	Δ	Δ	Δ	x	x
Iram	Cabalan, Olongapo City	Upland, secondary forest and brushland	30	700	70	-	Δ	Δ	Δ	x	x
Dampay Salaza	Dampay Salaza, Palauig, ZA	Upland, 20 degree slope	52	600	608	-	Δ	Δ	Δ	x	x
Loob-Bunga	Taugrog, Botolan, ZA	Upland, hilly and rolling terrain	46	910	252	-	Δ	Δ	Δ	x	x
Baquilan	Baquilan, Botolan, ZA	Upland, generally flat	43	930	350	-	Δ	Δ	Δ	x	x
Castillejos	Balabay, Castillejos, ZA	Lowland	120	1,870	(to be surveyed)	-	Δ	Δ	Δ	Δ	x
Taugrog	Taugrog, Botolan, ZA	Lowland	81	3,485	100	2 units	Δ	o	Δ	o	x

* o: Completed/Almost completed, Δ: On-going/Partially completed, x: None, -: Not clear

Source: Compiled by the JICA Study Team based on MPC Data



- Resettlement Sites
- Road
- Provincial Boundary
- Potential Urban/Industrial Areas (Lowland & Upland)
- Existing Builtup and Industrial Areas

Figure 3.5 Resettlement Sites, Potential Urban/Industrial Sites and Existing Built-up Areas

3.4 Objectives and Strategy for Environmental Development

3.4.1 Existing environmental problems

There are various environmental problems in Central Luzon. They may be classified into three types: problems caused by natural disasters, problems caused by economic and other human activities, and problems of environmental administration.

(1) Natural disaster caused problems

Central Luzon is a disaster prone area. In addition to habitual typhoons and flooding, it suffered recently from a major earthquake and the Mt. Pinatubo eruption.

Mt. Pinatubo eruption

According to the Mt. Pinatubo Interim Action Plan (US Army Corp of Engineers, 1993), pyroclastic materials generated by Mt. Pinatubo were 8 million m³, and ash fall covered 550,000 ha (ADB Report of the Task Force on the Damage caused by the Eruption of Mt. Pinatubo and Proposed Rehabilitation/Restoration Measures, 1991). It is estimated by the US Army Corp of Engineers that 25% of the pyroclastic deposit will erode during the next three years, and upto 50% during the next 10 years.

The eruption and subsequent lahar hazard caused 32,000 rural families and 192,000 persons evacuated and resettled in some 300 evacuation centers. Damages to agriculture are estimated at 385,000 ha productive area and \$230 million.

Earthquake

A major earthquake hit the northern Luzon in 1990. It caused widespread damages to infrastructure and human lives in Central Luzon as well directly and through land slides, erosion and aggravated health and sanitary conditions, although the region itself is not identified as earthquake-prone.

Typhoons

During the period of 1980-90, a total of 213 typhoons crossed the Philippines affecting over 25 million persons and resulting in 5,952 deaths, about 14,000 missing or injured, and environmental and property damages of about 45 million pesos. In Central Luzon, the damages tend to be aggravated by lahar and flooding.

Floods

Flood prone areas in Central Luzon cover 4,321 km², including 405 km² of urban centers and rural settlements. The massive deposit of lahar in Pampanga, Tarlac and Zambales makes flooding and damages worse.

Droughts

During 1982-90, three major droughts affected some parts of the Country. They affected 22,700 farmers and a total of 987,000 ha agricultural lands and caused damages to production amounting to over P763 million. Central Luzon, however, is not among the seriously affected.

(2) Human-related problems

Water pollution in rivers

Major pollution sources of the Pampanga and other rivers in Central Luzon are identified as follows:

- solid waste open dumped in and along rivers by residents and local governments,
- piggeries and poultry farming,
- sedimentation caused by soil erosion,
- domestic wastewater,
- industrial effluents from alcohol plants, tanneries and others, and
- chemicals used in fish ponds and agriculture.

The alcohol plant in Apalit discharges wastewater containing high concentration of organic matters (BOD of 45,000-55,000 mg/l) directly in the Pampanga river. Tanneries in Bulacan discharge their wastewater into the Meycauayan and Marilao rivers.

Coastal water pollution

Oil balls are observed along the coast of Bataan. Red tide was observed first in Central Luzon in 1987 in the Subic Bay and Masinloc. Shellfish poisoning by red tide at that time killed 20 persons. The first reported red tide in the Manila Bay was in 1988. Occurrence of red tide thereafter is most frequent in the Manila Bay and Masinloc.

Air pollution

The main source of air pollution in Central Luzon other than vehicles, is cement factories in Bulacan (three factories of Norzagaray and one of Akle). Due to their location on the hill side, however, effects of the air pollution on local residents are limited.

Deforestation

Deforestation with resultant soil erosion and siltation/sedimentation in rivers is probably the most serious existing environmental problem. Forest area in Central Luzon decreased by 24,400 ha or at 2.6% per annum during 1988-92. The largest decrease is recorded for dipterocarp forest consisting of red and white lauan, tanguile, tiaong, almon, bagtikan and mayapis of the Philippine mahogany group, apitong and yakals.

Deterioration of coastal/marine ecosystem

Coastlines of Manila Bay consist of coral reefs, seagrass bed areas, mangrove areas, tidal flats and estuary areas. Coral reef areas are located at the mouth of Manila Bay including Coregidor islands. The total mangrove area of Manila Bay is 1,260 ha, consisting of 220 ha in Bataan, 748 ha in Pampanga, and 294 ha in Bulacan (Manila Bay Environmental Profile, Region III). Tidal flats in Manila bay occupies some 2,500 ha. The largest one is Bangkong Malaped in Sasman, Pampanga which has become shallower by deposits of the volcanic materials from the Porac-Guman river via the Pasong river.

Existing environmental problems of coastal/marine ecosystem consist of mangrove deforestation, destruction of coral reefs and seagrass beds, deteriorating water quality, and depletion of some fish species. These are the results of complex factors, including domestic wastewater discharge, sediments, insecticides and fertilizer transported by rivers, oil and grease from vessels and chemical plants, reclamation/dredging, illegal fishing using dynamite or cyanide and over fishing.

(3) Problems of environmental administration

Environmental law and regulations are well enacted and the environmental impact assessment (EIA) procedures are well established in the Philippines. Enforcement of these regulations at the local level faces constraints such as lack of human resources and budget, lack of sufficient administrative power and ineffective, or lack of land use plans. The DENR regional office can not monitor emission gas and effluent discharge regularly as they do not have sufficient equipment, reagent for analysis and experts.

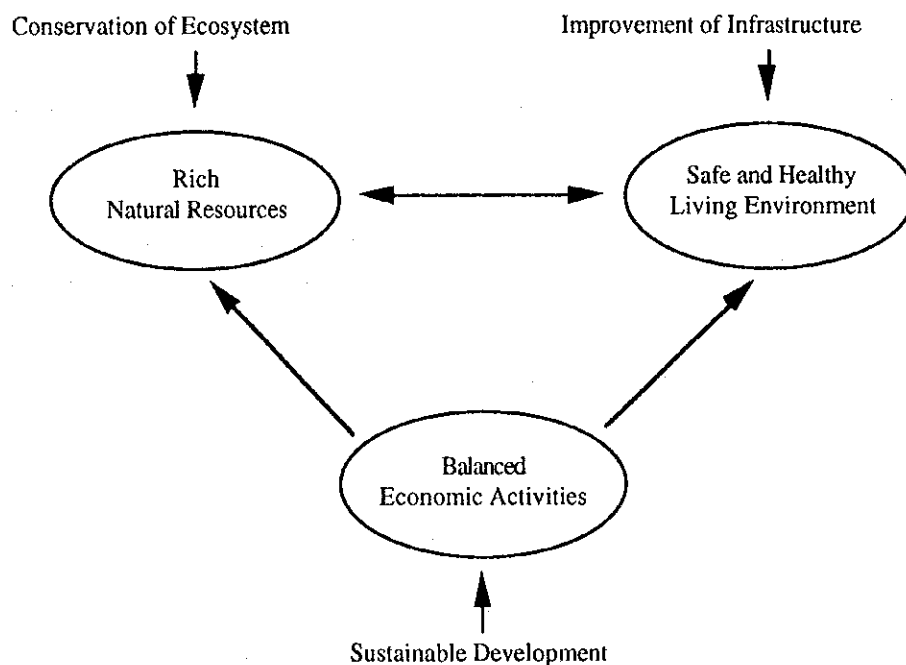
3.4.2 Vision and directions for environmental development

(1) Vision for environmental development

Environmental quality is essential part of the CLDP paradigm. A basic principle of the paradigm is the growth within resources or environmental capacity. Another principle is the community-based resource management. Degrading environmental quality, therefore, signifies that the environmental capacity is exceeded and/or the community-based resource management has not been effected.

Two directions for environmental development are (1) to enhance the environmental capacity, and (2) to ensure the use of environmental quality for the benefit of local people and communities. The first is related primarily to enriching and conserving natural environment. The second means the creation of better living environment with safety, health and comfort. These are linked by various socio-economic activities. The vision for environmental

development in Central Luzon seeks a sustainable balance between these three components as illustrated below.



(2) Directions for environmental management

In line with the vision, specific directions to pursue for environmental development and management are clarified as follows. They cover environmental administration, measures to improve the living environment, and environmental management of development.

Environmental administration

The following should be pursued related to environmental administration.

- 1) Clarification/establishment of functions of LGUs at different levels related to environmental management;
- 2) Development of human resources for LGUs;
- 3) Organized technical and financial supports to small and medium enterprises in their efforts to control pollution; and
- 4) Improvement of communication between DENR and the industrial sector, and between DENR and local communities.

Environmental improvement

The following need to be pursued to improve the living environment.

- 1) Conservation/restoration of ecologically sensitive areas;
- 2) Cost effective water pollution control;
- 3) Management of land development and transportation network;

- 4) Appropriate levels and measures for solid waste management; and
- 5) Protection from the effects of natural disasters.

(2) Directions for environmental management of development activities

The following provide aspects to be considered for environmental management of development.

- 1) Enforcement of environmental law and regulations;
- 2) Management of various natural resources to ensure sustainability;
- 3) Effective monitoring of impact on socio-economic, cultural and natural environment; and
- 4) Promotion of environmental awareness.

3.4.3 Objectives for environmental development

(1) Existing environmental policies and objectives

The Philippine Government established Philippines Environmental Policy, the Presidential Decree No. 1151, 1977. According to this decree, the Philippines Government aims:

- to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other,
- to fulfill the social, economic and other requirements of present and future generations of Filipinos, and
- to ensure the attainment of an environmental quality that is conducive to a life of dignity and well-being.

DENR also prepared Medium-Term Environmental Development Plan in Region III, named Central Luzon Environment and Natural Resources Medium Term Development Plan (1993-1998). This plan aims at sustainability, environmental management and protection, social-equity and poverty alleviation, resources use efficiency and economic growth, institution building and political stability.

(2) Environmental development objectives for CLDP

Just like the objectives for social development, environmental objectives for Central Luzon have three components representing economic, social and environmental aspects to support the overall objectives for Central Luzon regional development.

- 1) To support various economic activities by providing a sustainable base of rich, diverse and renewable resources and to promote environmentally sound agro-industrial development;