GUIDELINES ON PROVINCIAL/LOCAL PLANNING AND EXPENDITURE MANAGEMENT

Provincial *development* & physical framework plan

Volume 2

ADB
Asian Development Bank
National Economic and Development Authority

Volume 2: Provincial Development and Physical Framework Plan

This is part of the **Guidelines on Provincial/Local Planning and Expenditure Management** produced under the NEDA-ADB Technical Assistance on Strengthening Provincial and Local Planning and Expenditure Management. The Guidelines consist of:

Volume 1: Integrated Framework
Volume 2: Provincial Development and Physical Framework Plan
Volume 3: Investment Programming and Revenue Generation
Volume 4: Tools and Techniques on Budgeting and Public Expenditure Management
Volume 5: Project Evaluation and Development

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VOLUME 2

provincial development & physical framework plan

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Acronyms

A&D	Alienable and Disposable
ADB	Asian Development Bank
AIP	Annual Investment Program
APGR	Annual Population Growth Rate
BSWM	Bureau of Soils and Water Management
CAB	Climatology and Agrometeorology Branch
CBMS	Community-Based Monitoring System
CLUP	Comprehensive Land Use Plan
CLPI	Core Local Poverty Indicators
CMP	Community Mortgage Program
CPDO	City Planning and Development Office
CPH	Census on Population and Housing
DepEd	Department of Education
DENR	Department of Environment and Natural Resources
DILG	Department of the Interior and Local Government
DOH	Department of Health
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
Execom	Executive Committee
ETC/S	Existing levels, Trends, Comparisons, Significance
FIES	Family Income and Expenditure Survey
FMB	Forest Management Bureau
GRDP	Gross Regional Domestic Product
HDI	Human Development Index
HH	Household Head
IPDF	Indigenous Peoples' Development Framework
IPDP	Indigenous Peoples' Development Plan
ITCZ	Inter-Tropical Convergence Zone
LDIP	Local Development Investment Program
LGU	Local Government Unit
LQ	Location Quotient
LPRAP	Local Poverty Reduction Action Plan
MDG	Millennium Development Goals
MGB	Mines and Geosciences Bureau
MPDO	Municipal Planning and Development Office
MTPDP	Medium-Term Philippine Development Plan

MTPIP	Medium-Term Public Investment Program
NAMRIA	National Mapping and Resources Information Authority
NSCB	National Statistical Coordination Board
NEDA	National Economic and Development Authority
NDHS	National Demographic and Health Survey
NFPP	National Framework for Physical Planning
NGO	Non-Government Organization
NIPAS	National Integrated Protected Areas System
NLUC	National Land Use Committee
NSO	National Statistics Office
PAGASA	Philippine Atmospheric, Geophysical, and Astronomical Services Administration
PD	Presidential Decree
PDC	Provincial Development Council
PDIP	Provincial Development Investment Program
PDPFP	Provincial Development and Physical Framework Plan
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PHS	Philippine Health Statistics
PopCom	Commission on Population
PopDev	Population and Development
PPAs	Programs, projects, and activities
PPDO	Provincial Planning and Development Office
PPFP	Provincial Physical Framework Plan
RA	Republic Act
RDC	Regional Development Council
RDP	Regional Development Plan
RDIP	Regional Development Investment Program
RPFP	Regional Physical Framework Plan
SAFDZ	Strategic Agriculture and Fisheries Development Zones
SEP	Socioeconomic Profile
TWG	Technical Working Group
UNICEF	United Nations Children's Fund

Executive Summary

NEDA, with assistance from ADB, formulated the Guidelines on Provincial/Local Planning and Expenditure Management comprising of (1) Integrated Framework, (2) Provincial Development and Physical Framework Plan, (3) Investment Programming and Revenue Generation, (4) Tools and Techniques on Budgeting and Expenditure Management, and (5) Project Evaluation and Development.

Basis for PPAs

The second volume aims to provide provincial planners the basis for identifying programs, projects, and activities (PPAs) towards achieving the development objectives of the province. The output of the guidelines is the PDPFP, which identifies strategies and corresponding PPAs that serve as primary inputs to provincial investment programming, budgeting and implementation. The PDPFP also links provincial development objectives with regional and national policies and priorities.

Many guidelines have already been written for the preparation of development plans. This set of guidelines will build on—and not replicate—this body of work. However, it is not intended to be a compilation of existing guidelines. It offers a specific structure and approach to development planning, integrating or referring to other guidelines consistent with its structure and approach.

Analytical Approach

The overall emphasis of the guidelines is on following basic planning logic rather than on prescribing specific planning tools and procedures.

The guidelines are premised on three basic ideas. First, provincial resources should be viewed in terms of their potential benefits to the people of the province. Second, development invariably requires material resources. To be sure, development is not defined solely or even principally by material factors; but one way or another, it will require material support. And third, a province has a unique set of physical resources defined by its specific location. No

other province can occupy the same location and thus no other province can have the exact same set of resources.

The core elements of the planning environment analysis, therefore, deal with population, economic activity, and physical resources. These elements interact and result in a local environment that ultimately defines quality of life. This is manifested through the income, expenditures and services enjoyed by the community and its members. All of these are physically expressed in the way land and other physical resources are utilized.

Plan Structure and Process

The components and structure of the PDPFP come straight out of the analytical approach and follow a process familiar to most planners:

Stage 1: Visioning
Output: Governor/Provincial Development Council (PDC) inputs, vision

Stage 2a: Situation analysis: organization, data, initial analysis
Output: consultations, data and other inputs, initial analysis

Stage 2b: Situation analysis: plan environment
Output: Governor/PDC inputs, plan environment (socioeconomic profile or SEP) with development issues/problems

Stage 3a: Development objectives, strategies, PPAs
Output: consultations, development goals, objectives, strategies, PPAs

Stage 3b: Draft PDPFP
Output: Draft PDPFP (subject to public hearing)

Stage 4: PDPFP approval
Output: Sanggunian-approved PDPFP

Summary of the Guidelines for the Preparation of the PDPFP

A. Introduction. The Introduction provides a brief background on the province, the planning context and policy environment, and the objectives and coverage of the plan.

B. Vision. The vision provides a long-term view of the province that reflects local aspirations. It also serves as an inspirational guide for the rest of the PDPFP. As a general rule, the vision describes a long-term ideal state of the province.

C. The Planning Environment. The planning environment describes the physical, economic, and social environments of the province as inputs to the identification of strategies and PPAs:

1. Location, Land Area, and Political Subdivisions: A brief description of the location, land area, and political subdivisions of the province.
2. Population and Settlements: A range of demographic characteristics including regional/national comparisons; the distribution of the population and settlement patterns.
3. Physical Resources: Land and water resources; existing land uses, trends, and conflicts as key considerations in identifying development directions and specific PPAs.
4. Economy: The economic base, sectors, and industries that drive the provincial economy; potentials, and opportunities for economic growth; local growth factors.
5. Transportation, Access, and Circulation: Transportation conditions and facilities, and how they affect interactions among population, economic, and other social activities.
6. Income, Employment, Service Access, Poverty: Links between economic growth, employment, income, expenditures, access to goods and services, and poverty conditions.
7. Land Use and Physical Framework: A full picture of the way land and other physical resources are being utilized and a physical framework to guide the identification of PPAs.

D. Development Issues/Problems, Goals, Objectives and Targets. Development issues and problems (following the analysis of the planning environment), along with corresponding goals, objectives, and targets are identified.

E. Strategies, Programs, Projects, and Activities. For each identified development goal and objective, and guided by the vision, strategies, and PPAs are derived and identified.

part 1
introduction

introduction

A. BACKGROUND

NEDA, with assistance from ADB, formulated the Guidelines on Provincial/Local Planning and Expenditure Management comprising of (1) Integrated Framework, (2) Provincial Development and Physical Framework Plan, (3) Investment Programming and Revenue Generation, (4) Tools and Techniques on Budgeting and Expenditure Management, and (5) Project Evaluation and Development.

The second volume aims to provide provincial planners with the bases for identifying specific programs, projects, and activities (PPAs) towards achieving the development objectives and targets of the province. The output of the guidelines is the Provincial Development and Physical Framework Plan (PDPFP) which identifies strategies and corresponding PPAs that serve as primary inputs to the provincial investment programming process. The resulting PDPFP also serves as a key vertical influence in linking provincial development objectives with regional and national policies and priorities.

The guidelines recognize the following:

- The active support of the Provincial Governor is the single most important factor that can enhance the quality of the PDPFP and the implementation of its proposed PPAs. Consequently, many PPAs are intended to be implemented within the short- to medium-term, considering the three-year minimum term of the political leadership.

- While the overall state of development among provinces varies, relatively high population growth rates, wide gaps between desired and actual levels of services, and limited funding require a strategic approach to project identification, prioritization, and implementation.

- Only a few large-scale projects can be implemented within a term of office. It is important, therefore, that these projects have a positive and catalytic impact on local development.

- Many guidelines have been written for the preparation of development plans in general and of specific sectoral plans. This set of guidelines will build on—and not replicate—this body of work. However, it is not intended to be a compilation of existing guidelines. It offers a specific structure and approach to development planning and it integrates or refers to other guidelines consistent with its structure and approach. Thus, it is advisable to consult sector-specific planning guidelines (such as those on population, gender, and poverty) with respect to analytical tools, benchmarks and targets.

The overall **emphasis** of the guidelines is on following basic planning logic rather than on prescribing specific planning tools and algorithms.

- The guidelines have to be simple and easy to follow in order to be useful. Providing comprehensive descriptions and methodologies of the complexities of development problems may yield a more academically accurate set of guidelines, but this is unlikely to be useful to its intended users. The guidelines, therefore, simplify development concepts and methodologies to a reasonable extent as far as balancing comprehensiveness and practical application is concerned.

The overall emphasis of the guidelines is on following basic planning logic rather than on prescribing specific planning tools and algorithms. The latter are necessary components of the guidelines but they are intended to support rather than define the planning process. A firm understanding of basic planning logic provides an approach applicable to a wide variety of planning situations. And while the technical aspects of the approach may change as new ones are learned and applied in the course of planning practice and as changing conditions lead to corresponding adaptations, the core logic of the approach—how an issue is viewed, analyzed and responded to—will endure.

B. ANALYTICAL APPROACH

The guidelines are premised on three basic ideas.

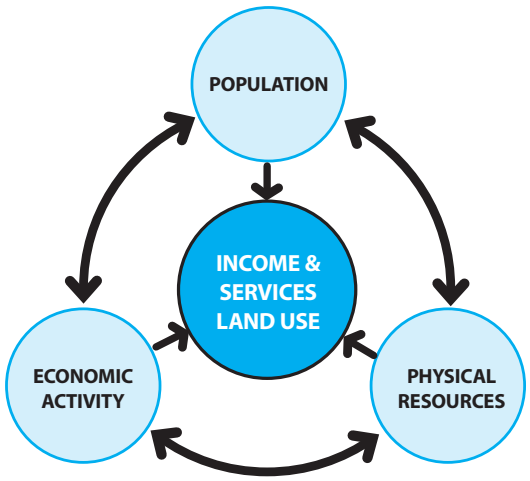
- First, provincial and other development resources should be viewed in terms of their potential benefits—short-, medium-, and long-term—to the people. Ultimately, for example, we cannot talk of how physical resources should be utilized or protected without talking about the people who will utilize them or the people from whom the resources need protection. Furthermore, people as resources and users of resources are not homogenous since their access to resources and benefits from development varies. Thus, cultural diversity, age, and vulnerability of population groups (e.g., children, elderly, indigenous peoples) should also be taken into account in the analysis.

- Second, development invariably requires material resources. To be sure, development is not defined solely or even principally by material factors; but one way or another, especially in

the extended term, it will require material support. In terms of poverty reduction, for example, economic growth is a necessary (but not always a sufficient) condition.

- And third, a province has a unique set of physical resources defined by its specific location. No other province or entity can occupy the same location, and thus no other province or entity can have the exact same set of resources.

Figure 1. Core Elements of Analysis



(Based on Losch, 1954; Jones, 1983)

The core elements of the planning environment analysis, therefore, deal with population, economic activity, and physical resources. These elements interact and result in a local environment that ultimately defines quality of life. This is manifested through the income, expenditures, and services enjoyed by the community and its members. All of these are physically expressed in the way land and other physical resources are utilized (Figure 1).

Population, economic activity, and physical resources may be viewed as drivers of development while income, extent of poverty, access to services, and land use may be simplistically referred to as symptoms or indicators of development. The lack of housing, for example, is a symptom of the lack of affordability, driven by the lack of income, employment, and economic growth. And while the lack of housing can be addressed by developing more mass housing projects, this can be sustained only if there is economic growth to support such investments.

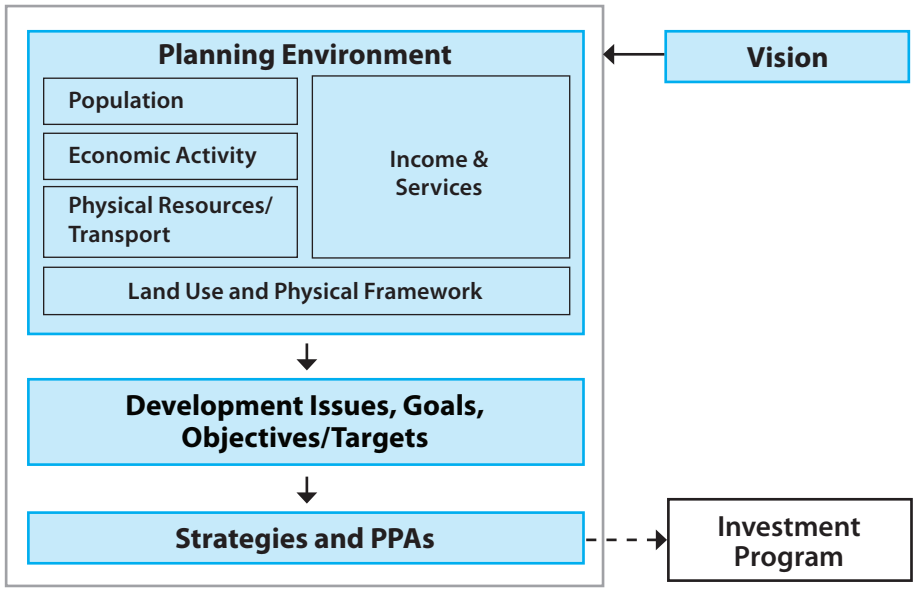
In reality, physical elements cannot be separated from sectoral elements (population, economic activities, social services, etc.) and therefore physical planning should be integrated with sectoral planning. For example, transportation plans should be guided by the mobility and access requirements of people, industries and services; likewise industrial development plans need to consider the opportunities and constraints of location and geography. Thus, in this set of guidelines, location and therefore maps are integral components not just of physical plans but also of sectoral analysis. This also means that a physical framework plan is inherently an integrating plan because physical space contains all the sectors all at once. For this reason, the discussion on land use is the last section in describing the planning environment—because unlike any single sector, it is able to pull together all the sectors and elements of the planning environment into a common framework.

Given the above, the major outputs of the PDPFP are a matrix of PPAs and a map showing how they are located and physically integrated in the province.

C. PLAN STRUCTURE AND ORGANIZATION

The structure of the PDPFP is derived directly from the analytical approach and follows a process familiar to most planners.

Figure 2. Structure of the PDPFP Guidelines



As illustrated in Figure 2, an assessment of the current situation, including trends, takes place during the analysis of the planning environment (composed of the development drivers and indicators and a physical framework) after which development issues, problems, goals objectives, and targets are identified. This leads to proposed strategies and PPAs that eventually become primary inputs to the investment programming process. These are all preceded by the formulation of a vision that serves as an overall guide to the planning process.

Vision. Where do we want to go?
The provincial community's long-term vision for the province serves as an overall guide for the formulation of the rest of the plan.

Planning Environment. Where are we right now?
Descriptions and analyses of the social, economic, and physical conditions and trends of the province serve as basis for identifying development issues and subsequent goals and courses of action (strategies, programs, projects, and activities).

Development Issues, Goals, Objectives, and Targets
Given our knowledge of the planning environment, what are the development issues and constraints and what goals, objectives and targets should we set to address these issues towards the attainment of our vision?

Development issues, constraints, problems, and corresponding goals, objectives, and targets serve as basis for identifying strategies and plans, programs, and activities intended for implementation.

Strategies, Plans, Programs and Activities. How do we get there?
Specific strategies, programs, projects, and activities to address development issues and accomplish objectives are the outputs of the PDPFP and become the primary inputs to the preparation of the Provincial Development Investment Program (PDIP) as the overall process shifts towards implementation.

As shown in the example in Figure 3, the typical section/subsection of the Guidelines starts with a key figure outline showing where the section topic is located relative to the entire PDPFP. This is followed by a statement of the specific objective of the section, a very brief explanation of how the objective is approached and/or a summary outline, and a step-by-step description of the recommended process. Required maps, figures and tables are listed; additional (optional) maps, figures, tables and other illustrative materials are also mentioned. Examples of most (not all) of the required maps, tables, or figures are also provided, along with clarificatory notes and planning tips, in separate boxes. More detailed descriptions of specific references and methodologies may also be provided as annexes.

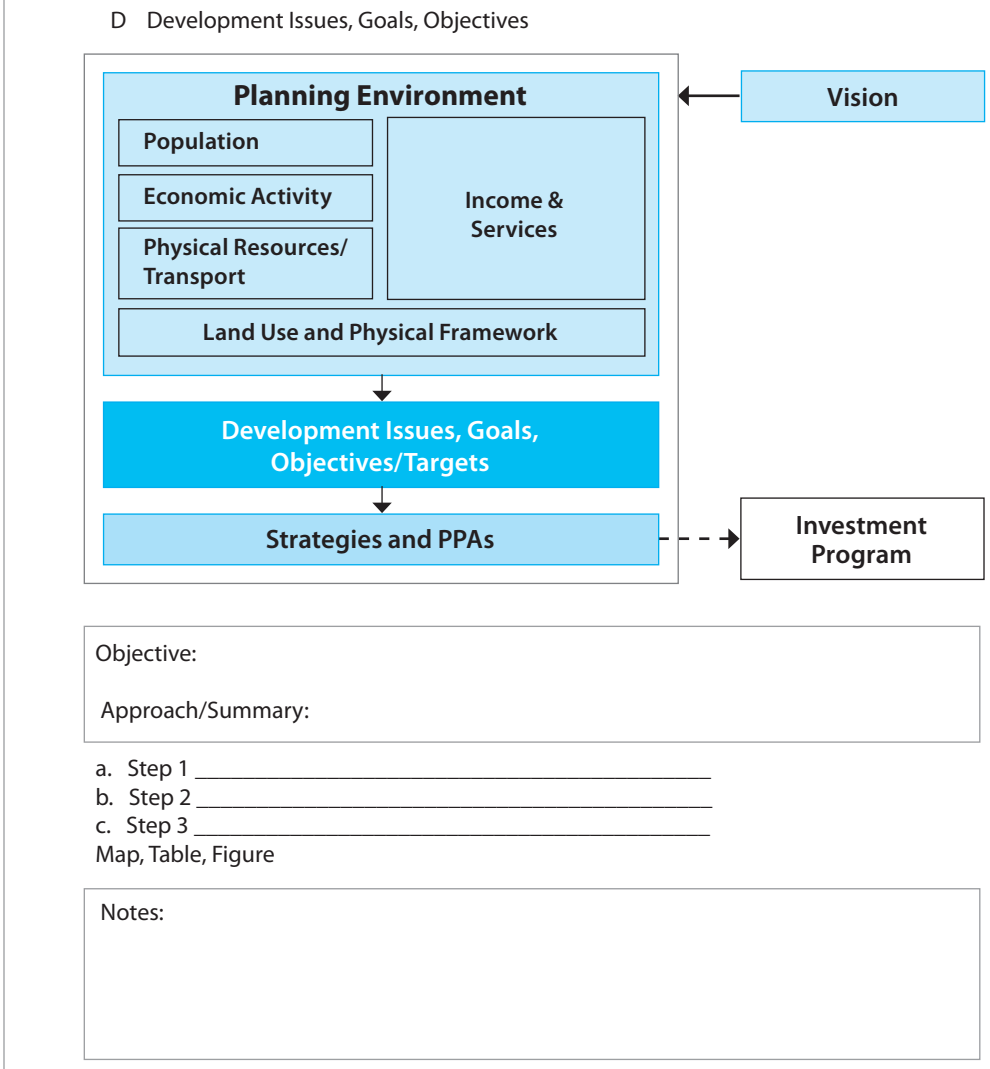
D. METHODOLOGY

Planning Environment

As described in greater detail in the guidelines, and to the extent possible given available data, analysis of the planning environment involves four basic lines of inquiry that are summarized as ETC/S:

Existing levels: Where are we?
Examine existing levels that describe the current state of the population, economic activities, physical resources, and service access.

Figure 3: Typical Structure of Section/ Subsection



Trends: Where are we headed?
Analyze trends—determine the future direction or historical trajectory of existing levels given certain scenarios and assumptions.

Comparisons: How do we compare with desired conditions and/or other benchmarks?
Compare levels and trends internally (e.g., inter-municipal), externally (e.g., inter-province or relative to the country as a whole) or with other benchmarks of provincial performance.

Strategic significance: So what? What do the existing conditions and trends mean with respect to our vision, needs, and available resources?

Assess the significance of the levels, trends and comparisons in terms of identifying what needs to be done and how these can be achieved given limited resources. The basic intent of the ETC/S format is to steer analyses into specific courses of action that take into account the strengths and weaknesses of the province and other strategic considerations.

For each of the sections of the planning environment, therefore, the focus is on deriving planning implications given current trends and scenarios.

Development Issues, Goals, Objectives, and Targets

The assessment of the planning environment reveals problems in each sector and indications of the extent of each problem relative to benchmarks and standards. This allows the identification of development issues or the most pressing problems facing the province. From these issues, overall goals and corresponding objectives and targets may be derived, guided by the long-term vision of the province.

While goals, objectives, and targets are firmed up and formalized after the assessment of the entire planning environment, they can already be identified as each sector is analyzed. Thus, for example, if elementary school student survival is identified as an important issue during the analysis of the education sector (because provincial elementary cohort survival rates are below nationwide levels and/or are further declining), then improving elementary school student survival may be identified as an objective. And in this case, an improvement of the nationwide survival rate may be identified as the target. This objective and its target may then be firmed up after the planning environment assessment process, taking into consideration other development issues and the overall vision of the province.

E. DATA REQUIREMENTS

Data gathering and multi-stakeholder consultation should take place throughout the planning process. Although consultation is obviously necessary during the initial data-gathering stage, the formulation of the vision, and as part of the final approval stage, it should take place as often as necessary, whether formally or informally. Data and information should be compiled in both text and map forms, whenever applicable.

The guidelines recognize the lack of data that hinders straightforward technical analysis. It is assumed, therefore, that planning decisions will be made with incomplete information. Still, some data are essential to the use of the guidelines. For example, some data that are disaggregated by gender may improve the identification of strategies and PPAs. It is also expected that the amount of available data will increase in the future as monitoring, data gathering, processing, and documentation mechanisms and facilities improve.

Historical coverage

The proposed PPAs of the PDPFP are intended to form part of a six-year medium-term development plan with firmed up targets for the first three years to align with the priorities of elective officials. This facilitates the identification of clear, focused, and implementable PPAs during the incumbency of the Governor. Thus, following the previous example, specific levels of improvement in school survival rates are targeted for each of the first three years of PDPFP coverage.

After the first three years, the plan is subject to a mid-term review, in part to establish targets for the second half of its coverage. The PDPFP is also intended to coincide with two three-year political terms of the Governor, aligned with a full term of the national leadership. It is guided by a long-term (e.g., 30-year) vision. The physical framework of the plan may also extend beyond the medium-term period.

While the PDPFP is a medium-term plan, its planning analyses extend beyond the medium-term to consider longer-term trends. This is especially evident in analyses dealing with the core elements of the planning environment.

Much of the analyses will depend on available census data and thus on 10-year intercensal periods. As a minimum, therefore, the latest and at least the previous census data will be utilized, although for some sectors, e.g., land use area distribution, production value, and service infrastructure coverage, etc., comparable historical data may not be available and therefore only the latest (i.e., no historical comparison) will have to suffice. If they are available and analytically comparable, local data will also be utilized.

Geographical coverage

The political boundaries of the province define the primary level of geographical analysis. Other provinces in the host region as well as the host region itself, and the country as a whole, are also included as benchmarks (as part of the comparative analytical methodology).

Cities and municipalities within the province serve as the major level of analytical disaggregation, although barangay-level data are recommended for selected population analysis. Groups or clusters of municipalities as well as geographically delineated areas (e.g., metropolitan areas, districts, watersheds, river basins) may also be utilized as required.

References to land and land use should include water and water use, unless otherwise specified.

Sectoral coverage

The planning environment of the PDPFP can include all major sectors relevant to the development of the province, with actual coverage depending on planner and stakeholder priorities and assessments. It is not necessary, therefore, to discuss all sectors equally, even as the guidelines suggest a basic set of analytical steps for initial consideration. As much as possible, and in order to establish comparability and context, sectoral data should be consistent with regional/national and city/municipal data. Economic data, for example, should try to follow the major sectoral classifications of the GRDP, which reflects the aggregate gross value added of all productive sectors of a region during an accounting period.

In terms of the traditional sectors that typically serve as templates for public sector planning analysis and implementation, the core elements correspond as shown in Table 1:

Table 1. Core Elements and Sectors

Core element	Sector
Population	Population
Economic activity	Agriculture, fisheries, forestry
	Trade, industry, services
	Tourism
Physical resources	Environment, natural resources
	Transportation and communication
Income/access to services	Health
	Education
	Housing
	Social welfare
	Public works (water supply, drainage, solid waste)
	Energy
	Security
	Other services and facilities (for community groups such as the elderly, children, indigenous peoples, etc.)
Land use	(Physical integration of all sectors)

It is useful to reiterate that the discussion of each sector involves the spatial characteristics of that sector—e.g., the location of key production areas and facilities, or the water supply distribution network, or the location of schools and other educational facilities. The discussion on land use and the physical framework, however, as previously pointed out, integrates all of the sectors into a common physical setting defined primarily by the province.

A summary of the data requirements and their likely sources is shown in Table 2 below. As much as possible, the gender perspective should be integrated in data collection in order to come up with a more objective identification of strategies and PPAs.

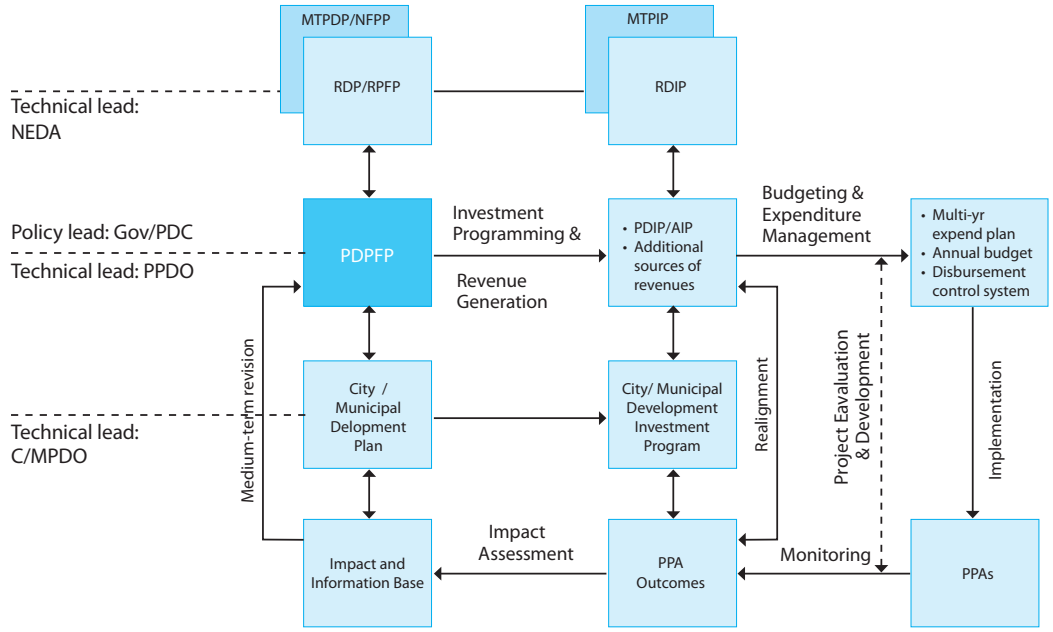
Table 2. Data Requirements

Core Element/ Sector	Data	Geographical unit	Period	Source
Population				
• Population	• Size, density, growth rate • If available: age-sex, urban-rural distribution; migration • Map	• Philippines, Region, Province • If available: other province in region, cities/municipalities in province, barangays	Latest, previous census	NSO, NCSB, LGUs
Physical Resources				
• Environment, natural resources, protection forestry	• Land area • Characteristics of land resources • Land use, land suitability, land classification • Map	• Province • If available: region, other province in region, cities/ municipalities in province	Latest census	sectoral agencies, LGUs
By transport mode or industry if available: • Transport and communication	• Existing and proposed facilities, routes, levels of service • Map	• Province • If available: region, other provinces in region, cities/ municipalities in province	Latest census	sectoral agencies, LGUs
Economic Activity				
By subsector or industry if available: • Agriculture, fisheries, production forestry • Manufacturing • Trade, industry, services • Tourism	• Employment, income, or value of prod by sector • Export products, markets, volumes by sector (if available) • Existing, proposed support infrastructure • Map	• Philippines, Region, Province • If available: other province in region, cities/municipalities in province	Latest, previous census	NSO, sectoral agencies, LGUs
Income and Services				
• Employment	• Employment/ Unemployment rates	• Philippines, Region, Province	Latest, previous census	NSO, NCSB
• Income and poverty	• Average family income • Poverty indicators • Map (if available)	• Philippines, Region, Province • If available: other provinces in region, cities/ municipalities in province	Latest, previous census	NSO, NCSB, LGUs
• Housing, Health, Education, Sanitation, Security • Public works: roads, water supply, solid waste, drainage • Power; other sectors	• Existing and proposed facilities • Levels of service of basic social services (health, education, sanitation, security), public works • Map	• Region, Province • If available: other province in region, cities/municipalities in province	Latest census	sectoral agencies, LGUs
• Land Use	• Location/maps of above sectors	• Province • If available: cities/ municipalities in province	Latest available, previous	LGUs, sectoral agencies

F. PLANNING PROCESS AND LINKAGES

As mentioned earlier, the PDPFP is a key link in the network of plans covering the national, regional, provincial, and city/municipal levels. At the provincial level, the PPAs derived from the PDPFP are the bases for a multi-year Provincial Development Investment Program (PDIP) and the annual investment program (AIP); the AIP is the basis for budgetary allocations for PPAs. (Figure 4)

Figure 4. Provincial Development Planning and Expenditure Management System



The entire process, from the preparation of the PDPFP to the approval of the annual budget, may take place over a period of one year.

For the process covering the preparation and approval of the PDPFP:

- The Governor and the Provincial Development Council (PDC) provide overall policy direction.
- The Provincial Planning and Development Office (PPDO) has overall responsibility for the technical preparation of the PDPFP, including the consultation and approval processes.

- Key vertical linkages:
  - The Regional Development Council (RDC) , NEDA Regional Offices, with policy and other document inputs provided through the Regional Development Plans (RDPs), Regional Physical Framework Plans (RPFPs), Regional Development Investment Programs (RDIPs), the Medium-Term Philippine Development Plan (MTPDP), and National Framework for Physical Planning (NFPP).
  - City/Municipal Planning and Development Offices of cities and municipalities in the province, with document inputs from the Comprehensive Land Use Plans (CLUPs) and other local development plans, which use data provided by the Barangay Development Councils.
  - Technical Working Groups (TWGs) involving the above as well as other regional and national agencies such as the Department of Public Works and Highways (DPWH), Department of Environment and Natural Resources (DENR), Department of Agriculture (DA), Department of Transportation and Communications (DOTC), Department of Education (DepEd), Department of Health (DOH), and Department of Social Welfare and Development (DSWD), National Commission on the Role of Filipino Women (NCRFW), and National Anti-Poverty Commission (NAPC).

- Key horizontal linkages:
  - Forward linkage: Provincial Finance Committee with the PPAs as inputs to the investment programming process.
  - Backward linkage: Provincial Department Heads and their Monitoring and Evaluation Units in providing feedback and other inputs for the medium-term revision or re-planning of the PDPFP.

As a whole, and especially for vertical linkages, the process goes back and forth with national and regional plans and policies guiding provincial and other local plans while receiving feedback and inputs from the latter.

The vertical integration process requires constant coordination by the PPDO with counterpart planning agencies at the regional, city, and municipal levels as well as with concerned national government agencies to ensure consistency in vision, goals and objectives, strategic thrusts, and, to the extent possible, complementarity among PPAs. Similarly, it is expected that the Governor will articulate the provincial vision, goals, objectives, targets, and PPAs in the PDC and RDC, in order to harmonize them with those of component cities/municipalities and other provinces in the region, respectively. Towards this objective, pooling resources with other provinces as well as with component cities and municipalities may be undertaken in planning and implementing mutually beneficial PPAs.

The preparation and approval of the PDPFP involve several stages as follows, described here with an emphasis on their institutional linkages.

Stage 1: Visioning
The vision reflects the provincial community's aspirations for the long-term future of the province and serves as an overall guide to the planning process. Like the rest of the planning process, the visioning activity is spearheaded by the Governor and the PDC, is organized and managed by the PPDO, and includes all sectors and stakeholders of the province.

Stage 2a: Situation analysis: organization, data, initial analysis
Stage 2a covers the initial organization and meetings of TWGs. The PPDO is responsible for organizing the TWGs that form the Sectoral Committes of the PDC. Each TWG is composed of stakeholders of a sector or a related group of sectors, including NGO and other private sector representatives. Its primary role is to assess the sector (or group of sectors) it represents, providing inputs to the PPDO during the assessment of the planning environment (situation analysis). The activities during this stage involve identifying responsibilities, setting up timetables, discussions on the development thrusts and priorities of the Governor and the PDC/Execom, initial consultations within and outside the TWGs, (including city/municipal, regional and, if necessary, national level consultations), and consolidation of data inputs, reference information, and other requirements.

Stage 2b: Situation analysis: plan environment
Stage 2b covers much of the technical analysis and the identification of key issues, problems, and constraints. This stage includes updates to the Governor and PDC/Execom, particularly regarding priority issues and their alignment with current or proposed government priorities. Consultations with concerned public agencies and private groups continue as required. (The output of this stage also comprises the main elements of the provincial socioeconomic profile.)

Stage 3a: Formulation of development goals, objectives/targets, strategies, and PPAs
Stage 3a covers the identification of development goals, objectives/targets, strategies, and PPAs in consultation with TWGs and key sectoral representatives, especially for sectors with identified priority issues. This stage relies on the outputs of the assessments of the planning environment.

Stage 3b: Draft PDPFP
Stage 3b involves drafting the revised PDPFP, updates to the Governor, the PDC/Execom, and other key stakeholders with respect to proposed strategies and PPAs, and a public hearing on the draft PDPFP. This stage can take place while much of the previous stage is ongoing.

Stage 4: Sanggunian approval
Stage 4 involves the submission of the draft PDPFP, with appropriate revisions according to the public hearing, to the Sanggunian for approval.

The stages described above are valid for drafting a new PDPFP or for simply reviewing and updating one. In the latter case, however, Stages 1 and 2 may be less intensive and oriented towards validation rather than formulation.

An indicative summary of the activities and schedule of the planning and approval process is shown in Figure 5. The actual duration of the process may vary according to local priorities and conditions but should meet the Local Government Code-prescribed budgetary timetable which is also espoused in the DILG-NEDA-DBM-DOF Joint Memorandum Circular No.1, Series of 2007. In the example below, the entire process takes place over a period of four months.

Figure 5. Example: PDPFP Preparation and Approval Schedule

Activity / Week>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STAGE 1: Visioning	**Output: Gov/PDC inputs, vision**															
• Governor and PDC/Execom directions (for vision and PDPFP preparation in general) • Visioning activity																
STAGE 2a: Situation analysis: organization, data, initial analysis	**Output: consultations, data, other inputs, initial analysis**															
• TWG: organization, schedule, development thrusts, data gaps, responsibilities • Data gathering/consolidation • Stakeholder consultations • Consolidate data, other inputs																
STAGE 2b: Situation analysis: plan environment	**Output: Gov/PDC inputs, plan environment/socioeconomic profile with development issues/problems**															
• TWG: Identification & prioritization of issues/problems • Governor & PDC/Execom update, directions • Draft plan environment (basis for SEP) with development issues																
STAGE 3a: Development goals/ objectives, strategies, PPAs	**Output: consultations, development goals, objectives, strategies, PPAs**															
• Formulate goals, objectives, and targets • Formulate strategies, PPAs • TWG: draft strategies, PPAs • Stakeholder consultations																
STAGE 3b: Draft PDPFP	**Output: Draft PDPFP (subjected to public hearing)**															
• Draft PDPFP • Governor and PDC/Execom update • Public hearing and other consultations																
STAGE 4: PDPFP approval	**Output: Sanggunian-approved PDPFP**															
• Final draft • Sanggunian approval																

part 2

guidelines for the preparation of the provincial development and physical framework plan

guidelines for the preparation of the pdpfp

A. INTRODUCTION

Objective:
The PDPFP aims to provide a brief background on the province, the planning context and policy environment, and the objectives and coverage of the Provincial Development and Physical Framework Plan (PDPFP). The background will serve as an introduction to the vision.

Summary:
1. Historical background
2. Plan objectives and context
3. Coverage of the plan
4. Outline of the plan

1. Historical background

1.1. Provide a brief historical background of the province. This may include:
  1.1.1. Origin (e.g., how the province was created and from which area or areas the province originated).
  1.1.2. The year the province was founded.
  1.1.3. The etymology or origin of the name of the province and other interesting historical features of the province.
1.2. State the number of cities/municipalities and the total population of the province.

2. Plan objectives and context

2.1. Identify the objectives of the plan. These objectives should include the following:
- 2.1.1. Define the vision for the province.
- 2.1.2. Provide the analytical basis for understanding existing conditions and identifying key development issues, goals, objectives, and targets of the province.
- 2.1.3. Translate the vision into strategies that can be implemented to attain the goals, objectives, and targets.
- 2.1.4. Identify programs and projects consistent with the strategies and which serve as inputs to the PDIP.
- 2.1.5. Other objectives identified by the province.

2.2. Describe briefly the context of the plan within the overall hierarchy of plans. (Refer to Part 1, Section F, "Planning Process and Linkages.")

2.3. Describe key policy and legislative mandates for the plan.

Example of objectives (2.1) and context (2.2)

2.1. Objectives of the PDPFP

The PDPFP is the primary technical guide to the development of the province. Its specific objectives are to:

a. Derive the overall vision for the province.
b. Provide the analytical basis for understanding existing conditions and identifying key development issues, problems, opportunities, goals, objectives, and targets of the province.
c. Translate the vision into implementable strategies towards the attainment of goals, objectives, and targets.
d. Guided by the vision, identify programs, projects, and activities consistent with the proposed strategies.

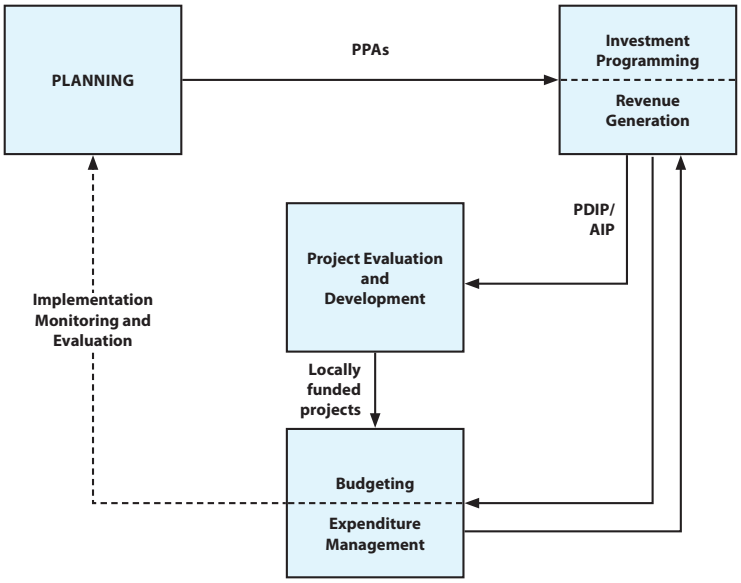
2.2. Context of the PDPFP

The PDPFP is a key link in the network of plans covering the national, regional, provincial, and city/municipal levels.

Plans and investment programs at the provincial level must have vertical connections to corresponding plans at the regional and city/municipal levels. In turn, regional plans and programs must relate to corresponding plans at the national level. The resulting PDPFP, therefore, serves as a vertical link between local development objectives and regional and national priorities. At the provincial level, the PPAs derived from the PDPFP are the bases for a multi-year investment program (PDIP--a prioritized list of PPAs with cost estimates) and an

annual investment program (AIP or the current year "slice" of the PDIP). In turn, the AIP serves as the basis for budgetary allocations for PPAs.

As shown in the figure below, investment programming, budgeting, and subsequent implementation involve project evaluation and development, which eventually provide feedback into the next planning cycle.



3. Coverage of the plan

3.1. Describe the historical coverage of the plan.
3.2. Describe the geographical coverage of the plan.
3.3. Describe the sectoral coverage of the plan

Example of description of coverage (3.1, 3.2, 3.3)

3.1. Historical Coverage

The PDPFP is a six-year medium-term development plan, guided by a long-term vision. It is intended to coincide with two three-year political terms of the Governor, and can be aligned with a full term of the national leadership.

Planning analyses, however, extend beyond the medium-term to consider longer-term trends. These are necessary inputs to the identification of strategies and PPAs for the six-year plan period.

3.2. Geographical coverage

The political boundaries of the province define the primary level of geographical analysis. Other provinces in the host region as well as the host region itself, and the country as a whole, are also included as benchmarks in some of the analyses.

Cities and municipalities within the province serve as the major level of analytical disaggregation, although barangay-level data are recommended for selected population analysis. Groups or clusters of municipalities as well as geographically delineated areas (e.g., metropolitan areas, watersheds) may also be utilized as required.

References to land and land use will include water and water use, unless otherwise specified.

3.3. Sectoral coverage

The planning environment of the PDPFP includes all major sectors relevant to the development of the province. As much as possible, and in order to establish comparability and context, sectoral data should be consistent with regional/national and city/municipal data.

In terms of the traditional sectors that typically serve as templates for public sector planning analysis and implementation, the core elements correspond as follows:

Core Element	Sector
Population	Population
Economic Activity	Agriculture, fisheries, forestry, trade, industry, services, tourism
Physical Resources	Environment, natural resources, transport
Income/Access to Services	Health, education, housing, social welfare, public works, energy, security, other services and facilities (for community groups such as the elderly, children, indigenous peoples, etc.)
Land Use	Physical integration of all sectors

4. Outline of the plan

Briefly describe the contents of the rest of the plan:

4.1. Vision
4.2. Planning Environment
4.3. Development Issues/Problems, Goals, Objectives, and Targets
4.4. Strategies, Plans, Programs, and Activities

Example of description of outline

The rest of the PDPFP is organized as follows:

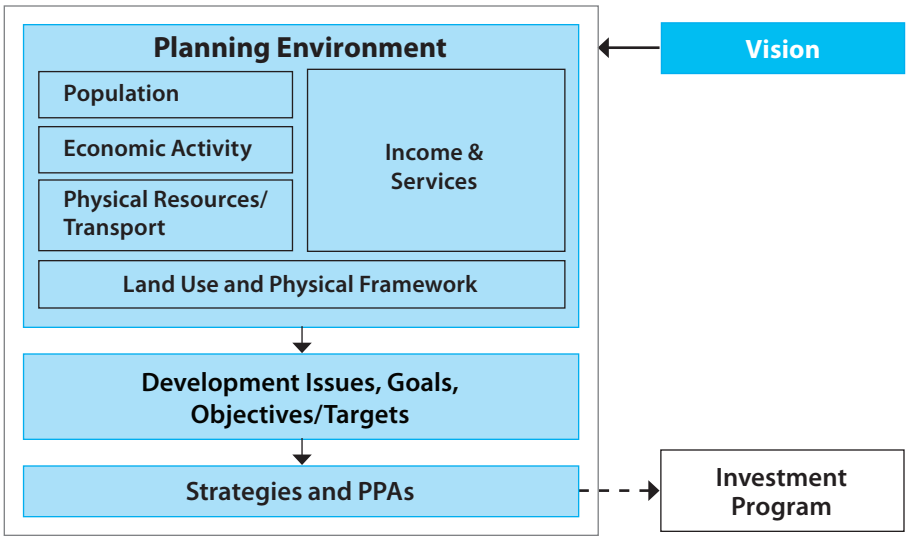
4.1. Vision: The provincial community's long-term vision for the province, as expressed through its leadership in consultation with stakeholders.

4.2. Planning Environment: Descriptions and analyses of the social, economic, and physical environment of the province that serve as basis for identifying development challenges and issues and subsequent courses of action (strategies, plans, programs, and activities).

4.3. Development Issues/Problems, Goals, Objectives, and Targets. Issues, challenges, and opportunities facing and accompanying the task of accomplishing the identified development goals, objectives and targets.

4.4. Strategies, Plans, Programs, and Activities. Specific strategies, plans, programs, and activities to address development issues and accomplish objectives.

B. VISION



Objectives:

a. Primary: To provide a long-term view of the province that reflects the aspirations of its leadership and citizens and which will serve as an overall inspirational guide for the rest of the PDPFP.
b. Secondary: To solicit inputs from constituents regarding perceived problems, issues, opportunities, and other plan directions.

While the visioning process is not intended to include a comprehensive assessment of development conditions in the province, it is nonetheless a good opportunity to find out how provincial community members perceive the state of the province and the development directions they have in mind. These perceptions and other ideas derived during the visioning process need not be included in this part of the plan document but they should serve as initial inputs to the rest of the planning process.

State the vision for the province. As a guide, note that:

1. The vision describes the desired state of the province 30 years or so hence.
2. The vision should be a non-financial statement that describes the people, economy, the natural and physical environment desired for the province.
3. While idealistic, the vision should not be impossible to attain.

4. The vision should serve as an inspirational guide in identifying general and specific strategies in response to the analysis of the planning environment.
5. The vision should be crafted under the initiative and guidance of the Provincial Governor, reflecting the Governor's appreciation of the conditions and potentials of the province, in consultation with members and leaders of the provincial community.

Examples of Vision:

(Source: Respective LGU websites)

Leyte:

By year 2010 and beyond, a progressive province of Leyte will emerge whose empowered citizens live within a healthy and peaceful environment, serving as the country's production center for industrial crops; a jump-off point for commerce and trade; a seat for medium and heavy industries; a geothermal power production and technology center; and a major tourism destination point for history, culture, and nature travel.

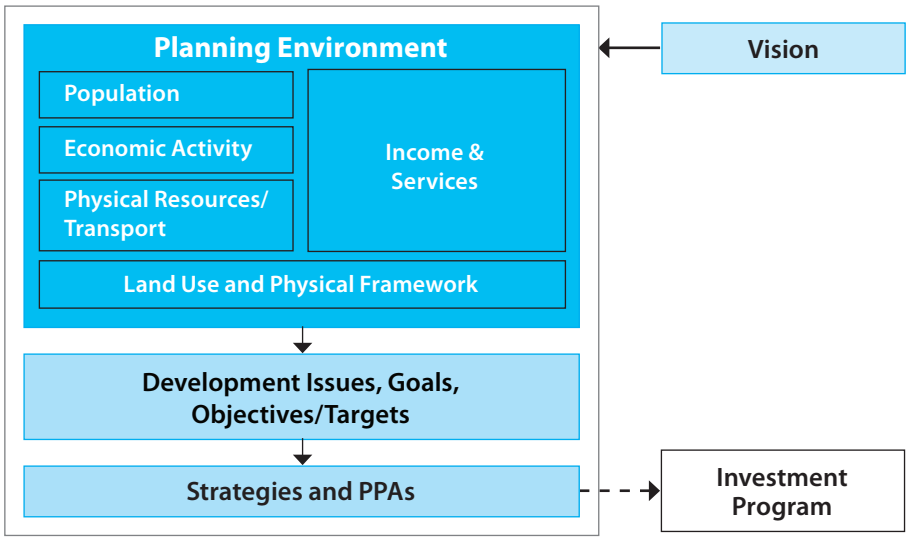
Ilocos Norte:

The Provincial Government of Ilocos Norte envisions that the province will be self-sufficient in terms of its food requirement and become an agro-industrial center in the northern Luzon Growth Corridor.

Davao Oriental:

Davao Oriental will be developed into a socially and economically progressive province in agriculture, fishery, forestry, eco-tourism, industry, and human resource-based activities in the context of a balanced ecosystem through effective governance.

C. THE PLANNING ENVIRONMENT



Overall objective:
To describe the province's physical, economic, and social environments in order to understand its current state of development, potentials, and constraints as inputs to the identification of appropriate strategies, programs, projects, and activities.

Summary:
1. Describe and assess the development drivers (population, physical resources, and economic activities).
2. Describe and assess indicators of development (income and access to services).
3. Describe and assess land uses; define a framework for the physical development of the province.

A brief description of the location, land area and political subdivisions of the province should precede the assessment and serve as an introduction.

1. Location, land area, and political subdivisions

Describe the location, land area, and political subdivisions of the province. The text description should include:

1.1. The island and administrative region where the province is located.
1.2. The location and boundaries of the province.

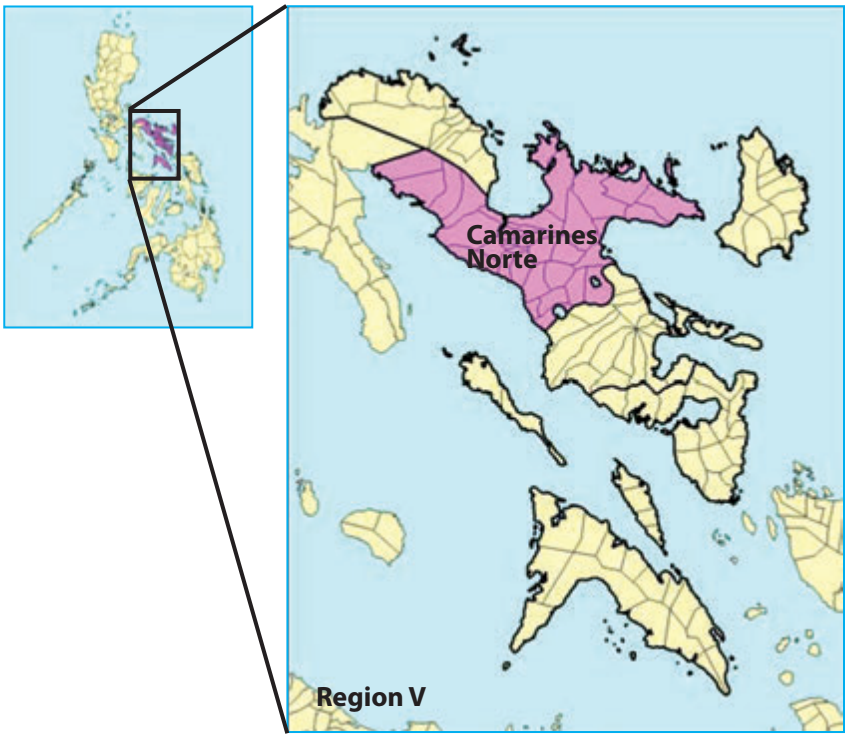
1.3. The political subdivisions of the province (districts and corresponding cities and municipalities); the total number of barangays.
1.4. The location of the capital city and other landmark features within the province.

Map 1. Regional Location Map: a map of administrative region showing the location of province, with a reference inset map of the Philippines.

Map 2. Province Map: a map of the province, showing provincial, district and city/municipal boundaries, major water features (lakes, streams, coastal areas), major roads, the capital city, and other settlement centers.

Table 3. Table of land area of cities/municipalities in the province, by district.

Example of Map 1: Region V, Camarines Norte



Example of Map 2: Iloilo province

2. Population and Settlements

Objective:
To describe basic demographic characteristics and settlement patterns.

Approach and summary:
Understanding the main characteristics of the population is key because the people of the province are the principal intended beneficiaries of the PDPFP. The following analysis covers a range of demographic characteristics starting with a regional/ national comparison followed by an assessment of internal characteristics. The distribution of the population is then considered by looking at the existing settlement pattern. (For an example of an analysis following the steps described in this section, see Case Study 1.)

2.1. Regional and national context: population size, density, and growth rate
2.2. Demographic characteristics of the province: population size, density, growth rate, spatial distribution (hierarchy)
2.3. Existing settlement pattern
2.4. Summary and overall trends

The topics above provide a basic appreciation of the size, distribution, and trend of the provincial population and may be considered as the minimum requirement. It is advisable, however, that additional topics are covered along with a more comprehensive assessment following the PopDev framework. This framework describes demographic characteristics according to population outcomes (size, age-sex, and spatial distribution) and population processes (fertility, mortality, and migration). See "Guide to Gender-Responsive PopDev Planning," 2005. Two recommended additional topics are:

- Urban-rural characteristics (See Annex A)
- Migration (See Annex B)

2.1. Population: regional and national context

2.1.1. State the population size and density of the province (latest census), and average annual population growth rate (APGR) during last intercensal period. (Sources: National Statistics Office, PPDO)

2.1.2. Provide external benchmarks. Compare:

a. The population size of the province with those of the other provinces in the region and the largest province of the country.

b. The provincial growth rate and density with those of the country, the region and other provinces in the region.

c. The population doubling time of the province with the doubling time of the region and the country.

Notes

There are alternative to NSO population data such as local civil registration data. But this and other alternatives may not necessarily provide more accurate population estimates. Any data set, whether census- or civil registration-based, will not be able to capture the actual number of people in a city, municipality or province because this number changes constantly. In addition to population growth based on natural increase and medium- to long-term migration, actual population fluctuates within a year (seasonally), within a week or within a day. Such fluctuations are more apparent for large urban centers and for provinces with urban centers that are regional destinations, especially those close to provincial boundaries. In the latter case, for example, daytime population can be double that of nighttime. In general, locally-generated data may provide better estimates for local service requirements but they are unlikely to be comparable to NSO data. This makes comparisons with other provinces, the region, and the country as a whole problematic. Comparative analysis is key, however, for competitive assessments. Having both sets of data is ideal, but NSO data should be the minimum.

Doubling time is the number of years a population will double given a constant growth rate. It is not intended to be a planning target; rather, it is an illustrative example of the growth rate, showing what will happen if the rate does not change. It can be estimated by dividing the constant number "69" by the population growth rate. For example, assuming a 2% growth rate, the population of a province will double in 69/2 = 34.5 years.

Table 4: Latest census population size, annual population growth rate (latest intercensal period), land area, density: Philippines, region, provinces in region. (See Annex C for guidance in computing growth rates)

Example of Table 4: Region X, Population, Annual Population Growth Rate, Density, Area, by Province, Philippines, 1990, 2000

Province	Pop 1990	Pop 2000	Pop 2000 % Share	APGR 1990-2000	Density 1990	Density 2000	Area (sqkm)	Area %
Camiguin	64,247	74,232	2.1%	1.46%	258	299	249	1.4%
Misamis Oriental	865,051	1,126,123	32.3%	2.67%	244	317	3,547	20.6%
Misamis Occidental	418,562	477,404	13.7%	1.32%	217	248	1,928	11.2%
Lanao del Norte	614,092	758,123	21.8%	2.13%	209	258	2,941	17.1%
Bukidnon	843,891	1,048,605	30.1%	2.20%	99	123	8,519	49.6%
Region X	2,805,843	3,484,487	100.0%	2.19%	163	203	17,183	100.0%
Philippines	60,703,216	76,498,735		2.34%	206	260	294,554	

Source: based on NSO

2.2. Population size, density, and growth rate

2.2.1. Size and distribution

Describe the population distribution among provincial settlements:

a. Identify the largest city/municipality in terms of population and its percentage share of the provincial population. Compare the population of the largest city with benchmark cities and municipalities in the region/country (e.g., regional center, Metro Manila).
b. State the population and percentage share of the provincial population of the five largest cities/municipalities.
c. State the population and percentage share of the rest of the provincial population (from the sixth largest to the smallest). State the number of municipalities that account for the rest of the population.

d. Describe the behavior of the percentages (increasing or decreasing) mentioned above over the past census periods. This will indicate whether population is clustering towards the largest settlements or towards the rest of the province. (Table 6)

Table 5: Latest and previous census population size, annual population growth rate during last intercensal period (e.g., 1995-2000), land area, density, by province, cities/municipalities within the province. (See Annex C for guidance in computing growth rates.)

Table 6: Population shares, latest and previous census population, cumulative population shares, additional population (latest-previous census), by city/municipality.

Note: Cities/municipalities may be listed by district with district totals.

Example of Table 5: Lanao del Norte Population, Annual Population Growth Rate, Density, Area, by City/Municipality, 1990, 2000

City/ Municipality	Pop 1990	Pop 2000	Pop 2000 % Share	APGR 1990-2000	Density 1990	Density 2000	Area (sqkm)	Area %
Iligan	226,568	285,061	37.6%	2.32	364.15	458.16	622.19	21.2%
Lala	50,100	56,447	7.4%	1.20	405.11	456.43	123.67	4.2%
Tubod	36,083	43,067	5.7%	1.79	348.26	415.66	103.61	3.5%
Kapatagan	33,397	42,783	5.6%	2.51	194.88	249.65	171.37	5.8%
Karomatan	27,492	41,865	5.5%	4.30	172.85	263.22	159.05	5.4%
Baloi	27,512	38,534	5.1%	3.43	575.69	806.32	47.79	1.6%
Kulambugan	22,533	24,180	3.2%	0.71	279.01	299.41	80.76	2.7%
Baroy	18,897	20,392	2.7%	0.76	289.74	312.66	65.22	2.2%
Maigo	14,613	17,826	2.4%	2.01	1 48.64	181.32	98.31	3.3%
Salvador	13,576	17,055	2.2%	2.31	268.35	337.12	50.59	1.7%
Bacolod	14,637	17,020	2.2%	1.52	154.77	179.97	94.57	3.2%
Ragat Pantao	12,530	16,474	2.2%	2.77	168.78	221.90	74.24	2.5%
Poona-Piagapo	13,356	16,092	2.1%	1.88	134.35	161.88	99.41	3.4%
Munai	12,006	15,972	2.1%	2.90	101.98	135.67	117.73	4.0%
Kauswagan	16,961	15,364	2.0%	-0.98	361.56	327.52	46.91	1.6%
Sapad	13,206	15,167	2.0%	1.39	137.78	158.24	95.85	3.3%
Linamon	13,449	14,959	2.0%	1.07	361.24	401.80	37.23	1.3%
Pantar	10,148	12,826	1.7%	2.37	115.41	145.87	87.93	3.0%
Nunungan	9,631	12,205	1.6%	2.40	20.90	26.49	460.73	15.7%
Magsaysay	8,841	11,218	1.5%	2.41	114.11	144.79	77.48	2.6%
Matungao	7,264	9,266	1.2%	2.46	180.29	229.98	40.29	1.4%
Tagoloan	6,853	8,233	1.1%	1.85	117.23	140.83	58.46	2.0%
Tangkal	4,439	6,117	0.8%	3.26	34.76	47.90	127.70	4.3%
Lanao del Norte	614,092	758,123	100.0%	2.13	208.80	257.77	2941.09	100.0%

Source: based on NSO

Example of Table 6: Lanao del Norte Population Shares, by City/Municipality, 1990, 2000

City/ Municipality	Pop 1990 % Share	Pop 2000 % Share	CumPop 1990 % Share	CumPop 2000 % Share	2000-1990 % change
Iligan	36.9%	37.6%	36.9%	37.6%	0.7%
Lala	8.2%	7.4%	45.1%	45.0%	-0.7%
Tubod	5.9%	5.7%	50.9%	50.7%	-0.2%
Kapatagan	5.4%	5.6%	56.4%	56.4%	0.2%
Karomatan	4.5%	5.5%	60.8%	61.9%	1.0%
Baloi	4.5%	5.1%	65.3%	67.0%	0.6%
Kulambugan	3.7%	3.2%	69.0%	70.2%	-0.5%
Baroy	3.1%	2.7%	72.1%	72.9%	-0.4%
Maigo	2.4%	2.4%	74.5%	75.2%	0.0%
Salvador	2.2%	2.2%	76.7%	77.5%	0.0%
Bacolod	2.4%	2.2%	79.0%	79.7%	-0.1%
Ragat Pantao	2.0%	2.2%	81.1%	81.9%	0.1%
Poona-Piagapo	2.2%	2.1%	83.3%	84.0%	-0.1%
Munai	2.0%	2.1%	85.2%	86.1%	0.2%
Kauswagan	2.8%	2.0%	88.0%	88.1%	-0.7%
Sapad	2.2%	2.0%	90.1%	90.1%	-0.1%
Linamon	2.2%	2.0%	92.3%	92.1%	-0.2%
Pantar	1.7%	1.7%	94.0%	93.8%	0.0%
Nunungan	1.6%	1.6%	95.5%	95.4%	0.0%
Magsaysay	1.4%	1.5%	97.0%	96.9%	0.0%
Matungao	1.2%	1.2%	98.2%	98.1%	0.0%
Tagoloan	1.1%	1.1%	99.3%	99.2%	0.0%
Tangkal	0.7%	0.8%	100.0%	100.0%	0.1%
Lanao del Norte	100.0%	100.0%			

Source: based on NSO
Note: Cumulative population shows the percentage share of populations of successive cities/municipalities

2.2.2. Density and urbanization

a. Identify the city/municipality that has the highest density in the province. Identify the other cities/municipalities that have high population densities (substantially higher than the provincial average).

b. Compare the highest density city/municipality with:
   i. The province as a whole;
   ii. Other cities/municipalities in the province; and
   iii. Benchmark cities and municipalities in the region/country (e.g., regional center, Metro Manila).

c. Based on density maps (Maps 3a, 3b), describe how city and municipal densities have been increasing historically. Note the location of high and low-density cities and municipalities for each census and describe any observed spatial pattern.

d. If data is available, describe urbanization trends based on the density maps. (See Note below.)

Maps 3a and 3b: Density maps, by city/municipality, latest and previous census. (Additional maps may be included, using previous census data.)

Notes

It is recommended that the density categories used in density maps include 5 persons per square kilometer (or 500 persons per hectare) as the upper limit of the first or second category. For example, a density map could have the following density categories: 0-5, 5-10, 10-15, 15-20, and 20 & above persons per square kilometer.

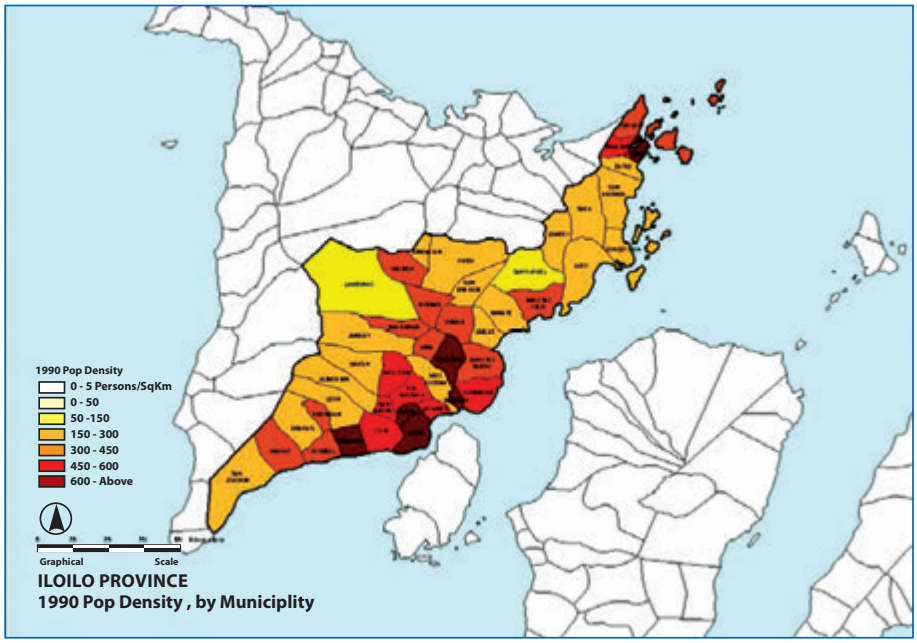
As explained in Annex A, a density of 5 persons/sqkm is an estimate of the lower density limit of urban areas such that areas that fall below this limit (0-5 persons/sqkm) may be considered rural while those above it (5 and above persons/sqkm) may be considered as urban areas. However, urban and rural interpretations of densities are best limited to barangay-level data (maps showing barangay boundaries) because classifying an entire municipality as urban or rural is too general and sweeping. Nonetheless, even if density data is available only for the city or municipal level, the 0-5 persons/sqkm is still useful as an indicator of overall urbanization trends. This is especially relevant since official census data on urban and rural areas are historically inconsistent (and are therefore not historically comparable) if not unavailable. (See Annex A for further discussion on the interpretation of urban and rural populations using density maps.)

Example of interpretation of density maps:

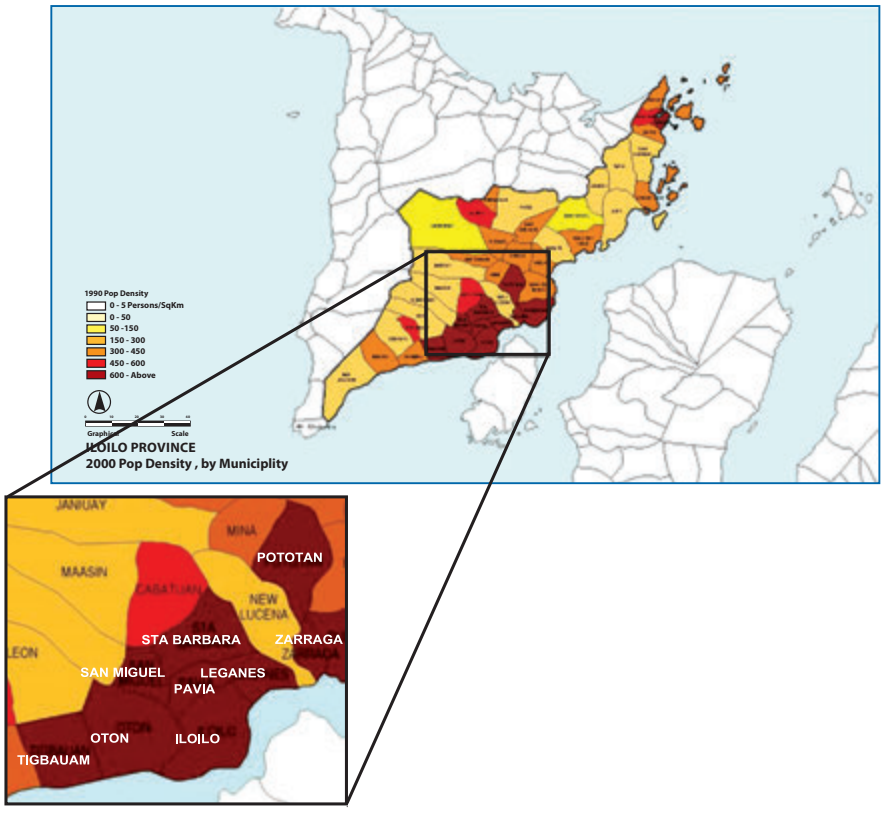
In the case of Iloilo province example (above), the 1990 and 2000 density maps show increasing densities around the capital city. By 2000, densities in Pavia, Sta Barbara, Oton, Leganes, Tigbaua, and San Miguel, increased to an extent suggesting that Iloilo City's metropolitan influence has extended to include these municipalities. Overall, these municipalities are also the most urbanized outside Iloilo City. Growth in New Lucena, however, appears slower than its neighboring municipalities, even as Pototan and Zarraga densities also appear substantial.

As a whole, the density maps confirm the perception that the most significant population growth in the province is fueled by Iloilo City.

Example of Map 3a: Density map, Iloilo, 1990



Example of Map 3b: Density map, Iloilo, 2000



2.2.3. Growth rate

a. Identify the cities/municipalities growing faster than the province as a whole. Identify those growing slower. Try to explain why these are growing faster or slower.

   For example, do some of the settlements that are growing faster or slower have specific roles or experiences—economic, political/ administrative, cultural/historical, etc.--that are worth pointing out?

b. How do the growth characteristics relate to the previous discussion on densities? Which municipalities have:

   - High densities and are fast-growing?
   - Low densities and are fast-growing?
   - High densities and are slow-growing?
   - Low densities and are slow-growing?

Possible relationships: Densities vis-à-vis Growth Rates:

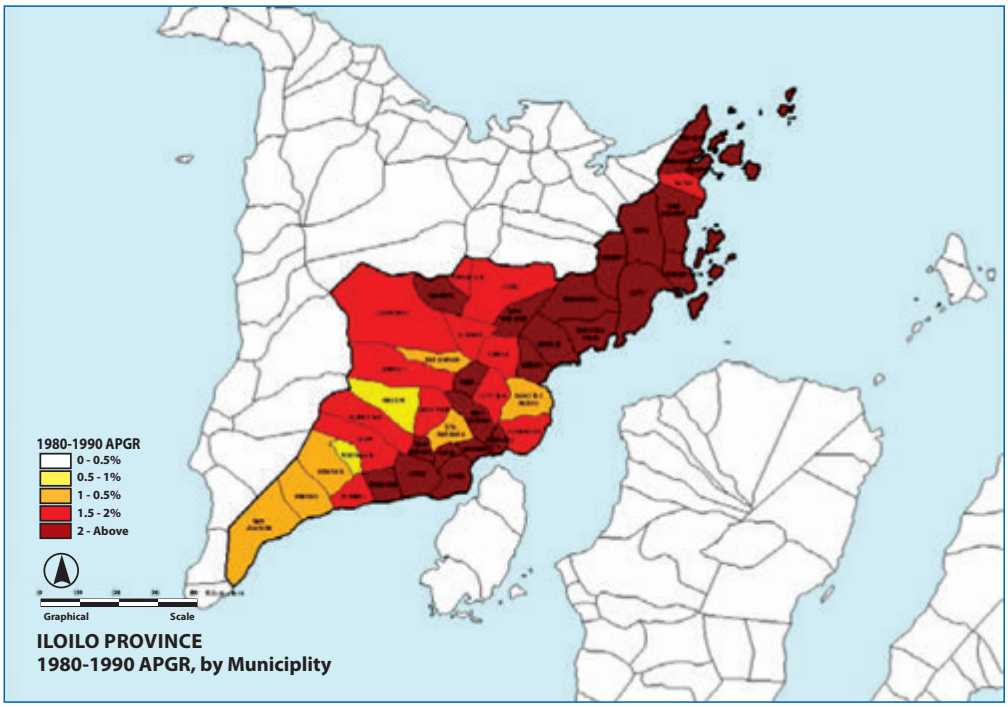
	Fast Growth	Slow Growth
High density	• Economically vibrant and competitive? • Continuous and strong environmental pressure?	• Declining economic competitiveness? • Declining environmental pressure?
Low density	• Economically vibrant and competitive? • Environmental pressure increasing but manageable?	• Limited economic competitiveness? • Limited environmental pressure?

c. Given the current growth rate, what is the projected total population and overall density at the end of the plan period (after six years), and/or at the end of the vision period (say after 30 years). See Annex D for instructions in projecting population.

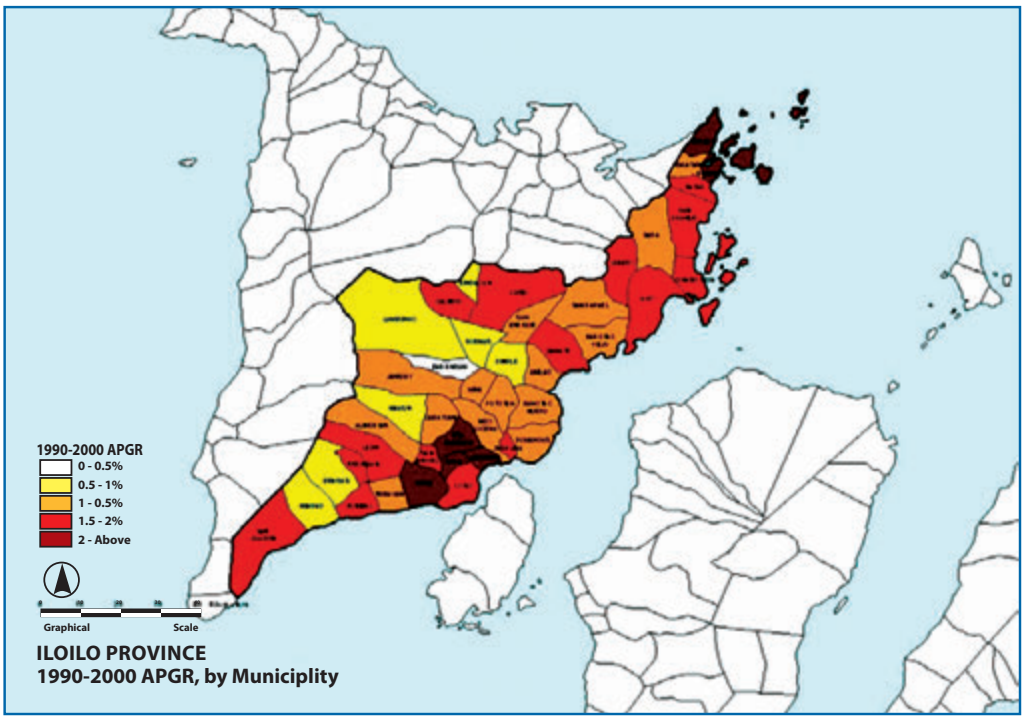
Table 7. Estimated population, density, and additional population at the end of the plan period.

Maps 4a, 4b: Annual population growth rates, by city/municipality: 1980-1990, 1990-2000.

Example of Map 4a: Annual Population Growth Rate, 1980-1990, Iloilo



Example of Map 4b: Annual Population Growth Rate, 1990-2000, Iloilo



Example of Table 7: Estimated Population and Density, Lanao del Norte, by city/municipality, 2006

	A	B	C	D	E	F	G	H	I	J
City/ Municipality	Pop 1990	Pop 2000	APGR 1990-2000	Area (sqkm)	Density 2000	APGR Factor 1990-2000	PGR Factor 2000-2006	Est Pop 2006	Est Density 2006	Add Pop 2000-2006
Iligan	226,568	285,061	2.32%	458	622	1.0232	1.1477	327,176	714	42,115
Lala	50,100	56,447	1.20%	459	123	1.0120	1.0742	60,635	132	4,188
Tubod	36,083	43,067	1.79%	460	94	1.0179	1.1120	47,891	104	4,824
Kapatagan	33,397	42,783	2.51%	461	93	1.0251	1.1602	49,637	108	6,854
Karomatan	27,492	41,865	4.30%	462	91	1.0430	1.2870	53,881	117	12,016
Baloi	27,512	38,534	3.43%	463	83	1.0343	1.2240	47,167	102	8,633
Kulambugan	22,533	24,180	0.71%	464	52	1.0071	1.0432	25,225	54	1,045
Baroy	18,897	20,392	0.76%	465	44	1.0076	1.0467	21,345	46	953
Maigo	14,613	17,826	2.01%	466	38	1.0201	1.1266	20,084	43	2,258
Salvador	13,576	17,055	2.31%	467	37	1.0231	1.1467	19,557	42	2,502
Bacolod	14,637	17,020	1.52%	468	36	1.0152	1.0947	18,632	40	1,612
Ragat Pantao	12,530	16,474	2.77%	469	35	1.0277	1.1784	19,414	41	2,940
Poona-Piagapo	13,356	16,092	1.88%	470	34	1.0188	1.1183	17,996	38	1,904
Munai	12,006	15,972	2.90%	471	34	1.0290	1.1868	18,956	40	2,984
Kauswagan	16,961	15,364	-0.98%	472	33	0.9902	0.9424	14,479	31	-885
Sapad	13,206	15,167	1.39%	473	32	1.0139	1.0866	16,481	35	1,314
Linamon	13,449	14,959	1.07%	474	32	1.0107	1.0659	15,945	34	986
Pantar	10,148	12,826	2.37%	475	27	1.0237	1.1509	14,761	31	1,935
Nunungan	9,631	12,205	2.40%	476	26	1.0240	1.1527	14,069	30	1,864
Magsaysay	8,841	11,218	2.41%	477	24	1.0241	1.1536	12,941	27	1,723
Matungao	7,264	9,266	2.46%	478	19	1.0246	1.1573	10,723	22	1,457
Tagoloan	6,853	8,233	1.85%	479	17	1.0185	1.1164	9,191	19	958
Tangkal	4,439	6,117	3.26%	480	13	1.0326	1.2121	7,415	15	1,298
Lanao del Norte	614,092	758,123	2.13%	10,790	70	1.0213	1.1348	860,287	80	102,164

Notes:
A, B, D: Sourced from NSO
C: See Annex 7 to derive annual population growth rates (APGR)
E = B/D
F = 1+C; where C is expressed in decimal form
G = population growth rate factor = Fn ; where n is the number of years the population is to be projected, e.g., 6 if 2000-2006
H = B X G
I = H/D
J = H-B
If the APGR is negative resulting in a net reduction in population when population is projected, it is advisable to consider the specific reasons for the negative growth rate. It is possible, if not likely, that this is due to an unusual event which may not necessarily be applicable for medium- to long-term population projection. The overall projection for the province may still be utilized (with the assumption that there was simply a displacement to neighboring towns) but the projection for the city/ municipality concerned should be subjected to a more detailed review before it is applied or interpreted.

2.2.4. Other characteristics

If data is available, describe other demographic characteristics considered important for the province such as urban-rural distribution, migration patterns, ethnicity, language or dialect groupings, etc.

As much as possible, and as in other characteristics, the description should include size, percentage share, historical trend or growth rate, and spatial distribution (by city/municipality), with appropriate regional and/or national comparisons.

2.3. Existing settlement pattern

Identify and describe a hierarchy of the provincial cities and municipalities based on the scale and type of functions of each city/municipality. Refer to Annex E for guidance in defining the hierarchy.

Map 5a: Built-up areas. This map shows the built-up areas occupied by provincial settlements. It includes urban areas (including poblaciones of rural settlements), areas occupied by large institutions such as military reservations and industrial complexes. The primary source of data about the amount and/or delineation of built-up areas are city/municipal existing land use plans.

Map 5b: Existing hierarchy of settlements. This map graphically represents the existing hierarchy of settlements, showing the built-up areas as scaled "population bubbles." (An example is shown in Annex E.)

Notes

Groups or networks of settlements, whether part of a region, a subregion, or a province, are typically organized hierarchically. Primary factors affecting this hierarchy are on the quality and availability of services, environment, job and family considerations. In this hierarchy, one or two large settlements provide most of the high order services (large-scale and complex) for the region, subregion or province. These services may include regional or provincial administration and markets, tertiary education or health services, regional or inter-provincial transportation, etc. Several medium-sized settlements, in turn, provide intermediate services such as intermunicipal market centers, secondary health and education and the like. Finally, there are a large number of smaller settlements that provide mostly local services. While there are many variations, the overall hierarchical pattern is

still prevalent and this is why understanding settlement patterns usually involves describing a specific hierarchy.

For the PDPFP, the purpose of defining a hierarchy is to get a better appreciation of how population is distributed in the province —of the roles of settlements that shape the distribution. In addition to providing a more complete description of the population distribution, this knowledge will be an important input to the formulation of a physical framework and in the identification of PPAs. As a whole, it means that efficient distribution of services throughout the province will also be hierarchical.

Since the focus is on settlement roles and functions, it should be kept in mind that the hierarchy may not necessarily coincide with the provincial boundaries. Certain settlements play influential roles outside the province and, correspondingly, some settlements outside the province may have important functions (as service centers, entry or exit ports, etc.) for the province.

2.4. Summary

2.4.1. State the following:

a. The population of the province and its rank among other provinces in the region; if the population of the province is large enough (e.g., in the top 20 in the country), state its rank nationwide.

b. The density of the province and its rank among other provinces in the region, and how it compares with the regional average and the national average.

c. The growth rate of the province and its rank among other provinces in the region, and how it compares with the regional average and the national average.

d. The additional population of the province at the end of the plan period and the resulting total population.

e. The additional population of the province at the end of the vision period (e.g., 30 years) and the resulting total population.

2.4.2. Summarize the population distribution trends:

a. Describe where the fast-growing municipalities are located (including in relation to the provincial capital or center) and, very briefly (one or two sentences), the possible reasons for this pattern.

b. Describe the population share of the largest city/municipality (increasing or decreasing?).

c. Describe the population share of the metropolitan areas (increasing or decreasing?).

d. State if there are other areas showing trends towards becoming a metropolitan area.

2.4.3. State the major urban centers or other settlements outside the province that the province has strong linkages. This could be the regional center that provides regional scale services to the province (e.g., airport or port), or an adjacent provincial capital that serves as a market or trade center, or another city that serves as an educational center of the region. Note that these centers need not be in adjacent provinces.

2.4.4. Given current trends (described above), describe how the provincial population might be distributed in 30 years' time. Which areas would probably absorb more of the additional population?

3. Physical Resources

Objective:
To describe the land and water resources of the province (that serve as the platform for and physical building blocks of development in the province), existing land uses, trends, conflicts, and other development-related issues.

Approach and summary:
Land and water resources may be described by their physical characteristics and their land use potentials and constraints. Identifying potentials and constraints can help define the supply of land and water resources available for future growth and development. This can be done by considering: (a) what is legally mandated (land classification), (b) what is physically appropriate (land suitability), and (c) what is physically inappropriate (areas for protection).

3.1. Describe the general characteristics of the province's land and water resources.

3.2. Describe land use potentials, constraints and development-related issues (e.g., protection areas and disaster mitigation and management):

3.1.1. Land classification
3.1.2. Land suitability
3.1.3. Protection areas

Note: Land use includes the use of land, water and air resources (activities on, above, and below the land surface).

3.1. General land and water characteristics and resources

3.1.1. Topography and slope

a. Describe the topography range (lowest and highest elevations). If data is available, describe the distribution of the provincial land and water resources by elevation.

b. Describe the slope range.

i. What is the distribution of the provincial land resources by slope category?

Recommended slope categories are: 0-3%, 3-6%, 6-12%, 12-18%, 18-30%, 30% and above. Alternative if the recommended categories are not available: 0-8%, 8-18%, 18-30%, 30% and above.

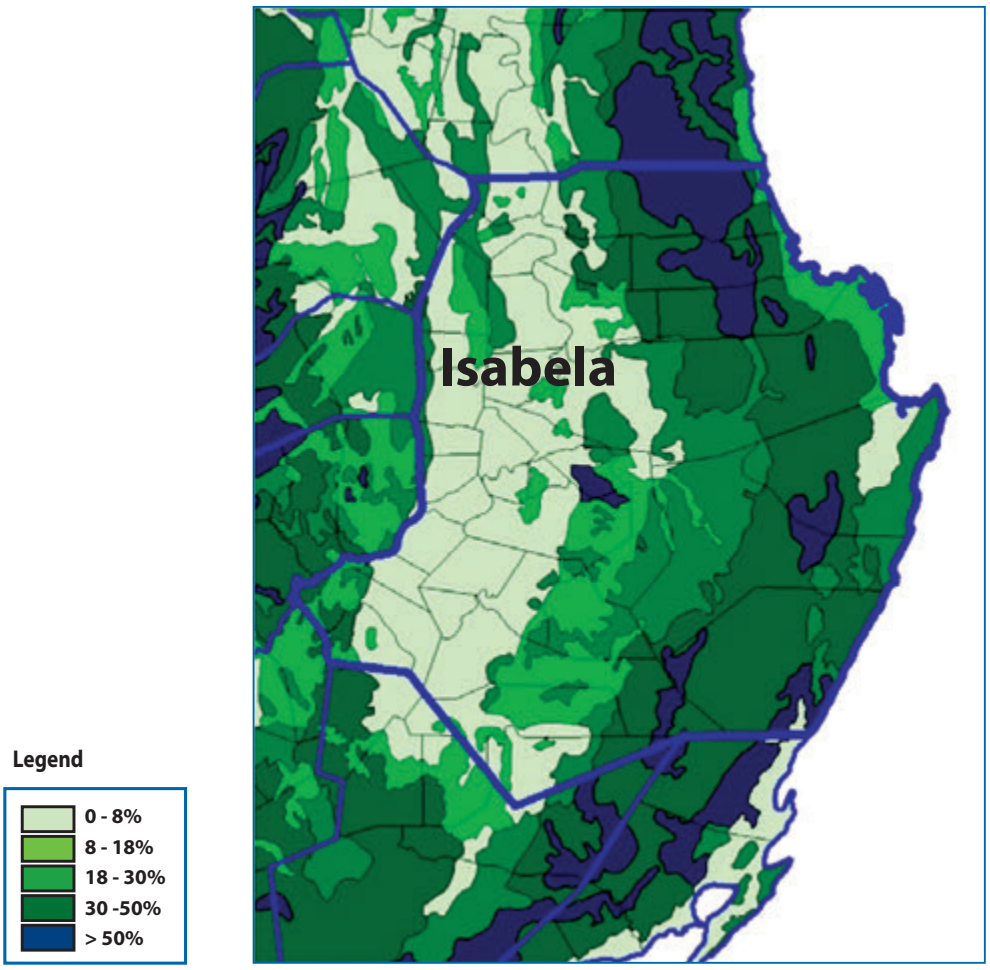
ii. How much of the provincial land resources are in the relatively developable range (0-8%) and how much are in the steep and protection-oriented slope range (18% and above)?

If no other data is available, use the slope map (Map 6) to estimate the distribution of land resources by slope category.

Map 6. Slope map of the province. (Note: the slope map should extend beyond the province to show the slope characteristics of adjacent areas.)

Sources of data: National Mapping and Resource Information Authority (NAMRIA), Bureau of Soil and Water Management (BSWM), and Regional Physical Framework Plan (RPFP).

Example of Map 6: Slope map, Isabela province



3.1.2. Land and water resources.

a. Out of the total area of the province, identify the total land area and the total water area. Identify the area by island, i.e., out of the total land area, how much is in the mainland and how much are in separate islands? Identify the biggest islands and their respective land areas.

   Table showing above and supporting data may be included in this section. The description may also refer to Map 1.

   i. Identify the largest and most important water bodies.
   ii. To what watershed areas (within and outside the province) do they belong? Briefly describe water sources and outflows.

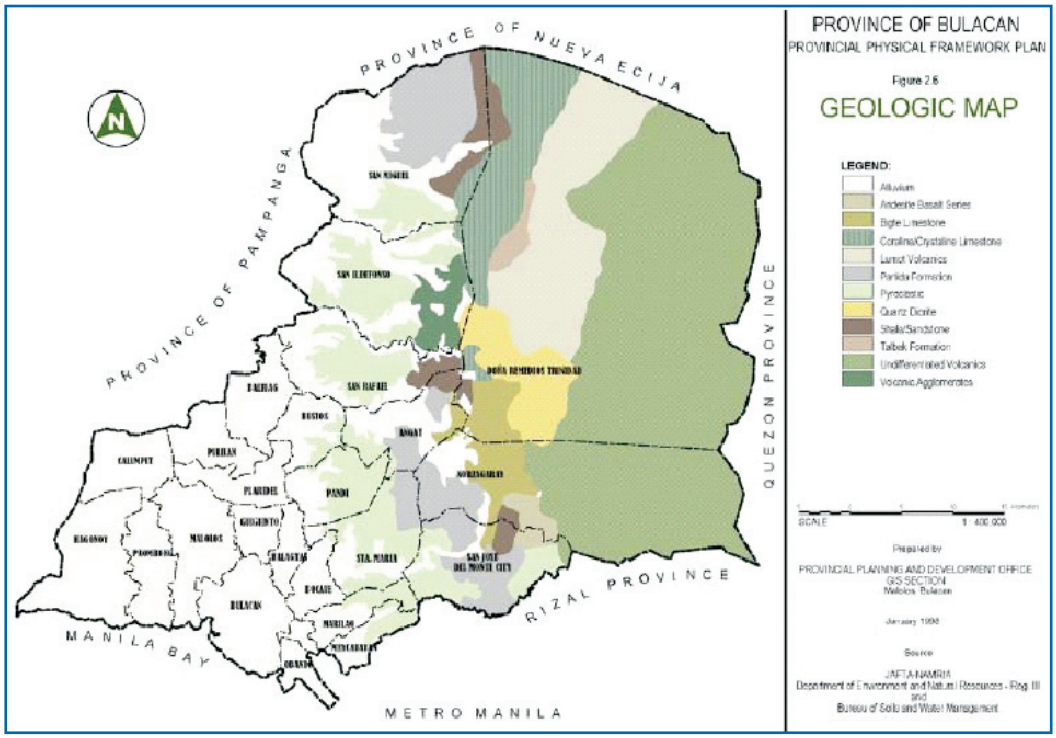
iii. Describe the main functions (social and economic) of these water bodies. To what settlement areas do they relate the most?

b. Identify and describe key land and other physical features (e.g., mountains, valleys, rivers, etc.) and their relevance to the province in terms of development opportunities or constraints.

Sources: NAMRIA, BSWM, RPFP, and City/Municipal Comprehensive Land Use Plans (CLUPs)

3.1.3. Describe the main geological features of the province. (Source: DENR, NAMRIA, BSWM, and RPFP)

Example of Map 7: Geologic Map, Bulacan



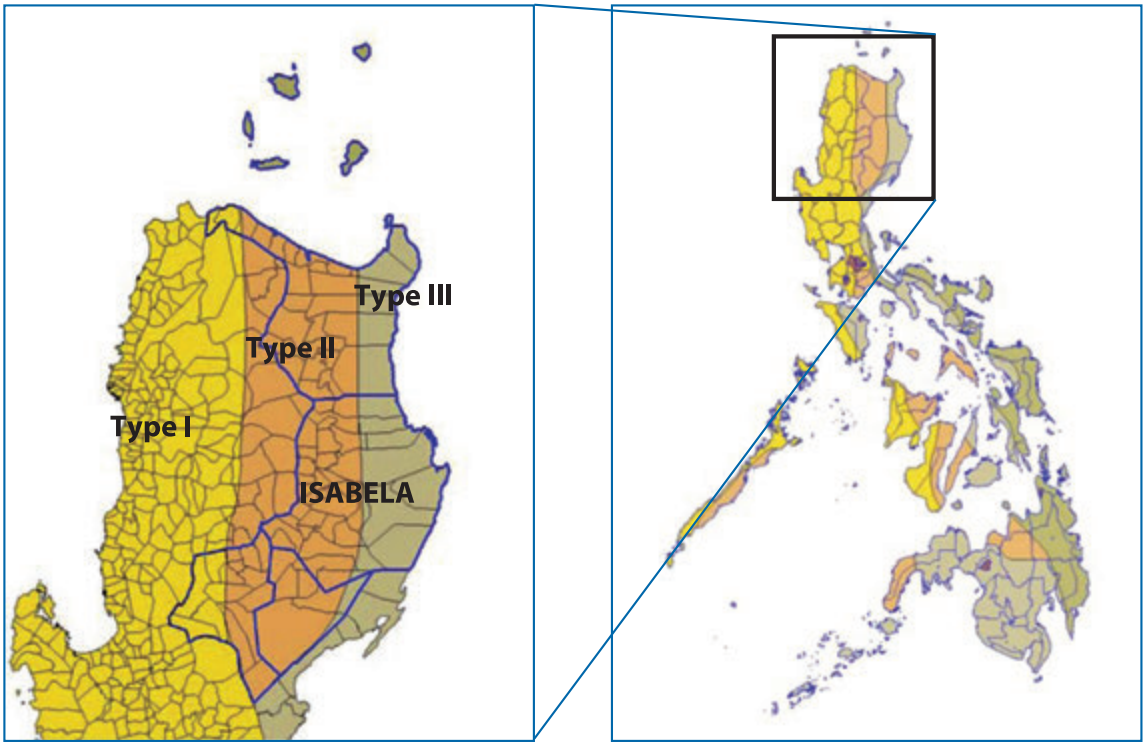
(Source: Provincial Government of Bulacan)

3.1.4. Describe the mineral resources of the province. If available, provide comparisons with other areas, including indications of the provincial share of total resources (national or even worldwide). (Source: DENR, NAMRIA, BSWM, and RPFP)

(Map of the mineral resources of the province may be included.)

3.1.5. Describe the climate of the province. (Refer to the Climatology and Agrometeorology Branch (CAB) of PAGASA or to Section 1.1.5 of the National Framework for Physical Planning, NEDA-NLUC, 2002, for a description of the annual rainfall characteristics in the Philippines. See Map 2.4 in the same section. See Annex F.)

Example of Map 8: Climate map, Region II and Isabela province.



Legend:

Type I - Two pronounced seasons, wet and dry, with maximum rain period from June to September and a dry season which lasts from 3-6 months
Type II - No dry season with a very pronounced maximum rain period that occurs in December and January
Type III- No very pronounced maximum rain period with a short dry season lasting from 1-3 months

3.2. Land use potentials and constraints

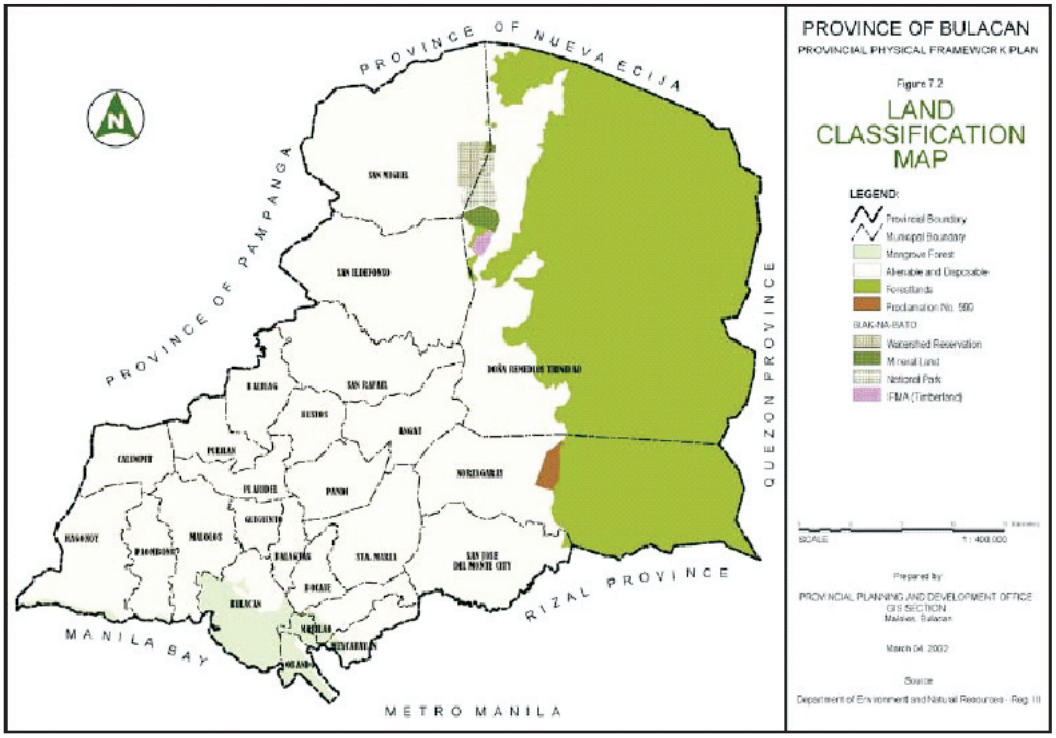
3.2.1. Land classification

Identify the respective amounts and percentage shares of A&D (alienable and disposable) and forest lands in the province. (Source: DENR-NAMRIA land classification maps.) See Annex G.

Table 8. Land classification, by hectare and percentage share of total provincial land.

Use official land classifications described by the Forest Management Bureau of the DENR as outlined in Annex G. The key and most basic classifications that should be derived and delineated in the map are the Alienable and Disposable and Forest Lands

Example of Map 9: Land classification map, Bulacan



(Source: Provincial Government of Bulacan)

3.2.2. Land suitability

Delineate land suitability of the province according to standard classifications.

Table 9. Land suitability
Map 10. Land suitability map

The land suitability table may be omitted if there is insufficient quantitative data for the different land suitability types. A land suitability map may be included, even if there is insufficient quantitative data, as a graphical guide to land suitability in the province.

The land suitability table and map numerically and graphically describe, respectively, the agricultural crops and activities that are suitable for specific areas based on Land Management Unit Maps. (Source: BSWM)

The categories may include, for example, irrigated rice/freshwater fishponds, cultivated annual crops, perennial tree and vine crops, forestry plantations, production forest, pastures. If this level of detail is not available, you may use the following slope criteria to derive basic land suitability maps:

0-3% slope (0-8% if terraced):	Irrigated rice/freshwater fishponds
0-8% slope:	Cultivated annual crops
0-18% slope:	Perennial tree and vine crops
0-18% slope:	Pastures (if land is prone to erosion}
0-30% slope:	Plantations
0-50% slope:	Pastures (if land is stable)
0-50% slope, <1000 meters elev:	Production forests

Source: NEDA-NLUC 1996.

The above slope criteria only indicate land suitability. More detailed suitability criteria, as shown by BSWM Land Management Unit maps, should be considered for land use planning. Note also that the criteria do not take into account settlement or built-up areas, although from a planning point of view these are typically confined to slopes below 18%.

(For an example of how Land Management Unit maps may be used to derive land suitability maps, see Activity 4, Module 5 of Provincial Physical Framework Plan (PPFP) Training Program Learning Materials, NEDA, 1996, for guidance in preparing a land suitability map.)

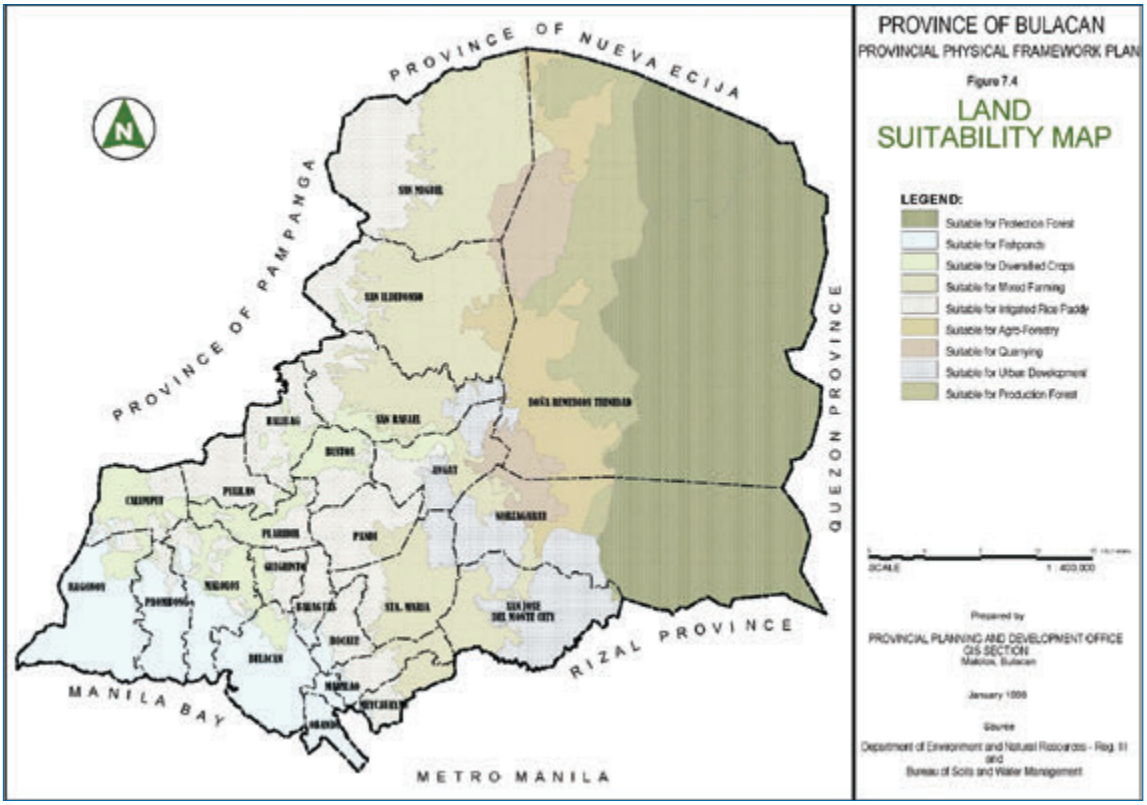
3.2.3. Protection areas

Identify and describe major protection areas of the province. (Protection areas in built-up/settlement areas may also be included if deemed significant at the provincial level.)

a. NIPAS (National Integrated Protected Areas System) areas: areas identified in RA 7586 (NIPAS Act) as components of the system of protected areas. These include:

    i. Areas proclaimed, designated or set aside by law, presidential decree, presidential proclamation or executive order as a national park, game refuge, bird and wildlife sanctuary, wilderness area, strict nature reserve, watershed, mangrove reserve, fish sanctuary, natural and historical landmark, or protected and managed landscapes and seascapes including virgin forests.

Example of Map 10: Land suitability map, Bulacan



ii. Declared tourist zones and marine reserves.
Sources: RA 7586 (NIPAS Act, June 1, 1992); DENR.

b. Non-NIPAS areas: areas with outstanding physical and aesthetic features, anthropological significance, and biological diversity but are not yet included under NIPAS. For example:
   i. Elevation > 1000 meters
   ii. Slope > 50%
   iii. Mangrove forests
   iv. Buffer strips
   v. Freshwater swamps and marshes
   vi. Eroded river banks
   Sources: DENR, NAMRIA, and BSWM.

c. Areas prone to natural hazards (typhoon, tsunami, volcanic, severe flooding, active fault line, coastal zone). Sources: Philippine Institute of Volcanology and Seismology (PHIVOLCS) BSWM, PAGASA and, Mines and Geosciences Bureau (MGB).

d. Other environmentally constrained areas not included above (e.g., severely eroded areas). Source: BSWM.

e. Strategic Agriculture and Fisheries Development Zones (SAFDZ). Source: BSWM .

Disaster mitigation measures for areas identified to be prone or potentially subject to natural or man-made hazards should also be mentioned, including the nature of the threat and indications of the levels of risk.

Other sources: City/Municipal CLUPs, and RPFP.

Protection areas are not necessarily excluded from development. The SAFDZs, for example, have varying degrees of conversion restrictions—highly restricted, moderately restricted, and conditionally restricted—depending on specific characteristics of the protected areas. Refer to the DENR and the BSWM for the most recent delineations of protected areas and corresponding development or conversion restrictions, conditions and disaster mitigation measures.

Table 10. Protection areas
Map 11. Protection areas map

The protection areas table may be omitted if there are insufficient quantitative data for the different types of protection areas. A protection areas map may be included, even if there is insufficient quantitative data, as a guide to the location of protection areas.

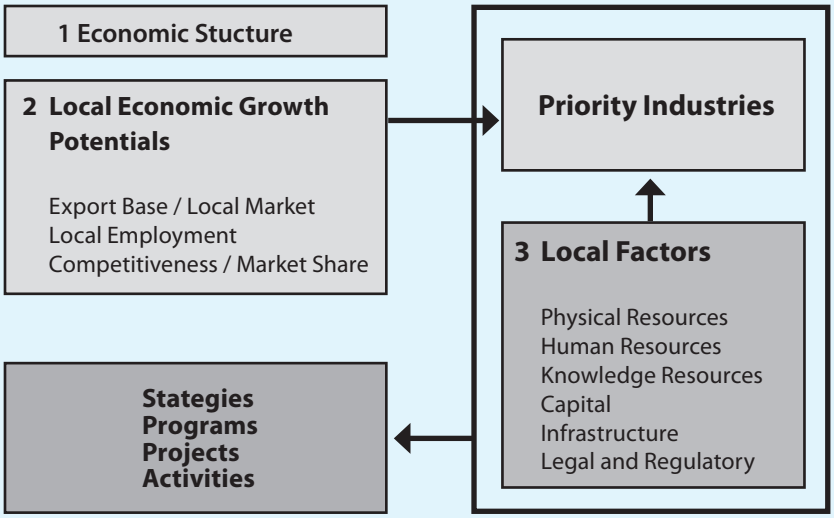
4. Economy

Objective:
To describe and understand the economic base, sectors, and industries that drive the provincial economy, the potentials and other opportunities for economic growth, including local factors that need to be mobilized in order to realize such growth.

Approach:
4.1. Economic structure: Describe the structure of the local economy.
   a. External context: how the economy relates to the regional/national economy.
   b. Internal: basic characteristics of the economy, sectoral and spatial distributions.
4.2. Growth Potentials: Identify specific industries or industry clusters that have the best potentials to contribute to local economic growth. Consider:
   a. Current economic strengths: economic base (export-oriented) industries

b. Local employment growth: extent of local linkages and benefits
c. Competitiveness and market share

4.3. Local growth factors: Identify factors that can enhance the growth of identified industries.



4.1. Economic structure

4.1.1. Describe the external context of the local economy. How does it relate to the broader regional economy?

a. Describe the distribution of economic production and/or employment, and/or family income by sector/industry group, among the different provinces in the region.

i. Identify the sectors/industries that account for large shares.
ii. Identify the provinces that account for large shares.
iii. Describe how your province compares with the other provinces in the region and the region as a whole. (You may also compare your province to the distribution of the national economy.)
Source of data: NSO, FIES.

Notes

The intent is to identify the strong (and weak) economic activities in the province relative to the rest of the region. Note that strength (or weakness) can be measured in terms of the distribution of: (a) value of production, (b) employment, or (c) income such that a sector or industry is strong if it has a large share of total value of production or of total employment or of total income. The examples below are based on income. A very strong or dominant sector or industry will tend to be dominant in all three categories but the degrees of dominance can yield interesting and important information. For example, agriculture can employ the most number of people but its share of value produced is likely to be less than proportionate.

If data are available, provide details on the economic activities, starting from the broad classifications of primary (extractive), secondary (manufacturing), and tertiary (services) to their respective detailed industry and product breakdown.

Economic conditions should be compared and interpreted through their real as opposed to nominal values. Production trends, for example, should be determined based on real values because nominal values (which include the effect of inflation) may not show whether production actually increased or decreased. In practice, however, economic data are often limited, especially at the provincial level, and the opportunity to use real values may not always be present. In some cases only nominal data are available and often none at all. And if some are available, they may be single points that do not allow historical comparison. In these cases, indirect and imprecise descriptions may be the only indicators or measurements available. In summary, real values are ideal and preferred. In their absence nominal values may be used; if possible they should be discounted to derive real values, but regardless, their limitations should be recognized. If none are available (or if there are not enough to identify a trend), then we have to rely on other, even anecdotal indicators, e.g., personal observations of industrialists. These may not be technically accurate but they can still be useful. In the end, the objective is to understand existing conditions and trends in order to identify appropriate PPAs and one of the best sources of information and advice on this matter, even if all the necessary data are available, are the direct stakeholders, investors, and practitioners.

iv. If previous data are available, compare the current structure with previous structures. What is the trend? What sectors or industries have been increasing or have declining shares?

Note that the general, long-term trend is an increasing share for the service sector while the shares of primary industries decline. Deviations from this trend are worth pointing out and explaining.

Table 11. Data Matrix Table: Sectoral/industrial distribution of regional economy by value of production, employment, or income, by province.

Table 12. Joint Probability Table: Shares of total value of production, employment, or income, by sector/industry, by province. See Annex H to generate the Joint Probability Table from the Data Matrix Table.

Figure 6. Pie chart: overall distribution of the regional economy.

Example of Table 11. Data Matrix: Total Family Income (P1000) by Household Head Kind of Business/Industry, 2000

Province	Kind of Business/Industry										Total
	Agri/ Fish/ Forest	Mining/ Quarry	Manufac-turing	Elect/ Gas/ Water	Con-struction	Whole-sale/ Retail	Transp/ Stor/ Comm	Finance/ Real Est/ Bus Serv	Comm/ Social/ Pers Serv	Not defined	
Batanes	196,766	1,584	20,699	0	69,470	13,549	0	0	203,408	6,624	512,100
Cagayan	9,600,160	0	447,079	0	959,842	1,366,226	1,299,491	10,859	3,301,648	1,895,684	18,880,988
Isabela	11,486,569	0	1,247,922	376,528	1,366,098	3,355,914	1,747,303	299,385	6,150,215	3,610,213	29,640,146
Nueva Vizcaya	3,920,283	56,047	729,577	134,533	449,260	467,633	824,227	90,747	1,743,216	1,156,619	9,572,142
Quirino	1,379,510	0	203,708	38,611	73,127	200,921	98,490	53,182	524,147	267,565	2,839,260
Region II	26,583,288	57,631	2,648,984	549,672	2,917,796	5,404,243	3,969,510	454,172	11,922,633	6,936,704	61,444,635

Source: NSO, FIES, 2000 (basic data)

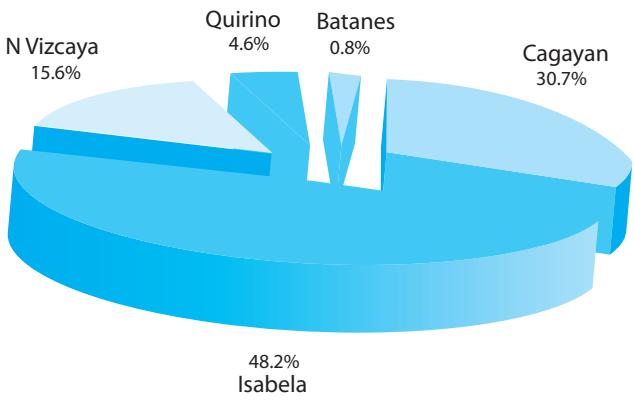
Example of Table 12. Joint Probability: Shares of Total Family Income by Household Head Kind of Business/Industry, 2000

Province	Kind of Business/Industry										Total
	Agri/ Fish/ Forest	Mining/ Quarry	Manufac-turing	Elect/ Gas/ Water	Con-struc-tion	Whole-sale/ Retail	Transp/ Stor/ Comm	Finance/ Real Est/ Bus Serv	Comm/ Social/ Pers Serv	Not defined	
Batanes	0.3%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.8%
Cagayan	15.6%	0.0%	0.7%	0.0%	1.6%	2.2%	2.1%	0.0%	5.4%	3.1%	30.7%
Isabela	18.7%	0.0%	2.0%	0.6%	2.2%	5.5%	2.8%	0.5%	10.0%	5.9%	48.2%
Nueva Vizcaya	6.4%	0.1%	1.2%	0.2%	0.7%	0.8%	1.3%	0.1%	2.8%	1.9%	15.6%
Quirino	2.2%	0.0%	0.3%	0.1%	0.1%	0.3%	0.2%	0.1%	0.9%	0.4%	4.6%
Region II	43.3%	0.1%	4.3%	0.9%	4.7%	8.8%	6.5%	0.7%	19.4%	11.3%	100.0%

Source: NSO, FIES, 2000 (basic data)

4.1.2. Describe patterns of industry concentration and specialization where: concentration occurs when the presence of an industry in a province (measured in terms of employment, production value, or income) is greater than if the industry was distributed evenly across the entire region; and specialization is defined as the dominance in the economy of a province by a specific industry. (Refer to Annex H.)

Example of Figure 6: Pie chart



a. Do certain sectors or industries concentrate in specific provinces (show signs of spatial concentration)? Where? (Table 13, Figure 7.)
b. Are certain provinces dominated by certain sectors or industries (show signs of specialization)? Where? (Table 14, Figure 8.)

Use probability analysis (Annex H) to derive tables of concentration and specialization, histograms and share diagrams. Utilize information from industry representatives, and local perception and knowledge of concentration and specialization characteristics.

Example of Table 13. Concentration: Total Family Income by Household Head Kind of Business/Industry, 2000

Province	Kind of Business/Industry										Total
	Agri/ Fish/ Forest	Mining/ Quarry	Manufac-turing	Elect/ Gas/ Water	Con-struc-tion	Whole-sale/ Retail	Transp/ Stor/ Comm	Finance/ Real Est/ Bus Serv	Comm/ Social/ Pers Serv	Not defined	
Batanes	0.7%	2.7%	0.8%	0.0%	2.4%	0.3%	0.0%	0.0%	1.7%	0.1%	
Cagayan	36.1%	0.0%	16.9%	0.0%	32.9%	25.3%	32.7%	2.4%	27.7%	27.3%	
Isabela	43.2%	0.0%	47.1%	68.5%	46.8%	62.1%	44.0%	65.9%	51.6%	52.0%	
Nueva Vizcaya	14.7%	97.3%	27.5%	24.5%	15.4%	8.7%	20.8%	20.0%	14.6%	16.7%	
Quirino	5.2%	0.0%	7.7%	7.0%	2.5%	3.7%	2.5%	11.7%	4.4%	3.9%	
Region II	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

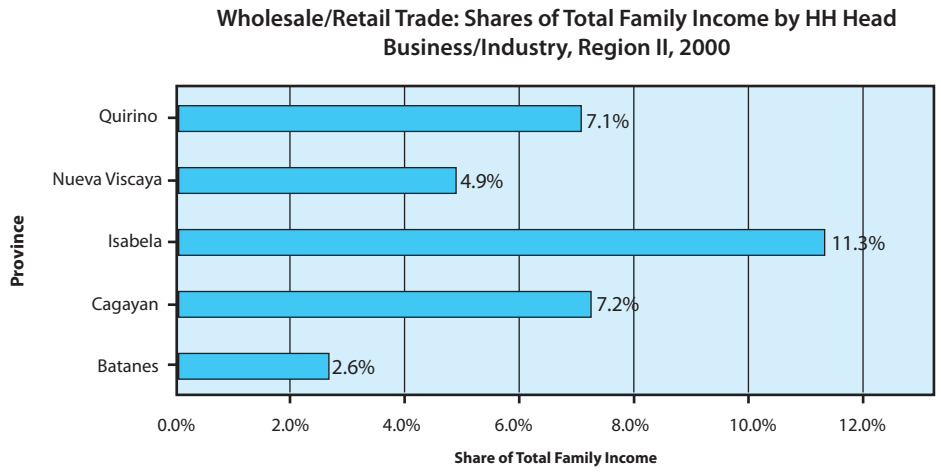
Source: NSO, FIES, 2000 (basic data)

Example of Table 14. Specialization: Total Family Income by Household Head Kind of Business/Industry, 2000

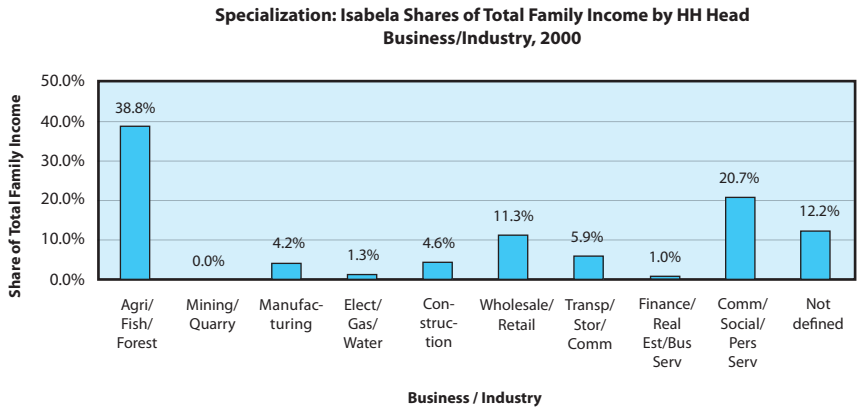
Province	Kind of Business/Industry										Total
	Agri/ Fish/ Forest	Min- ing/ Quarry	Manu- factur- ing	Elect/ Gas/ Water	Con- struction	Whole- sale/ Retail	Transp/ Stor/ Comm	Finance/ Real Est/ Bus Serv	Comm/ Social/ Pers Serv	Not de- fined	
Batanes	38.4%	0.3%	4.0%	0.0%	13.6%	2.6%	0.0%	0.0%	39.7%	1.3%	100.0%
Cagayan	50.8%	0.0%	2.4%	0.0%	5.1%	7.2%	6.9%	0.1%	17.5%	10.0%	100.0%
Isabela	38.8%	0.0%	4.2%	1.3%	4.6%	11.3%	5.9%	1.0%	20.7%	12.2%	100.0%
Nueva Vizcaya	41.0%	0.6%	7.6%	1.4%	4.7%	4.9%	8.6%	0.9%	18.2%	12.1%	100.0%
Quirino	48.6%	0.0%	7.2%	1.4%	2.6%	7.1%	3.5%	1.9%	18.5%	9.4%	100.0%
Region II	43.3%	0.1%	4.3%	0.9%	4.7%	8.8%	6.5%	0.7%	19.4%	11.3%	100.0%

Source: NSO, FIES, 2000 (basic data)

Example of Figure 7: Share Diagram



Example of Figure 8: Histogram



4.1.3. Describe the basic sectors and corresponding industries of the province, starting with those that have the highest levels of specialization. Descriptions may be supported by Table 14 (specialization) and related histograms and share diagrams. (The following analysis should be done by subsector or subindustry, to the extent that data are available.)

a. Agriculture, fisheries, forestry

i. Sector and subsector characteristics

- Identify/reiterate the share of production, employment, or income of the sector/subsector in the province. (Table 14)
- Identify the leading industries and describe their significance to overall provincial economic production, employment, income.

ii. Specific industry characteristics: If data are available, the following assessments should be done for each leading industry. Otherwise, they may be applied to the sector/subsector:

- Describe the main products/outputs and their respective shares of total production output, employment or income. Compare with regional or national totals.
- Identify the areas (cities, municipalities or specific areas in cities/ municipalities) where: the industry is dominant or located; the main production inputs, including labor, come from; the main production outputs are consumed or marketed.
- Identify key support infrastructure (e.g., roads, ports, airports, telecommunication, irrigation facilities, etc.). Describe existing and potential constraints related to support infrastructure. Identify priority infrastructure requirements of the industry.

- Identify and prioritize other requirements of the industry in order to increase efficiency, production, and market share, e.g., reduce red tape, improve internal and inter-provincial transportation security, provide marketing assistance, etc.
- Describe overall potentials and constraints of the specific industries that dominate the sector in the province. Is it likely to expand or decline in the future? What are the main sources of competition? What are the obstacles to expanding production, increasing market share, or increasing efficiency?

Map 12. Location of industries and key support infrastructure. (Separate maps for each sector/industry may be used; e.g., agriculture production map showing various types of croplands, including areas classified as Strategic Agriculture and Fisheries Development Zones (SAFDZs).

In addition to sectoral government agencies, industry representatives should be consulted about the products, markets, trends, potentials and constraints of each industry. Consider also gender-related issues. (See: Harmonized Gender and Development Guidelines, 2004.)

b. Mining
c. Manufacturing
d. Services
e. Tourism
f. Others

The description of the above sectors/industries should follow the format of the Agriculture, Fisheries, and Forestry sector above. As indicated earlier, other sector/industry classifications may be used as necessary for the province.

4.1.4. If sufficient data are available to replicate Tables 13-14 at the city/municipal level, describe the distribution of production, employment, or income by sector/industry group, among the different cities and municipalities in the provinces. Describe patterns of concentration and specialization.

A useful general reference for economic analysis at the provincial level is A. Bendavid-Val, Regional and Local Economic Analysis for Practitioners,1991.

4.2. Potentials for contributing to local economic growth

In this section, industries that have high potentials for contributing to local economic growth are identified. The identification process involves three steps: (1) Identifying industries where

the province is efficient or has an advantage compared to other producers in other provinces, (2) Identifying industries that are generating or have a high potential to generate local employment, and (3) Identifying industries that are experiencing or have the highest potential to experience growth, by being competitive and increasing market share.

4.2.1. Economic base industries

Identify the industries where the province is efficient or has an advantage compared to other producers in other provinces. These are referred to as economic base or major exporting industries (exports refer to exports outside the province and not necessarily outside the country). In addition to using industry export data, you may derive location quotients using data in Table 12, as described in Annex H, to support your analysis. Local industry representatives should be primary sources of data/information.

a. Identify/reiterate the share of production, employment, or income in the province of economic base industries. Describe the significance of each industry to the province's economic production and employment of its various population.

b. Describe the main (export) products and their respective shares of total output, employment or income. How do these compare with total industry production, employment or income in the region or country?

Example of Table 15. Location Quotients, Total Family Income by Household Head Business/Industry, 2000

Province	Kind of Business/Industry									
	Agri/ Fish/ Forest	Mining/ Quarry	Manufac-turing	Elect/ Gas/ Water	Con-struc-tion	Whole-sale/ Retail	Transp/ Stor/ Comm	Finance/ Real Est/ Bus Serv	Comm/ Social/ Pers Serv	Not defined
Batanes	0.89	3.30	0.94	0.00	2.86	0.30	0.00	0.00	2.05	0.11
Cagayan	1.18	0.00	0.55	0.00	1.07	0.82	1.07	0.08	0.90	0.89
Isabela	0.90	0.00	0.98	1.42	0.97	1.29	0.91	1.37	1.07	1.08
Nueva Vizcaya	0.95	6.24	1.77	1.57	0.99	0.56	1.33	1.28	0.94	1.07
Quirino	1.12	0.00	1.66	1.52	0.54	0.80	0.54	2.53	0.95	0.83

Note: This example shows location quotients by province. If data are available, compute location quotients for the province, by city/municipality.

Interpreting location quotients:

Local knowledge and the experience of industry representatives are the best sources of information about the export capability and potentials of an industry. If sufficient data are available (production, employment, or income by industry for the province), location quotients may also be useful. Location quotients measure the extent of independence (or association) between variables, in this case between a sector/industry and a province. For the purpose of identifying economic base industries, we may interpret location quotients (LQ):

LQ = 1 Perfect independence (no association between the industry and the province).
LQ > 1 Positive association; over-representation of the industry in the province. This suggests the industry is providing more than local requirements and is engaged in exports. The higher the value of the location quotient—the more it exceeds the value of one—then the greater the likelihood that it is an export-oriented industry. Industries that have a high likelihood of being economic base industries are those that have LQs substantially higher than 1.
LQ < 1 Negative association; under-representation. This suggests the industry is not engaged in export production.
LQ = 0 Mutually exclusive; the industry does not exist in the province.

See Annex H for guidance in computing and interpreting location quotients.

4.2.2. Local employment growth

Identify industries that are generating substantial local employment or have a high potential to generate local employment growth.

a. Describe the extent of such employment growth.
b. Describe the type of skills and other qualifications of labor employed.
c. Identify the source of the labor employed. Are they locally sourced or through in-migration? Which population group do they belong? Is there sufficient local supply for future growth?

4.2.3. Competitiveness and market share

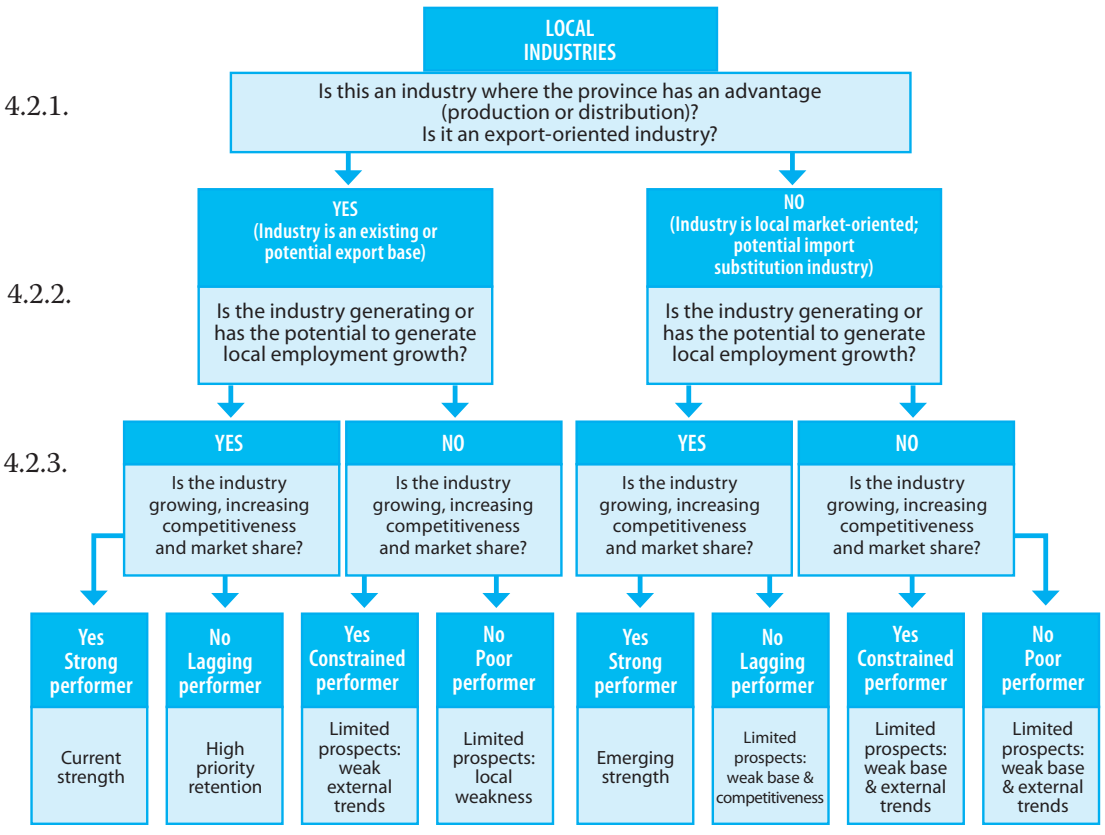
Identify industries that are experiencing or have the highest potential to experience growth, by being competitive and having increasing market share.

a. Identify and describe the drivers of these industries. What are the external factors (e.g., source of demand, source of key inputs)?
b. Identify and describe the main sources of competition.
c. Describe the obstacles to expanding production, increasing market share, or increasing efficiency. (Industry representatives should be primary sources of information.)

4.2.4. Potentials for local economic growth.

a. Based on their economic base (4.2.1), local employment growth (4.2.2), and competitiveness (4.2.3), and using the decision tree (Figure 9) as a guide, identify the industries or industry clusters with the best potentials for contributing to local economic growth. Referring to Figure 9, these are the industries falling under boxes A, B, and C.
b. Identify industries that currently employ a significant part of the provincial labor force but have declining potentials. What would be the likely impacts on employment if the industry declines?

Figure 9: Decision tree on identification of industries with local economic growth potential



Source: Based on McLean and Voytek, 1992.

4.3. Local factors

Identify local factors that may enhance competitiveness and efficiency of the industries identified. In identifying local factors, consider the following:

- Physical resources (natural and other physical inputs, unique location-based advantages, accessibility, etc.)
- Human resources (labor skills, training capabilities, immigration, etc. by sex as much as possible)
- Knowledge resources (IT-related resources)
- Capital (financial or investment resources)
- Infrastructure (existing or potential that may enhance any of the above resources) (McLean and Voytek, 1992)

These factors may have positive as well as negative impacts on industries. Enhancing growth potentials, therefore, may involve providing resources as well as removing obstacles (physical, legal, and technical) to greater efficiency.

4.4. Summary

4.4.1. Describe the overall structure of the provincial economy.

a. Concentration: What regional industry does the province have a large contribution in terms of production value, employment or income?
b. Specialization: Within the province, which industries dominate? Compare this to the region.
c. Describe briefly the regional or national significance, if any, of industries in the province.

4.4.2. Identify the industries that have the best potentials for contributing to local economic growth (as outlined in the decision tree). Identify the industries that have declining potentials and the likely impacts of such a decline on local employment.

Map 13. Map of industries with best and declining potentials. (The map should be consistent with the maps of the specific sectors/industries discussed in Section 4.1. It should also relate to or have the same base map as the existing settlement hierarchy.)

4.4.3. Identify the local factors that may be tapped to further enhance the growth potentials of industries identified to be in the best position to contribute to local economic growth.

Notes

The local factors identified are collectively intended to serve as a source of ideas, among others, for identifying PPAs that can promote economic growth in the province.

See Case Study 2 for an example of how project ideas were identified using a similar (but not the same) process for the W Corridor in Central Luzon. Although this case study concerns a region and not a province, the methodology is relevant to a province since, essentially, a province is simply a small region (or a region is a large province).

5. Transportation, access and circulation

Objective:
To describe access routes and facilities in the province, and to indicate how these relate to the location of urban centers and other settlements, the land and water resources of the province, and production activities.

Approach and summary:
Transportation is a key element that affects the interactions among population, economic, and other social activities, and other resources of the province. In many cases, strategies involving transportation projects provide important opportunities for enabling and catalyzing development.

For planning purposes, transportation considerations should always be an integral part of analyses involving population, activities, and resources. Detailed considerations for transportation are therefore discussed in individual sectoral analyses.

This section will discuss the characteristics of transportation that are usually not fully covered in individual sectoral analyses—external linkages and internal circulation as a whole (and not as part of a specific sector or industry).

5.1. External linkages.
5.2. Internal circulation routes and facilities.

5.1. External linkages

5.1.1. Describe the external linkages of the province, including:

a. Land, air, and water access routes to the province and key transport infrastructure and facilities (e.g., airport, port).

b. Characteristics of external linkages and facilities: Identify the most important linkages and explain why they are important. What are their main functions (e.g., trade, access to community services, tourism, security)? Provide indicators of importance, e.g., how busy is the road, port, or airport compared to other similar facilities in other provinces.

Sources of data/information: Department of Public Works and Highways (DPWH), Department of Transportation and Communications (DOTC), City/Municipal CLUPs, RPFP.

5.1.2. Considering population and settlement trends (Section C-2), physical resources and protection areas (Section C-3), and production requirements and priority industries (Section C-4):

a. Identify linkages and/or facilities that should be given the highest priority for improvement. Explain the reason/s for the high priority. What would be the likely effects of such improvement?

Notes

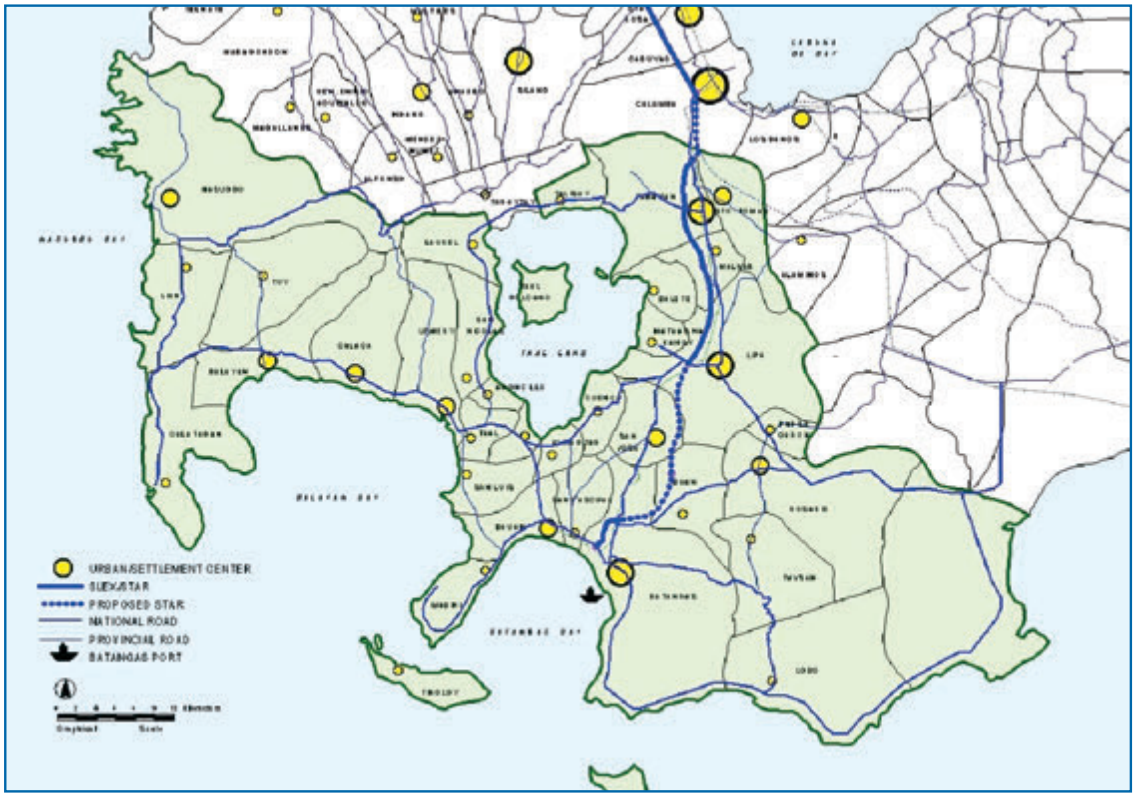
The highest priority does not necessarily go to the route or facility deemed the most important; priority should be a function of at least two basic considerations:

- Importance or significance (in terms of economic impact or social service access), and
- The amount of resources that are already allocated for improving the route or facility.

Highest priority should go to where importance is highest and the amount of resources already allocated is lowest; lowest priority should go to where importance is low and the amount of resources already allocated is high. (The latter situation may be an indication of inefficient resource allocation.)

b. Describe proposed new external linkages (part of existing public or private sector plans). What is the rationale for these proposed linkages?

Example of Map 14: Map of Batangas province showing external linkages and internal circulation routes (existing and proposed).



5.2. Internal circulation

5.2.1. Describe the internal circulation routes of the province. The description should refer to Map 14 and should:

a. Identify main internal circulation routes, infrastructure, and facilities of the different modes of transportation.
b. Identify the most important routes and describe their significance. What are the main functions of the routes and related transport facilities (e.g., airports, ports, expressways)? What are the key destinations?
c. If available, provide indicators of importance among the routes.
d. Describe how the capital city or the largest urban center is accessed. How are the main non-urban production areas accessed?
e. Describe the characteristics of the routes and transport facilities. Provide some indicators of quality, capacity, extent of usage, and road density. For example:
   i. Length of local government roads by surface type
   ii. Percentage of paved roads
   (Source: DPWH. See Annex I).

5.2.2. Considering population and settlement trends (Section C-2), physical resources and protection areas (Section C-3), and production requirements and identified priority industries (Section C-4):

a. Identify and indicate priority among internal routes and linkages that need to be improved. Explain the reason/s for the priority.
b. Identify proposed new routes and transport facilities. (Refer to Map 14.) What is the rationale for these proposed routes?

6. Income, employment, service access, and poverty

Objective:
To describe the income and employment characteristics of the provincial population, the level and extent of access to basic services, and the extent of poverty in the province.

Approach and summary:
Economic growth or the lack of it directly affects employment and income. This affects expenditures and the ability to access goods and services. If income is low, access to goods and services may be limited to the point that basic needs are not met, resulting in poverty. Poverty, in turn, affects the quality of production inputs and eventually economic growth itself. Following this cycle, this section will:

6.1. Describe employment and unemployment rates.
6.2. Describe family income levels.
6.3. Describe the level and extent of services.
6.4. Describe the levels and characteristics of poverty in the province.

Income, employment, service access, and poverty conditions in the province are described through indicators. These indicators should be compared with accepted standards and benchmarks. Commonly used indicators are listed in this section. Alternative indicators may be used depending on availability.

It is important to keep in mind that, in general, the demand for all the services increases as population increases. Further, standards and benchmarks change over time because of changes in affordability, technology, environment, and consequently social behavior. Accepted standards in telecommunication services, for example, changed drastically when telegraph and paging services were made obsolete within a few years after the introduction of cellular

phones. Other changes will occur in the future, some equally drastic and others less. For this reason, regular updates on current standards are necessary. Reliable sources of information on this matter are industry and consumer representatives, who should be part of stakeholder consultations.

The spatial relationships of PPAs are **important** and this is why locations are integrated through the Physical Framework

For each sector described, objectives and targets may be identified which can then become the basis for identifying PPAs. The targets should reflect desired improvements in the sector as measured by the indicators. The extent of improvement to be targeted should consider, among others: (i) the extent to which the indicator falls short of minimum standards and benchmarks; (ii) trends in the indicators (are they improving or getting worse?); and (iii) the amount of resources available or already committed to improve the sector.

Note also that many of the service sectors are interrelated and that the identification of PPAs for one sector is likely to or should be related to other sectors, e.g., education with health, water with irrigation and power. The spatial relationships of these PPAs are therefore also important and this is why the locations of all the existing and proposed PPAs are integrated through the Physical Framework (Section C-7).

6.1. Employment/unemployment

6.1.1. Describe latest employment, unemployment/ underemployment rates of the province. Compare these to the region and to the country as a whole.

6.1.2. Describe the historical trend of the rates—whether they are increasing or decreasing—and compare the trends to those of the region and the country as a whole.

Some planning considerations:

- In general, a single digit unemployment rate is desirable, with the understanding that a rate of zero is only a theoretical possibility. Definitions of what is considered an employed, unemployed, or underemployed person also change so appropriate adjustments or clarifications in data interpretation should be made.

- The interpretation of employment data and identification of appropriate planning responses should be linked with the assessment of industries with potentials for promoting local employment and economic growth in Section C-4.

- With reference to the analysis in Section C-4, and beyond the overall goal of full or near full employment, employment objectives and targets should prioritize employment in large and growing industries with lower priorities given to small industries that are unlikely to grow. As a whole, however, employment in a socially acceptable industry is welcome.

- Employment opportunities can be enhanced by building up the skills required by growing industries through training programs and similar activities.

- Physical access (through road and other transportation facilities) to industry sites is also important not only in support of industrial requirements but also to allow labor mobility and consequently, enhance employment opportunities.

Table 16. Employment and unemployment rates, province, region, Philippines, latest and previous survey. (Source: Integrated Survey of Households Bulletin, Labor Force Survey, NSO.)

6.2. Family income

6.2.1. Describe average family income levels for the province and, if available, selected cities/municipalities within the province. Compare these to the region, Metro Manila (optional), and to the country as a whole.

6.2.2. Compare the latest average family income levels to previous levels and identify the trend (increasing or decreasing) and corresponding growth rates. Compare these to the region, Metro Manila (optional), and to the country as a whole.

Some planning considerations:

- As in the assessment of the provincial economy (Section C-4), income should be compared and interpreted through their real as opposed to nominal values, in order to get an accurate picture of trends in family income. Similarly, in the absence of real income data (since FIES data are not always available for the provincial level), other income indicators may be used.
- Assessments of family income should be related to the analysis of poverty conditions in the province. Plan objectives and targets should focus on poverty reduction and therefore income data, particularly poverty income data, should be key considerations.

Table 17: Average family income, total family income, latest and previous survey data, and growth rate, for the province, selected cities/municipalities within the province (if available), the region, Metro Manila, and the country as a whole. (Source: NSO, FIES; see Annex I.)

Example of Table 17. Total and Average Income, Region V, by province, 1997, 2000

Province	Total Families 2000	Total Income (P1000) 2000	Avg income per family 1997	Avg income per family 2000
Albay	207,051	22,787,467	89,386	110,057
Camarines Norte	96,191	9,134,330	77,548	94,960
Camarines Sur	296,136	30,309,226	77,922	102,349
Catanduanes	42,243	4,462,776	83,605	105,645
Masbate	334,105	20,584,597	55,882	61,611
Sorsogon	121,194	10,596,430	79,346	87,434
Region V	1,096,921	97,874,826	77,132	89,227
Metro Manila	2,188,675	657,268,424	270,993	300,304
Philippines	15,269,655	2,199,431,875	123,168	144,039

Source: NSO, FIES, 2000

6.3. Social services

The following assessments should be supported by tables showing the indicators and maps showing the location of existing and proposed social service facilities. Reference should also be made to the discussion on indicators and targets at the start of this section as an overall guide to the identification of targets.

6.3.1. Health

a. Cite major indicators (as available) such as:
   i. Hospital bed-population ratio
   ii. Doctor-population ratio
   iii. Percent of infants with low birth weight
   iv. Morbidity rates by leading causes

   Refer to PopDev Integration at the Sectoral Level: Health, for a discussion and a simple framework for analyzing health development and its demographic aspects. (PopCom, 2005. See also Annex I.)

   The following indicators may also be used as poverty indicators:

   v. Proportion of children 0-5 years old who died
   vi. Proportion of children 0-5 years old who are moderately and severely underweight
   vii. Proportion of women deaths due to pregnancy-related causes (See Annex J.)

b. Compare the indicators with previous values and with regional, national and other benchmarks. (Refer to Table 18.)

c. Identify targets for health sector PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of health sector PPAs.

Some planning considerations in identifying health sector objectives, targets and PPAs:

- The need for health services increases as the population increases, even as there are differences in the need according to a person's age and sex.
- Affordability (and therefore income) directly affects access to health care.
- Education is an important factor in the provision of health service, e.g., education of the mother affects health care of her children and the rest of the family.
- The ability of the local government to provide quality health services is directly dependent on the capability of and support given to health service providers, e.g., doctors, nurses, and midwives.
- Private sector healthcare services and non-formal health care (involving barangay health workers and volunteers and female members of the household) are also important and should be supported.
- The location and spatial distribution of health care facilities affect access to health care. Transportation facilities and related infrastructure support will be important in improving accessibility.

(Source: PopCom, 2005. See also Annex L for examples on the linkages between the health sector and poverty reduction.)

Map 15. Location of health facilities, priority areas, and proposed health-related PPAs.

6.3.2. Education

a. Cite major indicators (as available) such as:

i. Literacy rate (by sex)
ii. Elementary and secondary cohort survival rates
iii. Classroom-pupil ratio

Refer to PopDev Integration at the Sectoral Level: Education, for a discussion and a simple framework for analyzing education development and its demographic aspects. (PopCom, 2005. See also Annex I.)

The following indicators may also be used as poverty indicators:

iv. Elementary school participation rate
v. Secondary school participation rate (See Annex J.)

b. Compare the indicators with previous values and with regional, national and other benchmarks. (Refer to Table 18.)

c. Identify targets for education sector PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of education sector PPAs.

Some planning considerations in identifying education sector objectives, targets and PPAs:

- Demand for education increases as health conditions improve and as incomes rise; better education leads to higher demand for education.
- While school accessibility is high, retention rates are relatively low. In 2004, for example, only about 60% of those who enter first grade complete their elementary level education. Thus, improving school retention rates is an important strategy for improving education and poverty reduction.
- Physically, poverty reduction is enhanced if access to education is ensured or improved. Spatial planning and road construction can be key inputs to education development and poverty reduction projects.

(Sources: PopCom, 2005; A. Deolalikar et al, 2002. See also Annex L for examples of linkages between the education sector and poverty reduction.)

Map 16. Location of education facilities, priority areas, and proposed education-related PPAs.

6.3.3. Housing

a. Cite major indicators (as available) such as:

i. Percentage distribution of households by type of housing unit occupied
ii. Housing backlog

Refer to PopDev Integration at the Sectoral Level: Housing, for a discussion and a simple framework for analyzing education development and its demographic aspects. (PopCom, 2005. See also Annex I.)

The following indicators may also be used as poverty indicators:

iii. Proportion of households who are informal settlers
iv. Proportion of households with makeshift housing (See Annex J.)

b. Compare the indicators with previous values and with regional, national and other benchmarks.

c. Identify targets for housing sector PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of housing sector PPAs.

Some planning considerations in identifying housing sector objectives, targets and PPAs:

- Affordability is the main determinant of a family's housing situation. As with poverty reduction, economic growth that translates to employment and improved incomes is necessary for a sustained solution to the problem of lack of housing.
- The overwhelming majority of housing supply is provided by the private sector. The private sector has to be involved in any large-scale housing program.
- Housing affordability can be enhanced by reducing the costs of land and transaction costs. Multiple, overlapping and generally unreliable land titles increase the cost of land acquisition and affects the availability of land for socialized housing.
- In addition to direct housing developments, other projects and programs that may enhance access to affordable housing include: streamlining the land titling process, opening up new areas for socialized housing through new or improved transportation infrastructure, and appropriate land use planning and zoning to reduce land speculation.

Map 17. Location of housing facilities, priority areas, and proposed housing-related PPAs.

6.3.4. Security

a. Cite major indicators (as available) such as:
   i. Crime rate by type (Source: Philippine National Police)
   ii. Police force per capita
   iii. Fire protection per capita (See Annex I.)
   The following indicators may also be used as poverty indicators:
   iv. Proportion of households with members victimized by crime (See Annex J.)

b. Compare the indicators with previous values and with regional, national and other benchmarks. (Refer to Table 18.)

c. Identify targets for security sector PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of security sector PPAs.

Map 18. Location of security facilities, priority areas, and proposed security-related PPAs.

6.4. Utility/Infrastructure services

The overall approach, therefore, should be problem-solving rather than solution-peddling

As in the social service sectors, the following assessments should be supported by tables showing the indicators and maps showing the location of existing and proposed utility facilities and infrastructure. Reference should also be made to the discussion on indicators and targets at the start of this section as an overall guide to the identification of targets, and to Annex M for an overview of urban-regional planning approaches to disaster mitigation involving utility/infrastructure services.

For utility and infrastructure services, technology is important but it should not drive the assessment and the identification of PPAs. Just because a specific technology is new or affordable or available does not mean that it should be used. The overall approach, therefore, should be problem-solving rather than solution-peddling.

6.4.1. Water and Sanitation

a. Cite major indicators (as available) such as:
   i. Percentage distribution of households by main source of water supply or by type of water supply (Level I, II, or III)
   ii. Percentage distribution of households by type of toilet facilities being used (See Annex I.)

   The following indicators may also be used as poverty indicators:
   iii. Proportion of households without access to safe water
   iv. Proportion of households without access to sanitary toilet facility (See Annex J.)

b. Compare the indicators with previous values and with regional, national and other benchmarks. (Refer to Table 18.)

c. Identify targets for water and sanitation PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of water and sanitation PPAs.

Some planning considerations in water and sanitation sector objectives, targets and PPAs:

- The overall objective in water and sanitation is to have all households, industries and other consumers have regular access to safe water (Level III) and sanitary toilet facilities.
- Access to safe water is a major factor for improving health conditions which, in turn, is a key component of increased household productivity, poverty reduction, and consequently economic growth.
- The location of existing and potential water sources and the location of the demand for water will be key factors in the identification of water and sanitation PPAs.
- Increasing demand for water brought about by increasing population and more water-intensive activities (e.g., industrial activities and recreation) and the limited sources of water will mean that water supply projects will increasingly be inter-local in nature. Close coordination among local governments, even between provinces, will be required and this will be structured largely by the location of supply sources and the location of large urban centers within the province.
- Large water supply and sanitation projects are costly but are necessary over the long-term. It is ideal if these projects can be designed and built incrementally. Private sector participation should be considered.
- Inter-sectoral coordination will also be required with the irrigation and power (hydroelectric) sectors.

Map 19. Location of water and sanitation facilities, priority areas, and proposed water and sanitation-related PPAs.

6.4.2. Power

a. Cite major indicators (as available) such as the percentage of households served by electricity.

b. Compare the indicators with previous values and with regional, national, and other benchmarks.

c. Identify targets for power sector PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of power sector PPAs.

Some planning considerations in power sector objectives, targets and PPAs:

- The overall objective in the power sector is to provide regular electric service to the entire province. Airports, ports, hospitals, flood control, and other key facilities should be provided with backup (emergency) power supply.
- The cost, amount, and quality of power available in an area are important factors that influence industrial location.
- As with water and sanitation, power programs are typically identified, designed and implemented at the multi-regional (or national) level considering existing power grids and sources. Alternative power sources may be considered for areas (e.g., smaller islands) not currently served by the national grid.

Map 20. Location of power facilities, priority areas, and proposed power-related PPAs.

6.4.3. Drainage/flood control

a. Cite major indicators (as available) such as the extent (land area and land use affected) of flooding, estimates of economic losses due to flooding, and number of displaced persons due to flooding.

b. Compare the indicators with previous conditions.

c. Identify targets for drainage/flood control PPAs that may be included in the PDPFP.

d. Describe key challenges and constraints, priority concerns and areas relevant to the identification of drainage/flood control PPAs.

Some planning considerations in drainage/flood control sector objectives, targets, and PPAs:

- The overall objective in the drainage/flood control sector is to prevent the occurrence of flooding throughout the entire province. Priority should be given to the prevention of chronic and sustained flooding that affect a large number of people, major utility services and industrial facilities.
- Flood prevention should be part of community-based disaster management systems that include both hard (infrastructure) and soft (information, warning, and mitigation management systems) components.
- PPA identification and implementation should be closely linked with the local and regional disaster coordinating councils. The identification and assessment of flood prone and environmentally constrained and protection areas in Section C-3 should also be considered.

Map 21. Location of drainage facilities, priority areas, and proposed drainage-related PPAs.

6.4.4. Solid waste management

a. Cite major indicators (as available) such as the percentage distribution of households by type of garbage disposal (Source: NSO Census; see Annex I).

b. Compare the indicators with previous values and with regional, national and other benchmarks. (Refer to Table 18).

c. Identify targets for solid waste management PPAs that may be included in the PDPFP.

d. Describe key challenges, constraints, priority concerns and areas relevant to the identification of solid waste management PPAs.

Some planning considerations in solid waste management sector objectives, targets and PPAs:

- The overall objective in the solid waste management sector is to be able to safely dispose of all solid waste with minimum environmental impact throughout the province.
- Like most utility services, solid waste management is most efficient at a certain scale of operations. For example, sanitary landfills need to serve several local government units (with a total population of about 500,000) in order to be economically justifiable. This means that clusters of towns/municipalities define the planning modules of solid waste management projects.

Map 22. Location of solid waste facilities, priority areas, and proposed solid waste-related PPAs.

Table 18 . Local Service Standards

(Note: These service standards are subject to change and should be viewed as examples to be verified with latest standards of the sectoral agencies or associations involved. Also note actual targets, for example, of DepEd where one high school classroom in urban areas is assigned to two classes with 45 students each.)

SERVICES	STANDARD
SOCIAL SERVICES	
Education and Culture	
Elementary	
Classroom	1 per 40 pupils
Teacher	1 per 40 pupils
Library	Separate building or room, well-lighted, ventilated, free from noise, accessible and centrally located
Teacher-Librarian	1 per 500 or less pupils
Full and part-time teacher-librarian	1 each per 501-1,000 pupils
Full-time librarian and part time teacher-librarian	1 per 1,000-2,000 pupils
Full-time librarian	1 for every additional 1,000 pupils
Secondary	
Classroom	1 per 40-45 pupils
Teacher	1 per 40-45 pupils
Library	Separate building or room, well- lighted, ventilated, free from noise, accessible and centrally located
Librarian	1 per enrollment of
Teacher-librarian	500 or less students
Full-time and part time teacher-librarian	501-1,000 students
Full-time librarian and part-time teacher-librarian	1,000-2,000 students
Full-time librarian	additional 1,000 students
Sports and Recreation	
Municipality/City Park	1 park with a minimum of 5,000 sq. meters in area per 1,000 population and maximum walking distance of 100-150 meters
Sports and Athletics	Public playfield/athletic field with minimum of 0.5 hectare per 1,000 inhabitants 1 sports facility per barangay
Natural Environment Area	Presence of natural, undisturbed and scenic areas suitable for recreation, scientific and ecological significance consisting of forest, water resources and other land forms

SERVICES	STANDARD
Health	
Medical and allied personnel	1 Government Physician per 20,000 population 1 Public Health Nurse per 20,000 population 1 Rural Health Midwife per 5,000 population 1 Government Dentist per 50,000 population 1 Rural Sanitary Inspector per 20,000 population 1 Barangay Health Worker per 20 households 1 Barangay Nutrition Scholar per Barangay 1 Health Educator per 50,000 population
Primary Hospital	10 bed capacity
Secondary Hospital (Provincial-District)	25 to 50 bed capacity
Medical Transport Ambulance Service vehicle	 1 per LGU 1 per LGU
Protective Services	
Police Force	1 per 500 population (urban) 1 per 1,000 population (rural)
Fire Protection Service	1 per 2,000 population 14 Firemen per truck 1 Fire truck per 28.000 population
Jail Services	1 jail per LGU
Welfare Services	
Women's Desk Office of Senior Citizens Affairs Day Care Center/Feeding Center Rehabilitation Center (for victims of drug abuse, vagrants, victims of disasters, calamities, child abuse, etc.) Adult Community Education Program	1 per LGU
Environment Protection	
Solid Waste Management Pollution Control	100% collection and disposal Absence of air, water and industrial pollutants 100% free from toxic and hazardous substances
Public Buildings and Facilities	
Municipal/City Hall/ Provincial Capitol Socio-Cultural Center Museum Barangay, Municipal, City and Provincial Library or Reading Center	Presence

SERVICES	STANDARD
ECONOMIC SERVICES	
Infrastructure Services & Existing Road Network	
Provincial Road	Connecting all component municipalities/cities (except island municipality/city)
City/Municipality Road	Connecting major clusters of population to the city or town proper
Feeder Road (Barangay road, rural road, or farm-to-market road)	Connecting all barangays to municipal, city or provincial road
Water Supply (city/municipality)	
Level I	Point source (such as rain collector, wells and springs) generally for rural areas where houses are scattered too thinly to justify a distribution system)
Level II	Communal faucet system generally for rural areas where houses are clustered densely enough to justify a piped distribution system to a number of households
Level III	Piped system with individual connection in urban areas, with avg output of 150 liters per person per day
Sewerage Services (city/municipality)	
	Existence of functional sewer system Absence of stagnant water formation
Market and Slaughterhouse	
	Accessible from all directions and through all modes of transportation Site located in urban area Standard sections and facilities Wet section Semi-wet section Dry goods section Storage facilities Eateries Parking space Running water Proper lighting Proper ventilation Drainage Treatment plant or settling pond

Source: Commission on Population, 2004.

6.5. Other services and facilities

This section includes services and facilities required by community groups (such as the elderly, children, the disabled, indigenous peoples) that deserve special attention. To the extent possible, assessments of these services and facilities should be supported by tables showing the indicators and maps showing the location of existing and proposed social service facilities. The overall approach follows the previous discussions:

6.5.1. Existing indicators of levels of service or conditions.

6.5.2. Comparisons to relevant standards and benchmarks. (Refer to Table 18.)

6.5.3. Targets for sector PPAs that may be included in the PDPFP.

6.5.4. Key challenges and constraints, priority concerns and areas relevant to the identification of sector PPAs.

Map 23. Existing and proposed facilities and/or location of priority areas

Refer to sectoral guidelines and plans that may apply to the specific sector of concern, e.g., Provincial Local Development Plans for Children, Philippine Action Plan for Children, UNICEF Country Program for Children, ADB guide to the preparation of Indigenous Peoples Development Plan (IPDP) and Indigenous Peoples Development Framework (IPDF), Harmonized Gender and Development Guidelines.

6.6. Poverty

6.6.1. Describe the extent of poverty in the province using standard indicators. Provide regional and national comparisons.

a. The following indicators may be used:

i. Poverty threshold
ii. Poverty incidence
iii. Income gap
iv. Poverty gap
v. Severity of poverty
vi. Gini coefficient
vii. Human development index (HDI)
(Sources: NSCB)
See Annex K for a summary description of measures of poverty.

b. Compare the indicators of the province with the region, Metro Manila or the regional center, and the country as a whole.

c. If available, provide more detailed indicators, as described in the Local Poverty Reduction Action Plans (LPRAPs) and other local poverty reduction initiatives. Note trends (improvement or decline) in the indicators. (See Annex J for a list of poverty indicators.)

6.6.2. Identify the locations in the province where poverty is prevalent or concentrated. These may be derived through poverty mapping, which may be available through LPRAPs and/or other local initiatives. If available, include a map showing areas of poverty concentration.

6.6.3. Describe the key conditions and factors contributing to poverty in the province. (Refer to Guidebook on Local Poverty Diagnosis and Planning, 2004.)

6.6.4. Describe proposed strategies, programs, and projects to address poverty in the province. Refer to LPRAPs or, if these have not yet been identified, to Guidebook on Local Poverty Diagnosis and Planning, 2004, to identify such strategies, programs and projects. See also Annex L (Basic guidelines on the identification of strategies and projects consistent with poverty reduction objectives) for additional guidance.

6.6.5. Relate the identified poverty reduction strategies, programs, and projects with the industries and local factors identified in the economic analysis above to ensure consistency. Keep in mind that economic growth that involves local employment is essential to poverty reduction.

7. Land Use and Physical Framework

Objective:
To describe the existing land uses in the province and to identify an integrating physical framework for future development.

Approach and summary:
While the spatial characteristics of each sector have been discussed as an integral part of sectoral analyses, this section integrates them into a common physical setting to provide a fuller picture of the way land and other physical resources are being utilized in the province. Given this existing condition, a physical framework is derived to integrate the locations of future development and guide the identification of PPAs.

7.1. Existing land use, trends and potential expansion

7.1.1. Existing land use

Briefly describe the existing distribution of land uses—what are the areas (land and water) and percentage shares of various land uses in the province?

Table 19. Existing (or latest available) land use distribution in the province, area and percentage share. If available, show the distribution during a previous period (e.g., five or 10 years ago). Use the following categories:

- Built-up/settlement areas: The built-up areas should be consistent with the settlement areas described in Section C-2 and shown in Map 5a. (Unless otherwise noted, "settlement" and "built-up" land shall mean the same thing. In general, "urban" land also refers to settlement and built-up land but to avoid further confusion with definitions, "urban land" will not be used in this section.)
- Protection areas: NIPAS and non-NIPAS areas, areas prone to natural hazards, environmentally-critical areas (such as polluted areas), tourism areas, SAFDZs. The protection areas should be consistent with those described in Section C-3 and shown in Map 11.
- Production (non-built-up) areas: agriculture, production forest, mining operations, tourism. The production areas should be consistent with those described in Section C-4 and shown in Map 12.
- Other areas: Other large areas that are distinct from the above categories such as major utility facilities, infrastructure, or military reservations may also be classified separately.

Further disaggregation of the above categories should be done if necessary data are available and historical and geographical comparisons are possible. (Refer to the NFPP for sample land data at the national and regional level and descriptions of various land use areas.) As a guide, land use categories at the provincial and regional levels need not be disaggregated down to the

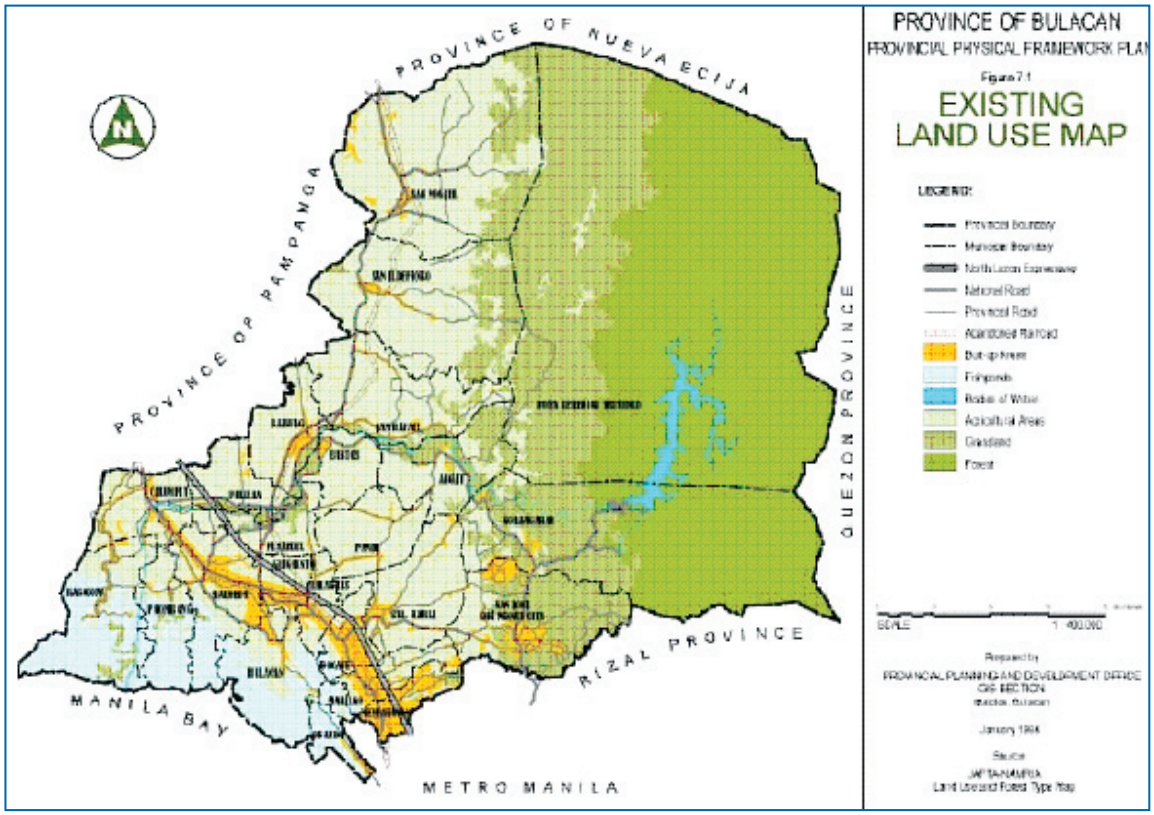
land use categories that are internal to built-up areas (e.g., commercial, residential, industrial). Map 24. Existing Land Use (with road/ other transportation networks, external linkages, internal circulation routes, city/municipal boundaries). This map should cover the entire province. If more detail is available, a separate map may be provided for a specific land use, e.g., a map showing various types of protection areas.

7.1.2. Trends

If historical data are available (on previous land use distributions), note the land uses that are increasing or decreasing. Compare the levels and rates of change with other provinces, the host region or the country as a whole. Identify the areas where significant changes (conversion) are taking place.

If data are unavailable, simply describe the trends and identify the areas based on local knowledge and perception. Try to explain the causes of the changes and trends.

Example of Map 24: Existing Land Use Map, Bulacan



Source: Provincial Government of Bulacan

Notes

If the population is increasing and is expected to increase in the future, the trend should show an increase in built-up areas to accommodate such a population. A decrease in the share of built-up areas is unusual and needs to be explained.

Changes in land uses are inevitable and are often signs of a vibrant community and economy. But they may also introduce new environmental threats or requirements. Some are the result of market-based pressures that emanate from higher value land uses. For example, as the population and the economy grows, there is pressure to build up land, which creates pressure to convert agricultural and other rural production land, production forests, and protection forests.

For the PDPFP, the focus should be on changes that are taking place on a medium- to long-term basis—expansion of built-up areas, conversion of agricultural areas, cultivation of forest areas—as well as those that occur on an urban or regional scale, instead of changes dealing with specific parcels of land. The latter are best addressed in individual city/municipal development and land use plans.

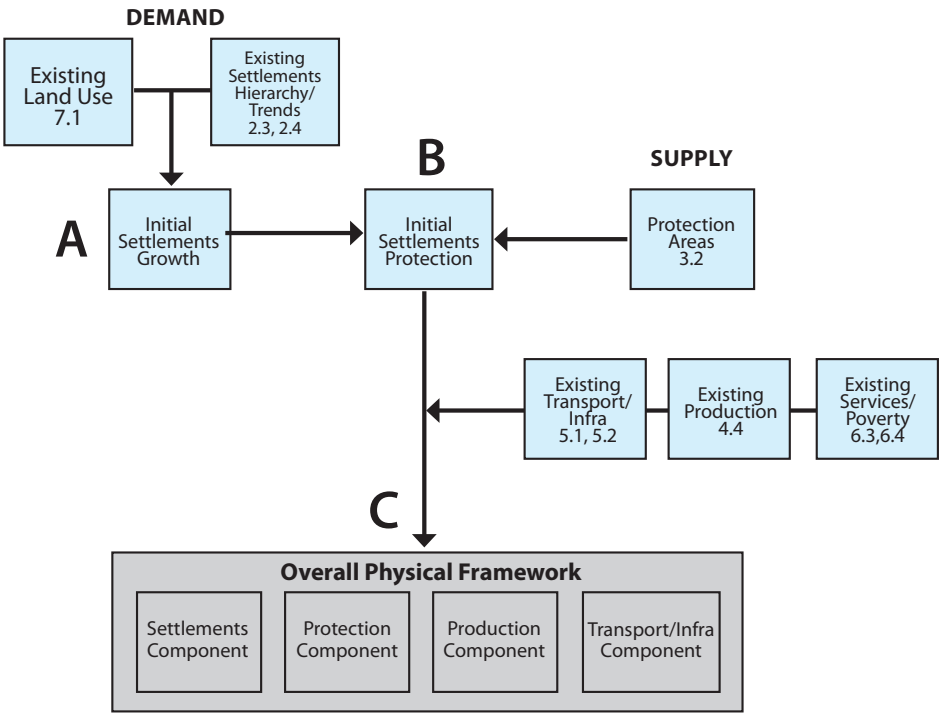
7.2. Physical framework

In this section, a framework to guide future physical developments and the location of PPAs in the province is derived. The framework is composed of several proposed general components (settlements, production, protection, transport/other infrastructure) that relate vertically to similar regional (RPFP) and local (CLUP) plans.

The framework is the product of integrating and reconciling the previous components of the plan environment. By definition, it sets the physical parameters by which future growth and development, including identified PPAs, can take place.

The process by which the framework is derived may vary according to priorities (including those expressed in the vision) that arise during the planning process. For example, if employment is an overriding concern (even before development issues, goals and objectives have been purposefully identified), then settlement and production areas may be the most appropriate starting point. If the state of the physical environment is the dominant issue, because it affects provincial tourism, for example, or because of safety concerns, then protection may be given priority. In any case, the typical process utilizes maps and other results of the plan environment analyses and may proceed as follows (Figure 10):

Figure 10. Physical framework process



(Note: The numbers shown in the boxes indicate the relevant sections in the Guidelines.)

7.2.1. Demand (A)

Assess future land requirements starting with the existing land use (Section 7.1) and looking at existing settlement hierarchy and expansion trends (Sections 2.3, 2.4).

The objective is to delineate approximate future settlement/built-up areas based on the demand for land —how existing settlements are expected to grow and expand geographically.

In map form, this involves revising Map 5a (Built-up areas) or Map 24 (the built-up areas in the existing land use) to consider future trends. The result of step A is an Initial Settlements Growth map.

Map 25. Initial Settlements Growth.

Notes

It is not necessary to have precise estimates of the amount of land required, although historical settlement land take-up may be used as a benchmark. Generally, for example, if we are interested in the amount of new settlement land required to accommodate the additional population between 2000 and 2010, such that:

P = Additional population 2000-2010
D = Population density in 2000
S = Additional settlement land required in 2000-2010

Then S < P/D

P/D is a benchmark for S. S is the estimated additional land to be occupied by settlements between 2000 and 2010. And most likely, this should be less than P/D, which is the amount of land computed using the population density of 2000, because future population is likely to have higher population densities.

Given an estimate of the additional population P and knowing the current population density D (both of which are computed in Section C-2) will, therefore, provide a benchmark for future land requirements. It should be stressed, however, that the benchmark is not a planning target and that it assumes that conditions during the previous planning period remain substantially the same in the near future.

Current land use plans of cities and municipalities (e.g., CLUPs) should provide major inputs into the initial settlements growth plan.

7.2.2. Integrate Demand with Supply (B)

Assess the supply requirements, integrating the results of step A with identified protection areas (Section 3.2). Essentially this step matches what is likely or desirable from a settlements development point of view (demand) and what is allowable from a protection perspective (supply).

The objective is to check if the likely areas of growth and expansion as identified in Step A are in conflict with the supply of land as defined by identified protection areas. If there are conflicts then these should be eliminated or minimized by modifying the results of Step A accordingly—by trying to avoid expansion into the protected areas and/or minimizing the impact of expansion into protected areas.

In map form, this involves overlaying the results of Step A with Map 11 (Protection Areas) to identify areas where built-up and other production areas can expand without encroaching into

protection areas. The result of Step B is an Initial Settlements and Protection Land Use map. (Maps 9 and 10—Land Classification and Land Suitability, respectively—should also provide inputs to this step.)

Map 26. Initial Settlements and Protection Land Use.

Notes

The following are typical criteria for identifying settlement/built-up expansion areas as part of the process of integrating and reconciling the demand and supply for land:

- Areas along established urban growth directions.
- Areas that can be provided with basic services and utilities.
- Ideally within the 0-3% (or 0-6% or 0-8%) slope range.
- Reasonably accessible from existing built-up areas and other employment centers through existing or proposed roads and other transportation facilities.
- Within A&D lands but not in environmentally-critical areas.
- Not in other protection areas.
- Consistency with City/Municipal Land Use Plans

This step also involves the identification and resolution (at least at the policy level) of existing and potential land use conflicts. Some of these may have been already identified in Section C-3 (disaster mitigation measures for protection areas) and in individual CLUPs of cities and towns of the province. Figure 11 provides a summary of various types of land use conflicts:

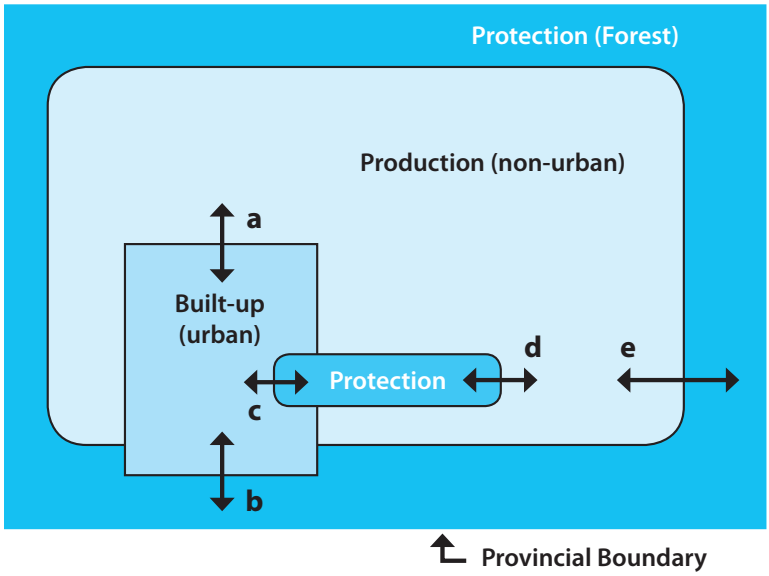


Figure 11. Potential Land Use Conflicts

a. Built-up land uses encroaching into agricultural and other production (A&D) areas.
b. Built-up land uses encroaching into forest protection areas.
c. Built-up land uses encroaching into protection areas in built-up areas.
d. Agricultural and other non-built-up production areas encroaching into protection areas within other production areas.
e. Agricultural and other non-built-up production areas encroaching into forest protection areas.

Notes

In identifying and describing land use conflicts, it is useful to keep in mind that conflicts in the way land and water resources are utilized are unavoidable. It is also likely that such conflicts will increase and intensify as population increases and as more and more physical resources are required to meet the demands of urbanization, agriculture, and other social activities.

The number and type of conflicts that can be identified, therefore, can be numerous and unwieldy, especially if they include conflicts that may be significant but where the extent of intervention is substantially limited, e.g., conflict between low-density and high-density residential areas in an urban center.

Although there are no specific rules on what should or should not be included in the conflicts to be described, those that are particularly important to the PDPFP are conflicts that are or have serious potential to be:

- Harmful or destructive to protected areas, flora, fauna, other protected natural resources;
- Life-threatening or are direct threats to public safety;
- Threatening to the sustainability of key production resources or employment activities (including key tourism areas); and
- Threatening to the delivery of basic services.

In identifying urban and regional planning responses in aid of disaster mitigation, refer to Annex M.

7.2.3. Integrate Other Land Use Requirements (C)

Integrate into the Initial Settlements and Protection component other land use requirements: transportation and other infrastructure (Sections 5.1, 5.2), production (Section 4.4) and requirements arising from the assessment of employment, income, services and poverty conditions (Sections 6.3, 6.4).

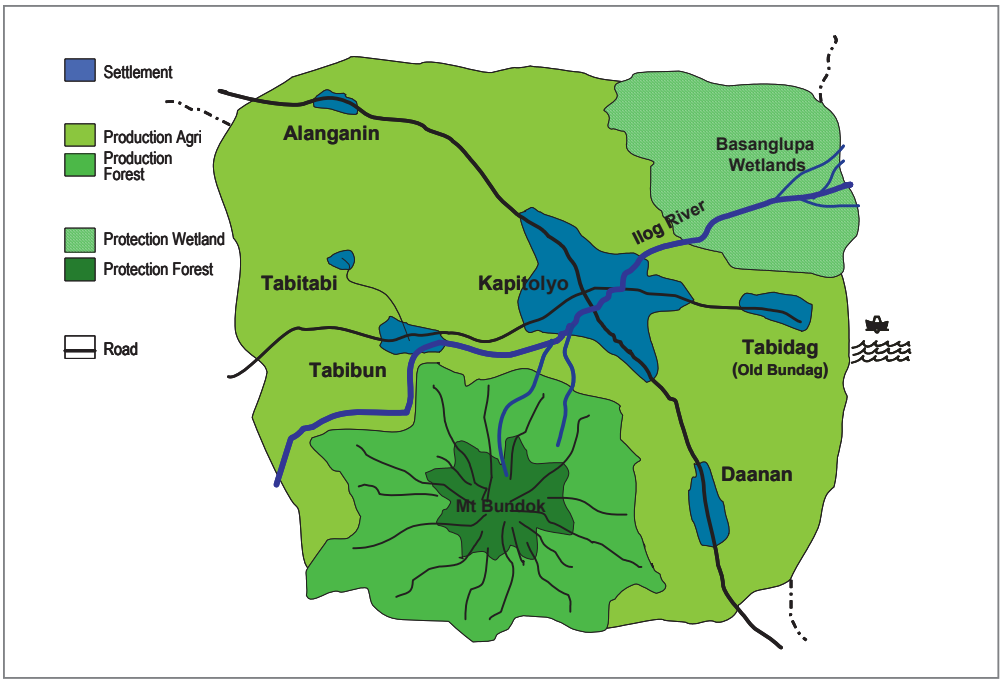
The objective is to incorporate the land use and other physical requirements of other sectors with the results of step B to derive an overall physical framework plan.

In map form, this involves overlaying the results of step B with Map 12 (Industry Location and Support Infrastructure), Map 13 (Potential Industries), Map 14 (Existing and Proposed Transport Linkages), Maps 15-23 (Sectoral maps). The results of step C are the components of the physical framework plan: settlements, production, protection, and transport/infrastructure.

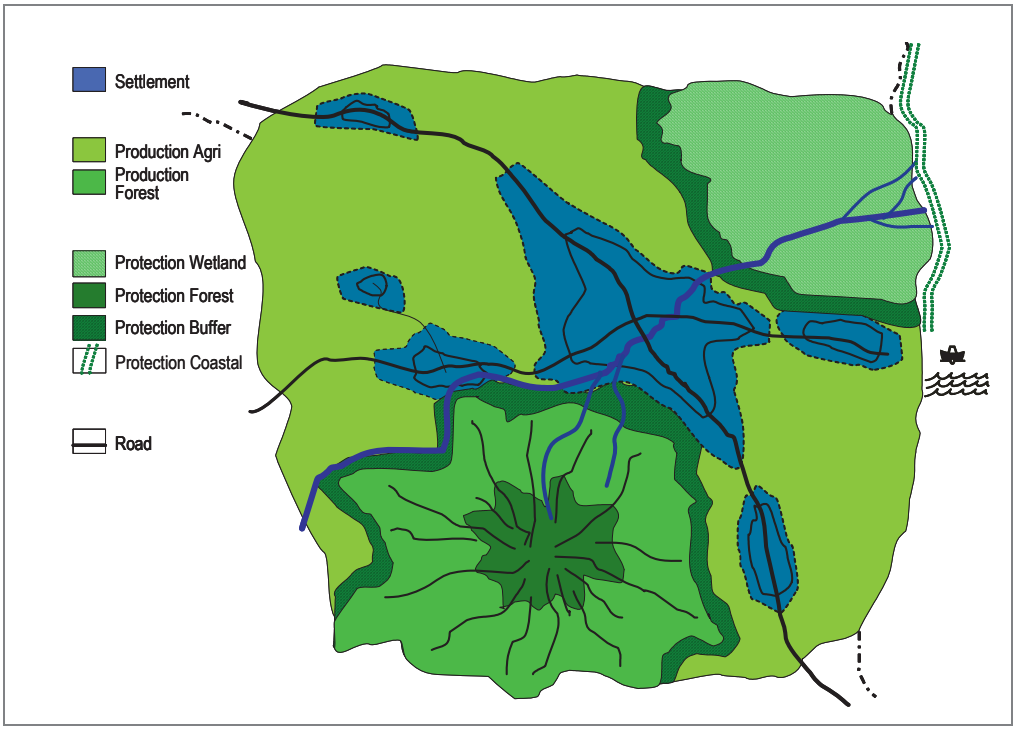
The settlement, production, protection and transport/infrastructure plan components of the physical framework are composed of individual maps each with corresponding plan descriptions. Note that the final settlement, production, protection and transport/infrastructure maps and plans may be different from those derived in the plan environment (Section C), as the latter represent initial analyses without full integration. An overall physical framework map integrates all of these frameworks into a single map (which also serves as a proposed land use map).

Map 27. Settlements framework
Map 28. Protection framework
Map 29. Production framework
Map 30. Transport/Infrastructure framework
Map 31. Overall physical framework

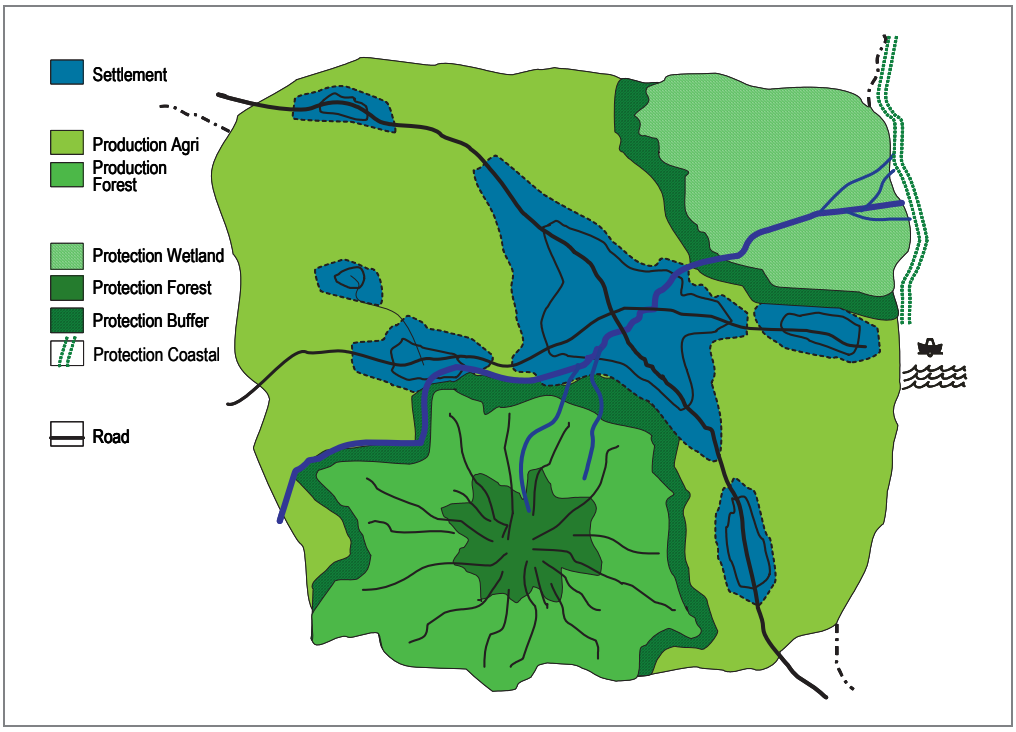
Examples of maps for a hypothetical province showing the starting point (Map 24: Existing Land Use) and the results of steps A, B, and C (Map 25: Initial Settlements Growth, Map 26: Initial Settlements Growth and Protection, and Map 31: Physical Framework) are shown as follows:



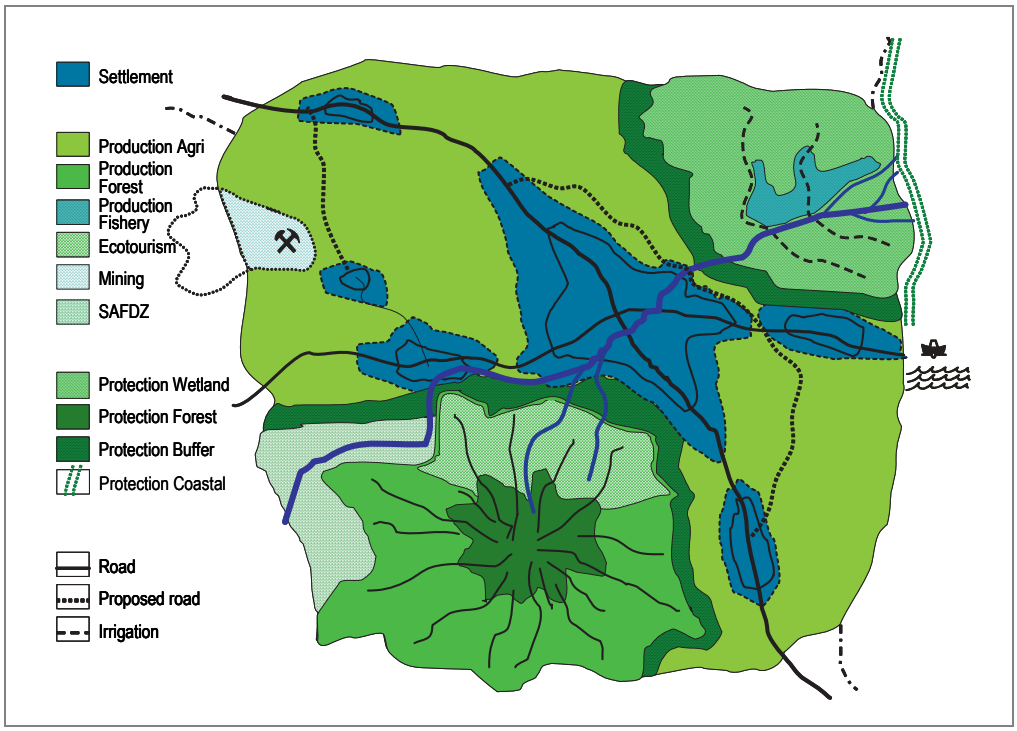
Example of Map 24. Existing Land Use (hypothetical, showing settlements hierarchy)



Example of Map 25. Initial Settlements Growth



Example of Map 26. Initial Settlements Growth and Protection



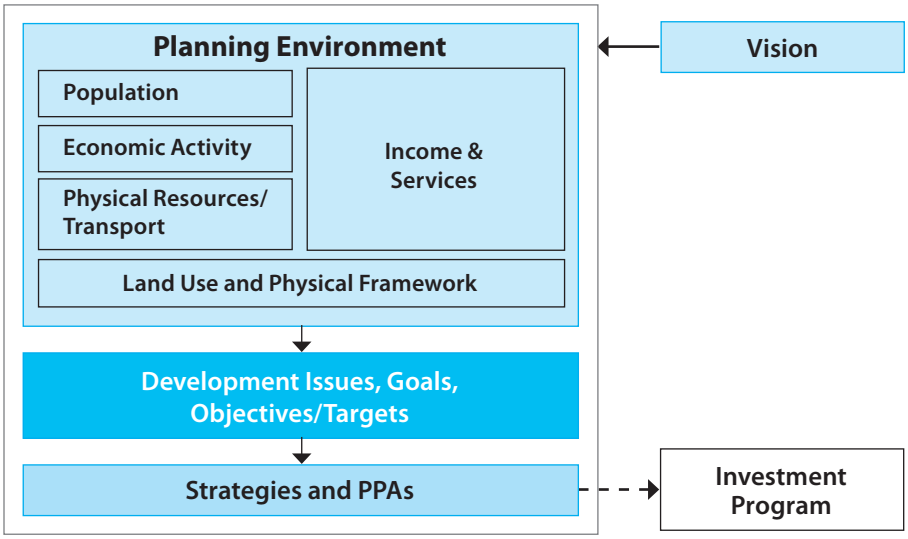
Example of Map 31. Physical Framework

It is also useful to keep in mind that current MTPDP, NFPP, RDP, RPFP and local development plans (of cities/municipalities within the province) should be considered during the formulation of the physical framework.

For additional guidance in the following planning issues, refer to the corresponding NFPP sections:

- Planning for future population growth, refer to Section 1, Settlements Development, particularly Section 1.3.
- Planning for production areas, refer to Section 2, Production Land Use, particularly Section 2.3.
- Planning for protection areas, refer to Section 3, Protection Land Use, particularly Section 3.3.
- Planning with respect to infrastructure, refer to Section 4, Infrastructure Development, particularly Section 4.3.

D. DEVELOPMENT ISSUES, GOALS, OBJECTIVES/TARGETS



Objective:
To identify key development problems and corresponding goals, objectives, and targets.

Approach and summary:
The analysis of the planning environment (Section C) leads to a chain of planning activities: (1) the identification of development issues and problems, (2) the identification of corresponding goals, objectives, and targets, (3) the formulation of strategies to achieve the goals, objectives, and targets, and (4) the identification of specific programs, projects, and activities that seek to implement such strategies. This section deals with the first and second activities:

1. Identify development issues/problems, based on the previous analysis of the planning environment.
2. Derive development goals, objectives, and targets. (These goals, objectives, and targets should be the basis for formulating strategies, programs, projects, and other activities in Section E.)

1. Development issues and problems

1.1. Summarize trends and scenarios, according to the various "drivers" and "symptoms" (or "indicators") assessed in the Planning Environment (Section C).

1.2. Identify development issues/problems, based on the analysis of the Planning Environment.

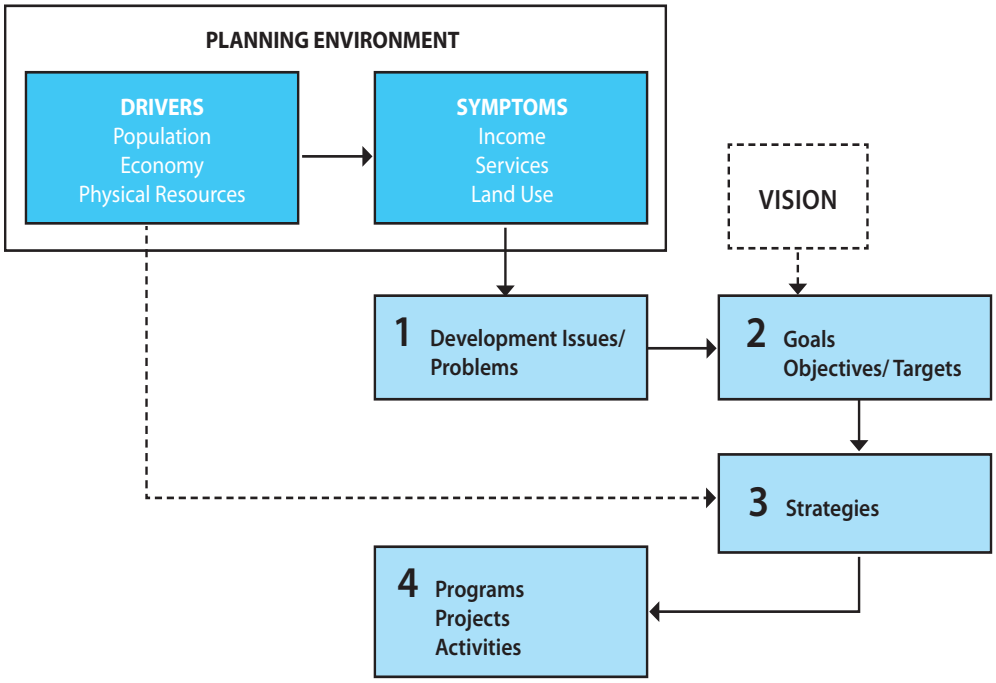
Development issues are basically problems directly related to symptoms or indicators of development such as non-availability of services, lack of income and employment, lack of housing, encroachment into environmentally-constrained lands, etc. (Figure 12).

As identified, some issues are sector-specific while others are multi-sectoral. Typically, sector-specific issues are addressed directly. For example, the construction or rehabilitation of a water supply system is usually required in response to inadequate water supply. Or, a road needs to be paved or additional classrooms need to be built or slope protection measures need to be put in place in order to address the problems of poor farm-to-market linkage, high pupil-classroom ratio, and increasing incidence of erosion, respectively.

"Conflict-prevention" is an example of a multi-sectoral issue that affects local development and requires more than just providing technical solutions to technical problems. The solution

may involve combinations of socio-economic, political and military or police interventions. It also requires certain approaches to make sure that the issue on "conflict" (sometimes also referred to as "peace and development" issues) are properly addressed.

Figure 12. The planning environment, development issues/problems, strategies and PPAs.



In general, development issues are identified based on the following:

1.2.1. Sectoral indicators that fall short of accepted standards (e.g., poverty incidence higher than regional or national average, high school dropout rate, lack of an all-weather access road to a port) in assessments of the planning environment;

1.2.2. Inputs or feedback from stakeholders, including sector/industry representatives, during consultations (e.g., confirmations of problems raised in planning environment assessments, specific concerns of key provincial industries);

1.2.3. Inputs or feedback from city/municipal, regional or national levels (e.g., urgent national projects that require local components such as interregional railways or other similar transport facilities);

1.2.4. Local initiatives especially those emanating from the provincial community's Vision.

2. Development goals, objectives, and targets

2.1. Identify development goals.

2.2. Identify objectives and targets.

Goals, objectives, and targets are responses to identified development issues and problems, guided by the vision for the province. They shall be the basis for formulating strategies, programs, projects, and other activities in Section D. Table 20 provides a summary description and comparison of Vision, Goals, Objectives, Targets, Strategies, Programs, and Projects.

Table 20. Summary Description and Comparison of Vision, Goal, Objective, Strategy, Program and Project

Vision	Goal	Objective/ Target	Strategy	Program	Project
• Long term	• Medium-long term	• Short term	• Short-long term	• Short-medium term	• Short-medium term
• Province-wide, multi-sectoral	• Intersectoral	• Sectoral	• Sectoral/ intersectoral • Location specific	• Sectoral/ intersectoral • Location specific	• Sectoral • Location specific (detailed)
• Aspirational	• Responds to a general problem	• Responds to a specific problem	• States how goal/ objective is to be achieved	• Translates strategy into action	• Subset of program
• Summarizes the ideal state	• Broad statement	• Specific • Measurable • Achievable • Realistic • Time bound	• Guides PPA identification and imple-mentation • Derived by looking at drivers of problems		

Note that as one moves from vision to goal to objective/target:

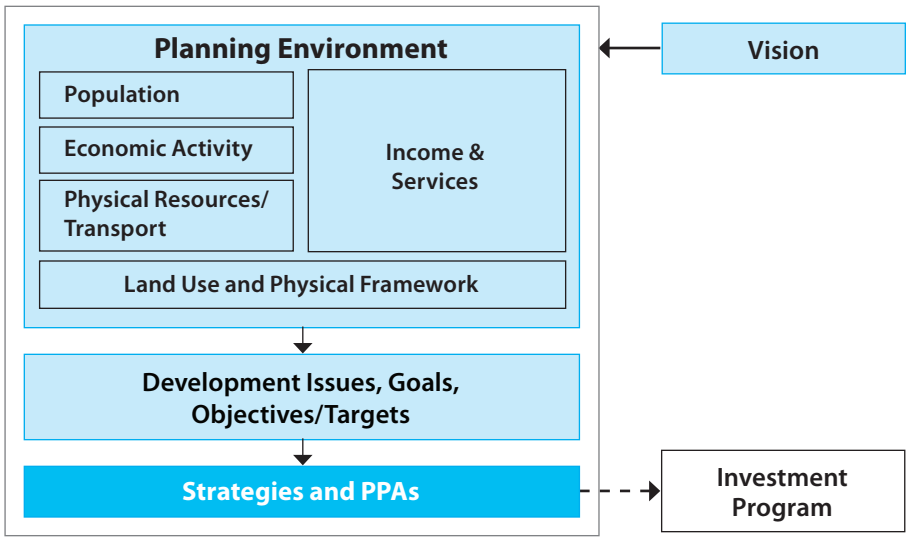
- The time frame becomes shorter.
- The coverage becomes more specific both in terms of sectoral coverage as well as area coverage. Goals are derived from issues/problems but are also directly aligned with the Vision. They respond to a general problem and tend to be intersectoral in coverage. An objective/target tends to focus on a single sector.
- It responds to an increasingly specific concern, from being an aspirational expression of an ideal state (vision) to being a response to a specific issue.

Table 21 provides a simple example of how goals and objectives and targets may be derived from issues and problems based on the analysis of the planning environment. Note how goals are more directly derived from symptoms rather than the drivers of development, and how objectives and targets provide additional detail (usually in terms of the affected population and their location) to the goals. Further, while objectives and targets are very similar and can often be interchanged, a target is usually a measurable component of an objective and therefore, once an objective can be measured, then a corresponding target can be defined. Often, the target is related to the gap between a sector indicator and its accepted standard or benchmark. Goals and objectives/targets may be derived directly from the drivers of development but their significance is not as direct compared to goals or objectives/targets that are derived from the symptoms. For example, a goal of reducing the population growth rate is a direct response to the issue of rapid population growth but its significance is fully appreciated only when such rapid growth contributes to low family incomes and levels of service (symptoms).

Table 21. Example of Issues/Problems, Goals, and Objectives/Targets

Issues/Problems	GOALS	OBJECTIVES/TARGETS
DRIVERS		
Population		
• Rapid growth--how to accommodate future population		
Physical resources		
• Overexploitation of natural resource • Disaster mitigation		
Transport/Access		
• Inadequate external linkages, internal access routes		
Economy		
• Lack of economic competitiveness • High cost of doing business		
SYMPTOMS/INDICATORS		
Income / Services		
• Low incomes, lack of livelihood opportunities	• Increase incomes/ livelihood opportunities	• Provide employment to xx households in yy areas.
• High dropout rate for elementary school	• Decrease elementary dropout rate	• Improve school retention in yy areas
• Lack of affordable housing	• Provide affordable housing	• Provide affordable housing for xx households in yy areas
Land use		
• Urban encroachment into prime agricultural lands	• Mitigate indiscriminate land conversion; protect selected agricultural land	• Prevent unnecessary land conversion in yy areas
• Flooding	• Protect communities in flood prone areas	• Protect xx households in yy areas from flooding; relocate population in critical areas
• Environmental degradation	• Curb environmental degradation due to industrial waste	• Significantly reduce industrial discharge into yy areas

E. STRATEGIES, PROGRAMS, PROJECTS, AND ACTIVITIES



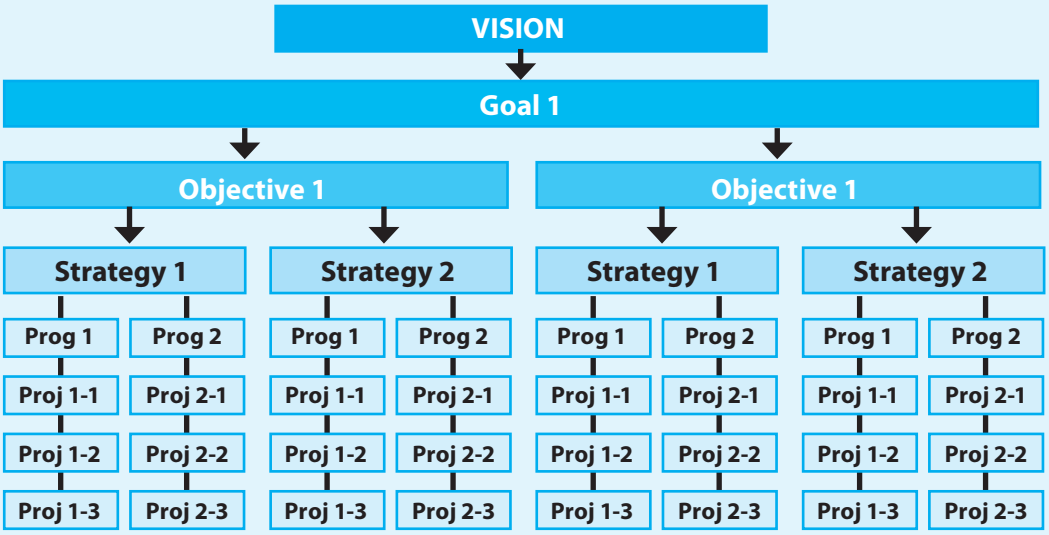
Objective:
To identify strategies and corresponding programs, projects, and activities. These shall serve as primary inputs to the investment programming process.

Approach and summary:
For each identified development goal and objective/target:
1. Identify strategies.
2. Identify programs.
3. Identify projects/activities (For this purpose, a project is considered the same as an activity.) *Activities are actions taken through which inputs (financial, human, technical and material resources) are mobilized to produce specific outputs.*

Guided by the vision, each goal may have more than one objective; each objective may have more than one strategy; and each strategy may have more than one program. Each program should have more than one project unless the program is the project itself.

It is also useful to point out that a project or a program may address or deal with more than one strategy of objective (e.g., a regional development program that covers several sectors). Compared to the vision and goals, which have medium- to long-term orientation, intersectoral and general, strategies and PPAs are similar to objectives/ targets which become progressively more short-term, sectoral and location-specific.

Ideally, strategies and PPAs deal with factors and activities that are under the direct control of the province. However, some may be directly under the jurisdiction of city or municipal governments or are external to the province (e.g., regional, national, or even international).



Source: Strategy Planning for LED: A Five Stage Process, World Bank, Cities of Change Initiative, 2004

1. Strategy, Programs, and Projects

For each identified development goal and objective/target, identify:

1.1. Strategies

As mentioned earlier, goals and objectives/targets are more appropriately derived from what we have referred to as symptoms of development (manifestations of income, access to services, levels of poverty, and land use). Strategies, however, as indicated in Figure 12, are more directly associated with drivers of development (population, economy, physical resources).

For example, the lack of low-income housing may be an obvious problem but it cannot be addressed by strategies that simply call for new housing projects. Rather, the lack of low-income housing is more of a symptom that is rooted not in the problem of housing but in the problem of low income—the inability to afford decent shelter. Thus, while the development of affordable housing through innovative design, technology, financing schemes, and other

means of direct or indirect subsidy may help alleviate the problem, lasting solutions need to address the more fundamental issue of low income. This suggests that ultimately, livelihood and economic growth are key to the housing issue. And in this case, an onsite housing development strategy may be preferred over an offsite relocation strategy because the former is often more successful in providing employment and/or retaining current livelihood activities.

Refer also to national, regional, and other local plans (e.g., Medium-term Philippine Development Plan, National Physical Framework Plan, Regional Development Plan, Regional Physical Framework Plan, and Local Development Plans) for ideas on how to identify strategies in response to specific issues and goals.

1.2. Programs

Programs are sets of projects that translate strategies to specific action plans. Some strategies may involve only one project in which case a program may be unnecessary. Each strategy may require more than one program.

Programs may involve several sectors although the sectoral focus should be clear. A livelihood program, for example, may be part of a strategy seeking to address the problem of unemployment. The same program, however, may involve agricultural fertilizer support, farm-to-market road construction, and microfinance projects. An area-based development program, which may be a component of a development strategy to address a location-specific poverty or "conflict-prevention" problem, is another example of a program that involves several sectors.

1.3. Projects

To the extent possible, projects must be:

- Sector-specific to facilitate implementation and monitoring by sectoral agencies;
- Location-specific;
- Sufficiently described to allow initial estimates of funding as well as legislative requirements (if any).

Examples of how driver-based strategies (and corresponding programs and projects) that respond to symptom-based goals and objectives/targets may be identified are shown in Tables 22 and 23. These examples are separated into two tables for illustrative purposes only—in order to show how they may be derived from symptom-based development issues in Table 21.

Table 22 contains examples derived from income and services while Table 23 contains examples derived from land use issues.

1.4. Poverty reduction strategies and projects

Poverty reduction is a fundamental objective of development planning and local governments have been encouraged to prepare separate Local Poverty Reduction Action Plans (LPRAPs). Ideally, however, these LPRAPs should be integrated into the PDPFP because much of the analysis and basis for poverty reduction PPAs is already contained in the PDPFP and because projects oriented towards poverty reduction should be conceived and implemented in the context of the larger provincial development plan.

Some basic guidelines on the identification of strategies and projects that are consistent with poverty reduction objectives are described in Annex L.

Table 22. Examples of Strategies, Programs, and Projects Derived from Income/ Access to Services

Issues/ Problems	Goals	Objectives/ Targets	Strategies	Programs	Projects
• Low incomes, lack of livelihood opportunities	• Increase incomes/ livelihood opportunities	• Provide employment to xx families in yy areas.	• Encourage export competitive industries	• Export infrastructure program	• Port repair project (to reduce handling costs)
					• Regional highway project (to support export market)
				• Skills training for export productivity program	• Training for productivity project in yy areas
			• Provide microfinance	• Microfinance program	• Pilot micro-finance project
• High dropout rate for elementary school	• Decrease elementary dropout rate	• Improve school retention in yy areas.	• Improve physical access to schools	• Road to school improvement program	• Build/repair school access road project
				• Classroom building program in yy areas	• Classroom construction in yy areas
			• Provide subsidy for poor students	• Subsidized school lunch program	• Subsidized school lunch project in yy areas
• Lack of affordable housing	• Provide affordable housing	• Provide affordable housing for xx house-holds	• Provide access to new housing sites	• New housing road access program	• Access road construction project
			• Sites and services improvement in yy areas	• CMP program in yy areas	• CMP project in yy areas
			• Private sector-led development of affordable housing	• Land titling and admini-stration program	• Land titling project in yy areas

Table 23. Examples of Strategies, Programs, and Projects Derived from Land Use

Issues/ Problems	Goals	Objectives/ Targets	Strategies	Programs	Projects
• Urban encroachment into prime agricultural lands	• Mitigate indiscriminate land conversion; protect selected agricultural land	• Prevent unnecessary land conversion in yy areas/ ensure protection of xx hectares within 3 years	• Encourage urban expansion to environmentally compatible areas	• Urban expansion road program	• Access road construction project
				• Review and update land use plans and zoning	• Updated land use plans and zoning for yy areas
			• Improve agricultural incomes to discourage conversion	• Agricultural productivity program	• Agricultural productivity research project
• Flooding	• Protect communities in flood prone areas	• Protect xx households in yy areas/ within next 2 years	• Protect and rehabilitate watershed	• Watershed rehabilitation program	• Tree planting project in yy areas
					• Production forest project in yy areas
			• Provide protective infrastructure	• Flood control program	• Retention pond and dike project
		• Relocate or discourage settlement in flood-prone areas/ within next 3 years	• Provide alternative livelihood for residents of flood-prone areas	• Alternative livelihood program for flood-prone communities	• Port expansion project (to accommodate families living in flood prone areas)
• Environmental degradation	• Curb environmental degradation	• Significantly reduce industrial discharge into yy areas/ within next 3 years	• Implement existing anti-pollution regulations	• Bantay kalikasan program	• Environment police project in yy areas
					• Legislation on higher pollution penalties
			• Encourage use of environment friendly technology	• Green technology program	• Reduced tariffs on green technology equipment

2. Summary of Strategies and PPAs

2.1. Summary matrix

List the goals, objectives/targets and corresponding strategies, programs, and projects, indicating location, implementation priority or timeframe and responsibility, in a summary matrix as shown in Table 24.

The funding or other resource requirements of each project need not be included although the project must be sufficiently described to allow an initial estimate of its funding requirements during the investment programming process. For example, the description of a proposed road project must indicate the length, width (or right-of-way) and type of road and other relevant details that would affect its initial cost estimate.

The proposed lead LGU department should also be listed, although this will be subject to further evaluation.

The summary matrix shall serve as the primary input to the formulation of the investment program.

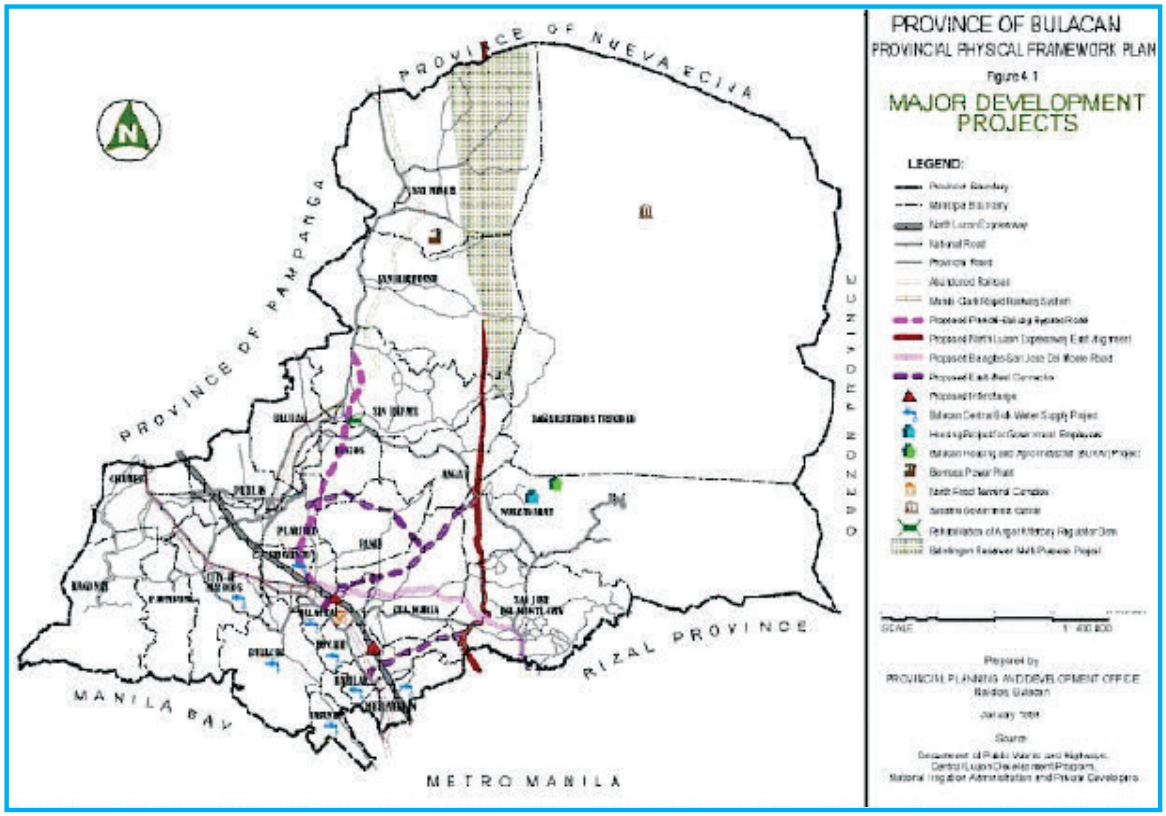
Table 24. Summary Matrix

Goal/ Objective	Strategies	Program/ Project and Description	Location *(with attached map if necessary)*	Time frame (year/s)	Legislative Requirements	Lead LGU Dept.
GOAL 1						
Objective 1	Strategy 1	Project 1		2006		
Objective 2	Strategy 1	Program 1		2006-2008		
		Project 1		2006		
		Project 2		2007		
		Project 3		2008		
		Program 2				
	Strategy 2	Program 1		2006		
GOAL 2						
Objective 1	Strategy 1	Project 1		2007-2010		
GOAL 3						
Objective 1	Strategy 1	Project 1		2009		
	Strategy 2	Program 1		2010-2011		
		Project 1		2010		
		Project 2		2011		

2.2. Project map

Show the location of the projects in a provincial map (Map 32). Provide more detailed maps, by sector, as necessary.

Example of Map 32: Project Location Map, Bulacan



(Source: Provincial Government of Bulacan)

References

Armillas, I., J. Petrovski, A. Coburn, D. Lewis, and A. G. Corpuz. 1990. *Technical Report on Luzon Earthquake of 16 July 1990, Republic of the Philippines, with recommendations for Reconstruction and Development.* Expert Mission to Assist in Reconstruction and Development after the Philippines Earthquake of 16 July 1990 PHI/90/F01, United Nations Centre for Human Settlements (HABITAT). Nairobi.

Bendavid-Val, Avrom. 1991. *Regional and Local Economic Analysis for Practitioners.* 4th edition. London.

Cariño, B., A. G. Corpuz and C. Manasan. 2004. "Preparatory Work for the Proposed Technical Assistance on Strengthening Provincial Planning and Expenditure Management". Final Report, Asian Development Bank. Manila.

Commission on Population. 2005. *Population and Development Strategy Project, Gender-Responsive Population and Development Planning Guide*. Manila.

Commission on Population. 2004. *Population and Development Strategy Project, Guide to Population and Development Planning*. Manila. (draft)

Corpuz, A. G. 1992. "Some Implications of the July 16, 1990 Earthquake on Urban and Regional Planning in the Philippines". *The July 16, 1990 Luzon Earthquake: A Technical Monograph,* Inter-Agency Committee for Documenting and Establishing Database on the July 1990 Earthquake. Manila.

Deolalikar, A., A. Brillantes, Jr., R. Gaiha, E. Pernia, and M. Racelis. 2002. "Poverty Reduction and the Role of Institutions in Developing Asia". *ADB-Economic and Research Department Working Paper Series No. 10.* Asian Development Bank. Manila.

Department of the Interior and Local Government, National Economic and Development Authority, National Anti-Poverty Commission, and United Nations Development Programme. 2002. *Guidebook on Local Poverty Diagnosis and Planning*. Manila.

Losch, A. 1954. *The Economics of Location*. New Haven: Yale University Press.

McLean, M. and K. Voytek. 1992. *Understanding Your Economy, Using Analysis to Guide Local Strategic Planning*, 2nd edition. Chicago: Planners Press, American Planning Association.

National Economic and Development Authority and National Commission on the Role of the Filipino Women. 2004. *Harmonized Gender and Development Guidelines*. Manila.

National Economic and Development Authority. 2004. *Medium-Term Philippine Development Plan, 2004-2010.* Manila.

National Statistical Coordination Board. 2002. *Philippine Statistical Yearbook.* Manila.

National Statistics Office. *1980, 1990, 1995, and 2000 Census*. Manila.

National Statistics Office. 2000. *Family Income and Expenditure Survey (FIES)*.

NEDA-National Land Use Committee. 2002. *National Framework for Physical Planning, 2001-2030*. Manila: NEDA.

NEDA-National Land Use Committee. 1996. *Provincial Physical Framework Plan (PPFP) Training Program Learning Materials*. Manila: NEDA.

Provincial Government of Bulacan. (n.d.). *Provincial Physical Framework Plan, 1998-2007.*

Provincial Government of Davao Oriental. (n.d.). "Vision". *http://www.davaooriental.gov.ph/website/governance.html.* Accessed 30 August 2006.

Provincial Government of Ilocos Norte. (n.d.). *http://www.ilocosnorte.gov.ph*. Accessed 30 August 2006.

Provincial Government of Leyte. (n.d.). "Vision and Goals". *http://www.leyte.org.ph/vision_goals.htm*. Accessed 30 August 2006.

World Bank. 2004. *Strategy Planning for Local Economic Development: A Five-Stage Process*. Cities of Change Institute.

annexes

ANNEX A. Urban-Rural Analysis

The primary objective of an urban-rural analysis for the PDPFP is to describe the urban-rural distribution of the population.

The key questions to be addressed are:

1. How much of the population are in urban areas? Rural areas?
2. What is the urban population density? Rural population density?
3. What is the growth rate of urban areas? Rural areas? How do these compare with the Region? With the country as a whole?

Key data requirements include:

a. Table: Urban-rural population distribution, by barangay, by sex if possible, latest census.
b. Map: Urban-rural distribution, by barangay, by sex if possible, latest and previous census.

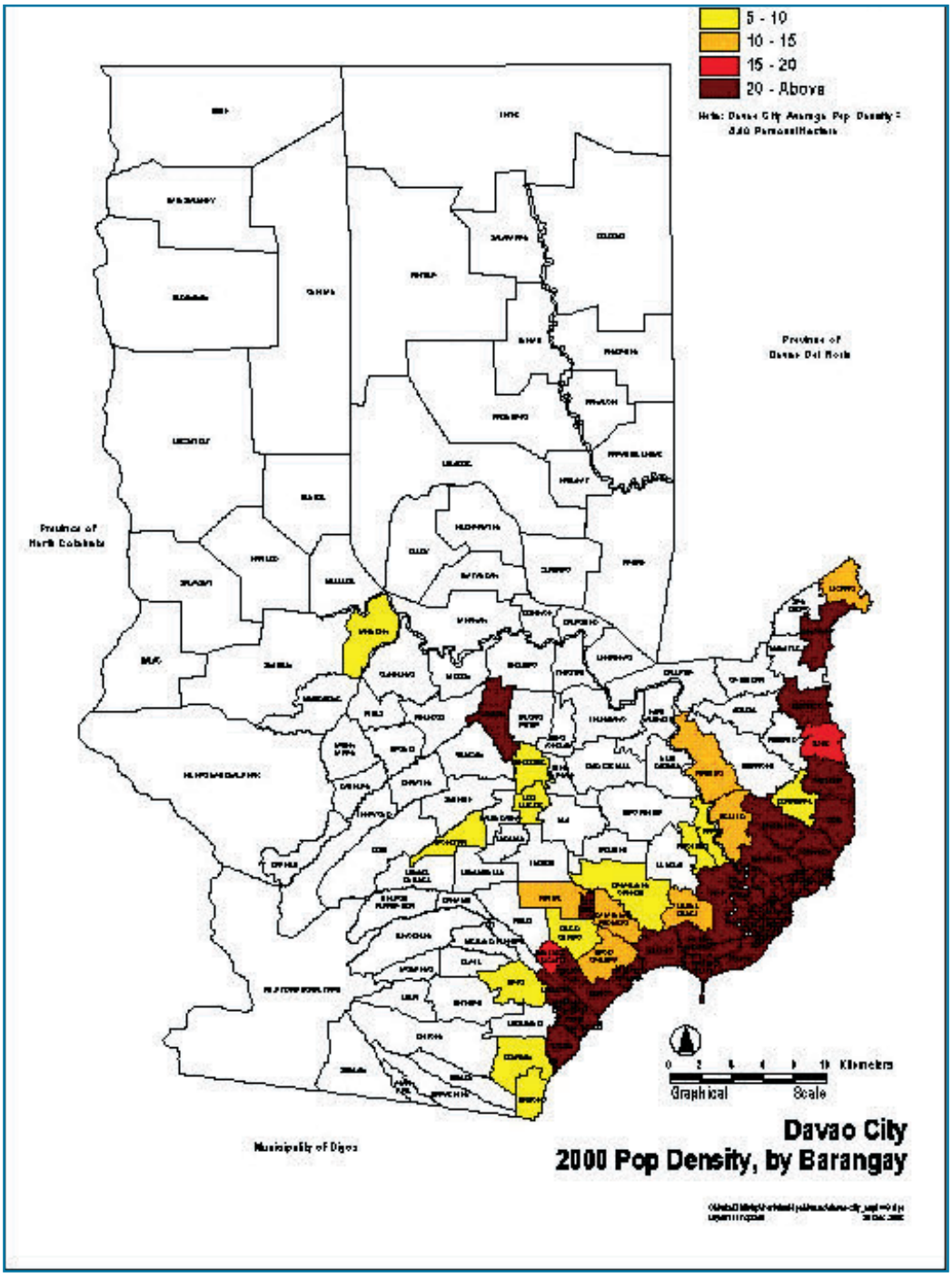
Historical assessments of urban and rural characteristics can yield important information and insights but these may not be always possible if census-based urban and rural data are used, because urban-rural definitions are inconsistent among the different census periods.

A recommended alternative is to use urban-rural data that are historically consistent and which may be derived from past census data. For this purpose, an urban area can be defined as an area where the population density is at least 500 persons per square kilometer. Conversely, a rural area may be defined to have a population density below 500 persons per square kilometer. These definitions are different from (but approximate) previous official definitions but they will allow historical comparisons using standard NSO census population data and barangay land area data.

Note also that urban-rural assessments based on the recommended definition (using 500 persons per square kilometer as a cutoff) should only be used for barangay-level data. Applying the 500-persons-per-square-kilometer definition to the city/municipal level will result in urban-rural distinctions that are too broad and will lead to inaccurate assessments.

An example of how the minimum 500–persons per square-kilometer urban area definition may be used is shown in the map below, where Davao City barangays with this minimum density are colored. All uncolored barangays, therefore, are rural barangays.

(Note that while Davao City is not a province, its land area and population approximate those of most provinces.)



Map showing urban-rural distribution through population density.
(As shown, darkest shades are highest densities; unshaded areas are below the suggested urban definition cutoff of 500 persons/square kilometer.)

(Source: NSO, Census 2000 and Davao City Government.)

ANNEX B. Migration Analysis

The primary objective of migration analysis for the PDPFP is to determine the extent and flows of migration in the province. This may be especially relevant in planning for the service requirements of the province. These depend on the number of people requiring such services, which are not reflected in snapshot population size data. For example, a net migration of zero will not reveal that a large number of persons may have in-migrated and an equal number of people may have out-migrated by the time the census is taken.

The key questions to be addressed in migration analysis for the PDPFP are:

1. Given the latest available data, is the province a net in-migration or out-migration province?
2. What are the major sources of in-migrants and where are their major destinations? Are these destinations consistent with the cities/municipalities identified as fast growing?
3. Where do most of the out-migrants originate and what are their major destinations?

Key data requirements include:

a. Data on current and previous residence.

These data may be derived from the regular census conducted by the National Statistics Office. For each respondent, the census lists his/her residence five years ago, which may be classified as follows:

- Same city/municipality
- Other municipalities (specified)
  - Within the province
  - Outside the province
  - Foreign country
- Unknown

These data will allow an assessment of the previous residence of the population (migration characteristics) and are available down to the municipal level.

b. Map showing migration origins and destinations and table with supporting data on migration may be included.

ANNEX C. Computing Annual Population Growth Rates

Annual population growth rates (APGR) may be computed several ways based on assumptions regarding the behavior of the growth: arithmetic, geometric, or exponential. The most commonly used method is based on geometric change, using the following formula:

APGR = (X-1)*100

Where X = antilog [log (Pt/Po)]/t

Pt : Projected total population after t years
Po : Current or base year population
t : number of years projected

Example
Given: Pt : 2000 Population = 1150
Po : 1995 Population = 1000
t : 5

X = antilog [log (1150/1000)]/5
= antilog 0.01213957
= 1.02834672
APGR = (1.02834672-1)*100
= 2.83

The annual growth rate from 1995 to 2000 was 2.83%.

In Excel format, APGR may be computed by using the following formula:

= (((POWER(Pt/Po),1/t))-1))*100

ANNEX D. Population Projections

The projected total population may be computed using the following formula:

Pt = Po * (APGR+1)t

Where Pt : Projected total population after t years
Po : Current or base year population
APGR : Annual population growth rate expressed numerically (not as a percentage)
t : number of years projected

Example
Given Po = 1995 Population = 1,000
t = 5
APGR = 2.83
Pt = 1,000*(1.0283)5
= 1,150

It is useful to keep in mind that population projections based on the above method are dependent on previous, historical growth rates such that the underlying assumption is that conditions that affected population growth in the past will continue in the future. If there is reason to believe that future conditions will affect future growth rates, then population projections may be adjusted accordingly by lowering or increasing the growth rate. The extent to which the rates should be lowered or increased, however, is less easily defined. One approach is to compute and use the population growth rate for a longer historical period. For example, if there is reason to believe that the computed APGR of 2.83% (in the above example) is too high for projecting future population levels because it included a major in-migration movement that is not expected to continue in the future, then the population growth rate for the past ten years (instead of just the past five years) may be used.

When computing the APGRs of individual cities/municipalities of a province, there may also be instances when some cities/municipalities yield negative APGRs. In this case, it is advisable to review the specific conditions that may have led to the population decline. The overall APGR for the province may still be utilized (with the assumption that there was simply a displacement of population into neighboring towns) but the negative APGR for projecting the population of the concerned city/municipality should be used only when it is has been determined that previous conditions remain applicable to the future. If not, as discussed above, a new APGR may be computed (only for the concerned city/municipality) based on a longer historical period.

ANNEX E. Defining a Hierarchy of Settlements

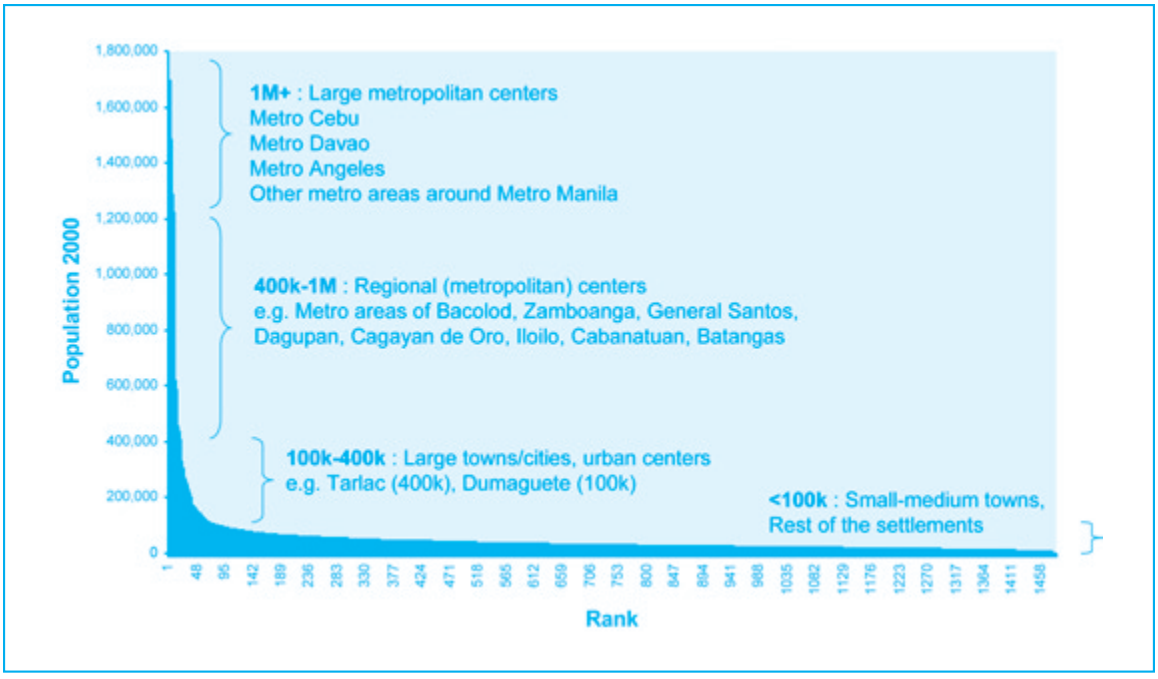
The overall objective of this exercise is to describe and understand the existing structure of the network of settlements (cities and municipalities) in the province as a key consideration in the formulation of provincial development strategies and projects.

Note that the objective is to describe the existing structure and not to propose a new one. Structure, in turn, is determined by the functions and roles of the settlements. These functions determine how each settlement relates to other settlements (whether it serves as a market, production, educational, or administrative center, for example).

Methodologies have already been prepared and may be used for defining settlement hierarchies. The following is a recommended process that builds on such methodologies for the specific purpose of distinguishing roles (and not necessarily to define all of the roles) that the various settlements play within the province.

1. **Construct a histogram (Figure 1) showing population size by city/municipality, based on Table 3 indicated in Section C-1 of the guidelines. Try to identify distinct groups among the settlements based on their sizes (since size is usually an indicator of function).**

For a background, you may consider the following hierarchy of all cities and municipalities in the country (excluding Metro Manila) based on the 2000 census.



In general, large metropolitan centers serve areas beyond their own regions; regional centers serve primarily their region, while large towns/cities serve neighboring towns. For provincial (and regional) analysis, it may be useful to break up the <100k group into two groups, e.g., <50k for small towns and 50k-100k for medium towns, each serving correspondingly smaller local markets.

It is important to emphasize that the population sizes mentioned above (including those to be derived through the guidelines) are intended only as guides. The objective is to identify functional distinctions and population sizes are used only as indicators of such distinctions. At best, population sizes may be considered "fuzzy" and static indicators. These need to be supported or confirmed by local knowledge about the flows of goods and services among the settlements.

As an additional guide, you may also use scalograms to describe the hierarchy of settlements in the province. Various guidebooks explain and demonstrate the construction of a scalogram. Refer to Module 4 Settlements, in PPFP Training Program Learning Materials (NEDA, 1996).

Example: Batangas province settlement hierarchy based on scalogram.
Source: Batangas PPFP

Small/Medium Urban Centers: (>200k)	Batangas City, Lipa City
Large Towns: (>50k)	Tanauan, Nasugbu, Rosario, Sto Tomas, San Juan, Bauan, Balayan, Lemery, Calaca
Small/Medium Towns: (<50k)	San Jose, San Pascual, Calatagan, Taal, Ibaan, Lian, Mabini, Tuy, Padre Garcia, Lobo, Malvar, Talisay, Taysan, Laurel, San Luis, Agoncillo, Cuenca, Mataas na Kahoy, Alitagtag, Tingloy, San Nicolas, Balete, Santa Teresita

Note: hierarchy classifications are simplified for this example.

2. Modify the hierarchy to combine cities and municipalities in the province that function as metropolitan areas. (Figure 2)

Use your knowledge of how goods and services are produced and delivered among settlements to assess whether certain cities or municipalities are functioning as metropolitan areas.

Metropolitan areas have many definitions. A quick and simple way to qualitatively assess the

extent of metropolitanization is to define a metropolitan area as a contiguous area composed of more than one local government unit where the population tends to live and work or go to school or perform other activities across local city/municipal boundaries. Note that water bodies are not necessarily considered as barriers within a contiguous area as these typically serve as connectors.

You may also use a population bubble map (Figure 4) that graphically shows the relative population sizes of each city/municipality to help assess which cities or municipalities are functioning as part of a metropolitan area. (This map also serves to describe the existing settlement hierarchy.) For example, small towns beside big towns or cities typically rely on the latter for their service requirements and are prime candidates to function as part of a metropolitan or metropolitanizing area.

3. Expand the hierarchy to include cities or municipalities outside the province but which are functionally integrated with cities and municipalities of the province. These may include large cities or metropolitan centers that serve as regional market/service centers, or small municipalities that rely on the province for key services. (Figure 3)

For this purpose, two factors may provide important clues about external linkages. One is the presence of major transportation corridors across provinces. These indicate strong external connections and thus possible functional integration. The second is large or distinct differences in the population sizes of the connected settlements. As mentioned earlier, small settlements adjacent to a large city are likely to be dependent on the large city. A small settlement next to another small settlement, however, is less likely to directly depend on each other for certain service requirements. (Both, however, may depend on the same large city in which case they could both be part of the same metro area.)

4. Briefly describe each level of the hierarchy. Identify any local or regional significance (e.g., capital city, historical town center, metropolitan area).

Refer also to hierarchies already defined in the RPFP and the local development plans of cities and municipalities in the province for guidance in preparing the settlement hierarchy. Keep in mind, however, that the objective of this exercise is to identify the existing hierarchy, which may not be consistent with proposed hierarchies.

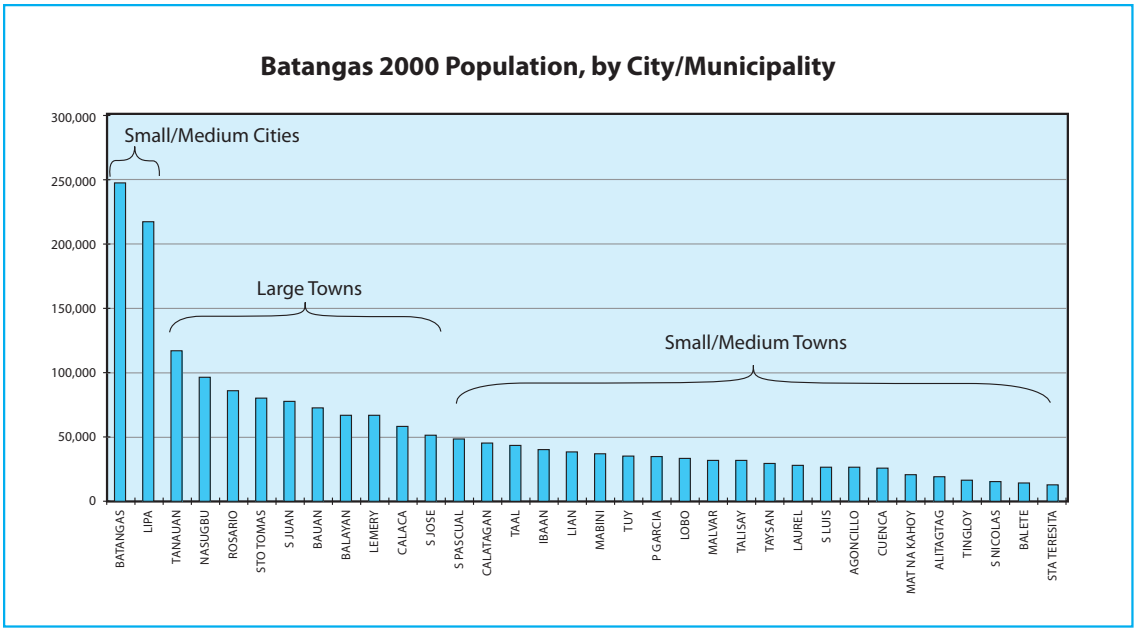


Figure 1. Example of histogram indicating scalogram-defined hierarchy

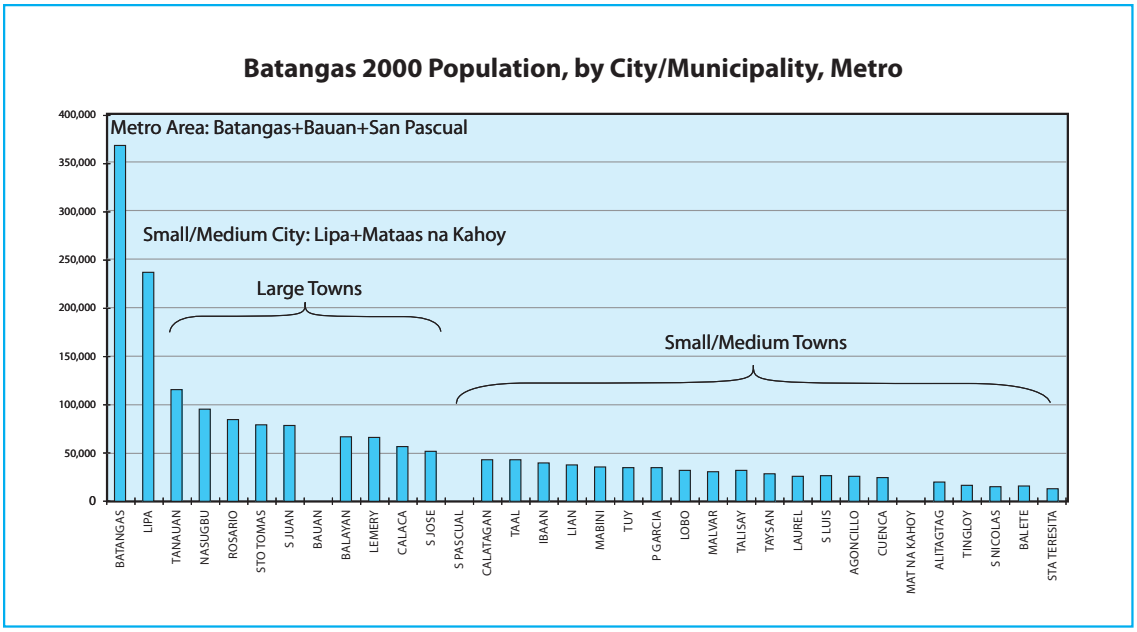


Figure 2. Example of histogram with modified hierarchy (with metro areas)

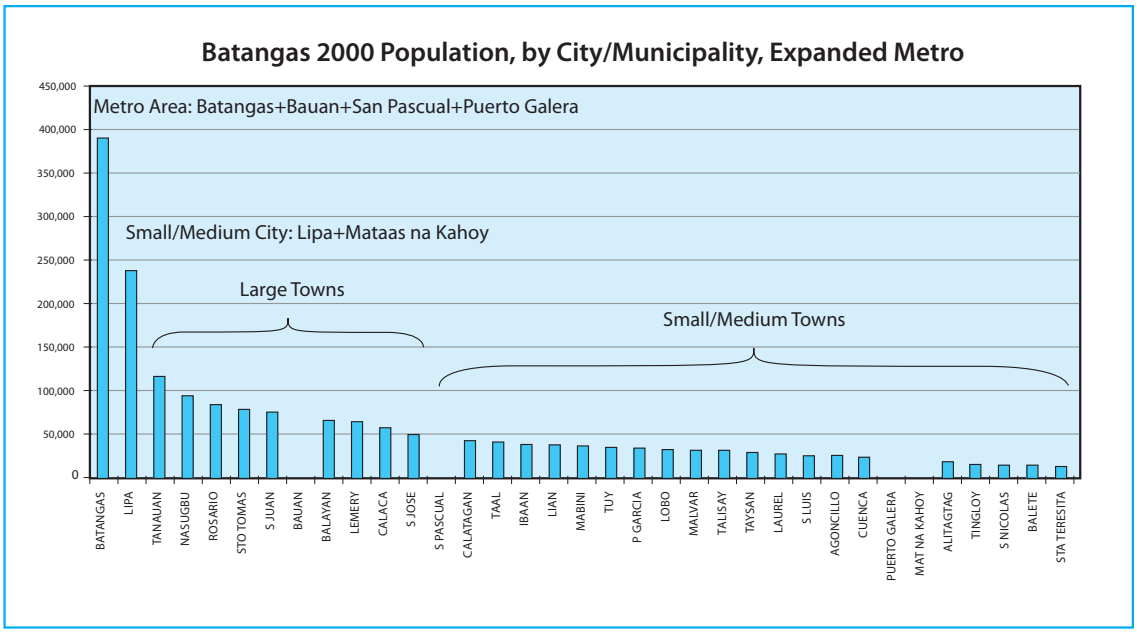


Figure 3. Example of histogram with modified hierarchy (with expanded metro areas)

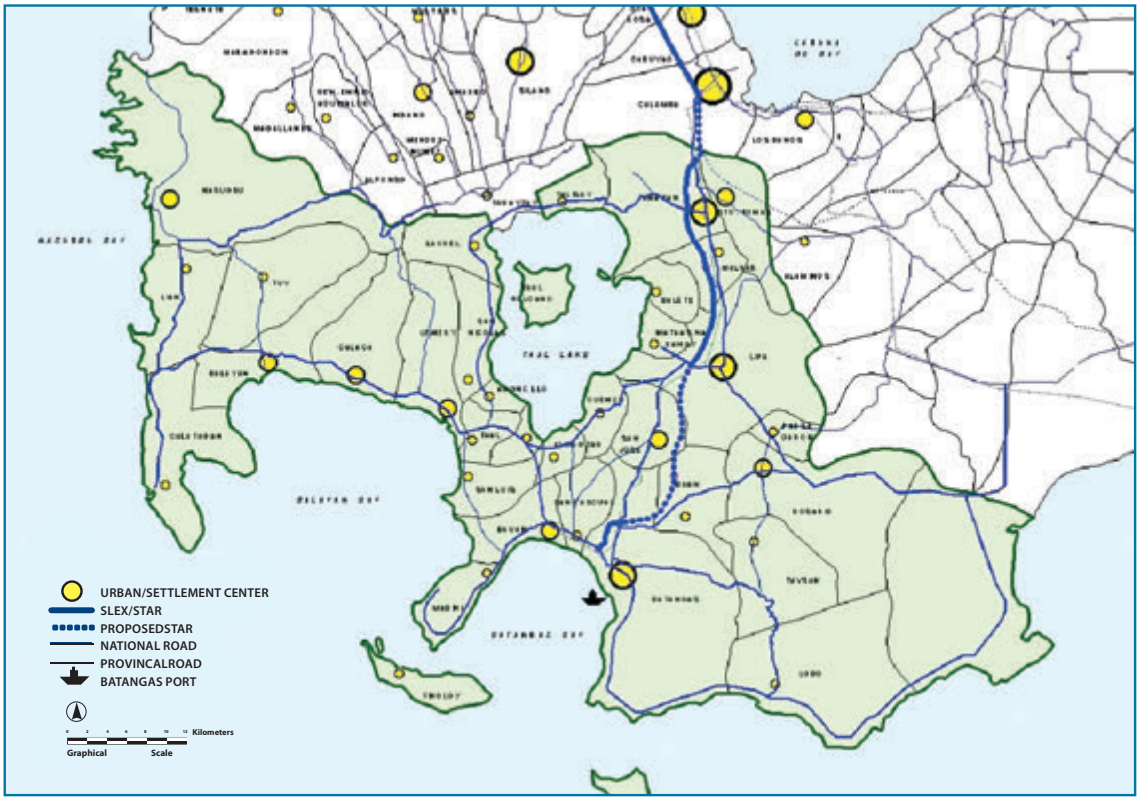


Figure 4. Example of Population Bubble Map (Existing Settlement Hierarchy).

ANNEX F. Climate and Weather

Excerpt from the *NEDA-NLUC: National Framework for Physical Planning (NFPP), 2002*

Climate and Weather

The Philippines has a tropical climate dominated by a rainy season and a dry season. The mean annual temperature is about 27ºC. The hottest months and their average temperatures are May with 28.4ºC, June with 27.9ºC and April with 27.8ºC. The coldest months and their average temperatures are January with 25.5ºC, February with 25.8ºC and December with 26.1ºC.

The principal air streams that significantly affect the Philippines are the northeast monsoon, southwest monsoon and the North Pacific trades. The northeast monsoon affects the whole country during the months of October to March but is most dominant during January and February when the Inter-Tropical Convergence Zone (ITCZ) is south of the archipelago. The southwest monsoon generally occurs from May to October when the ITCZ has moved over the area. The North Pacific trades are generally dominant over the entire Philippines in April and early May, and over the central Philippines and southern Philippines in October.

Map 2.3 shows the geographical distribution of the four general types of climate on the Philippines based on seasonal rainfall distribution:

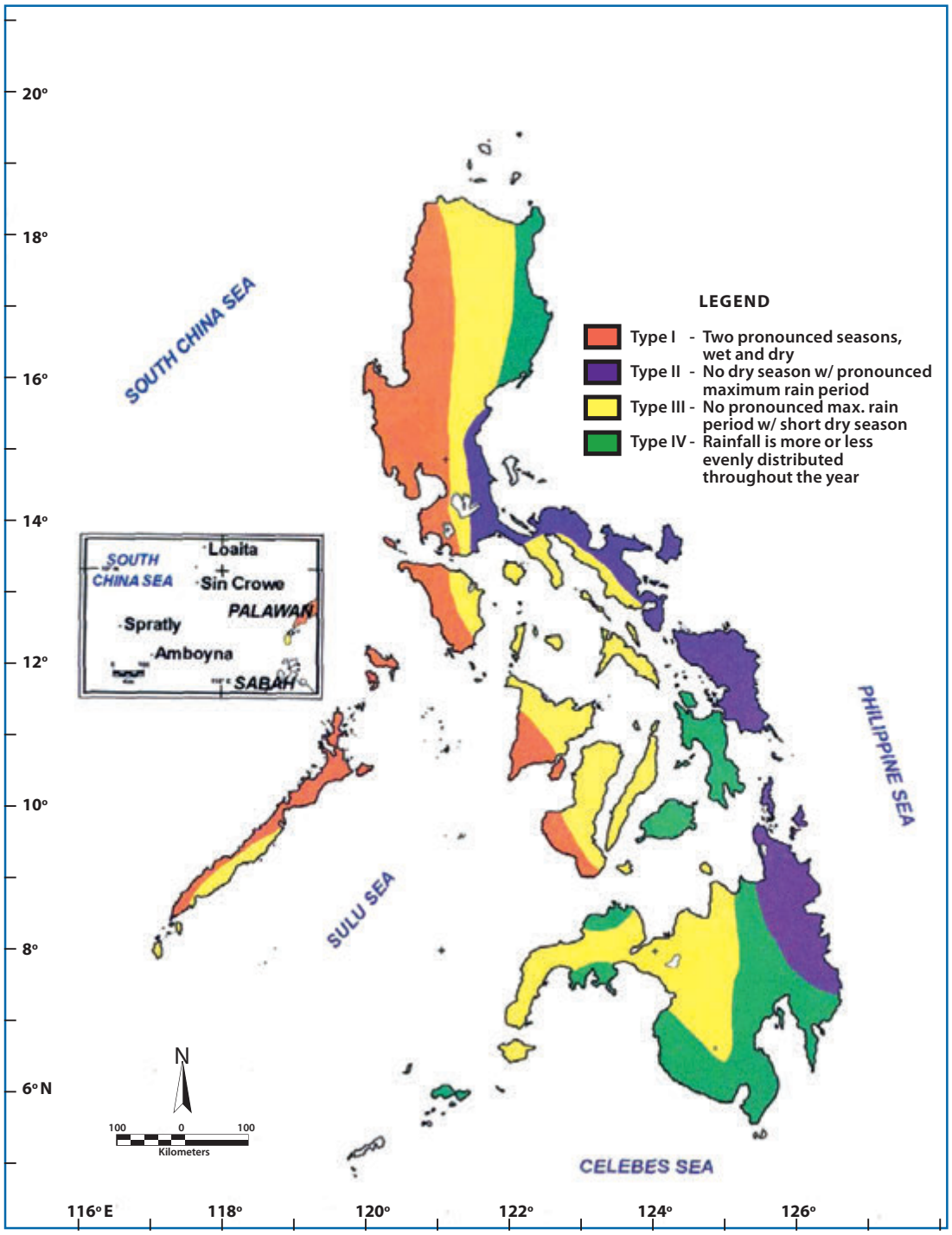
Type I: Two pronounced seasons, dry and wet, with a maximum rain period from June to September and a dry season which lasts from three to six months;
Type II: No dry season with a very pronounced maximum rain period that occurs in December and January;
Type III: No very pronounced maximum rain period, with a short dry season lasting from one to three months;
Type IV: Rainfall more or less evenly distributed throughout the year.

Annual rainfall in the Philippines is shown in Map 2.4. High values of annual rainfall (more than 4,000 millimeters) are attributed to the influence of the exposure and topography of the area. Areas having an annual average of less than 2,000 mm monthly are found in valleys or plains—places that are shielded from the dominant air streams by high mountain ranges.

The tropical cyclone season in the Philippines is from June to December, with an average monthly frequency of more than one tropical cyclone. July, August, and September have the most frequent tropical cyclone occurrences with an average of three or more cyclones each month. The period from January to May, however, is not entirely free from tropical cyclones.

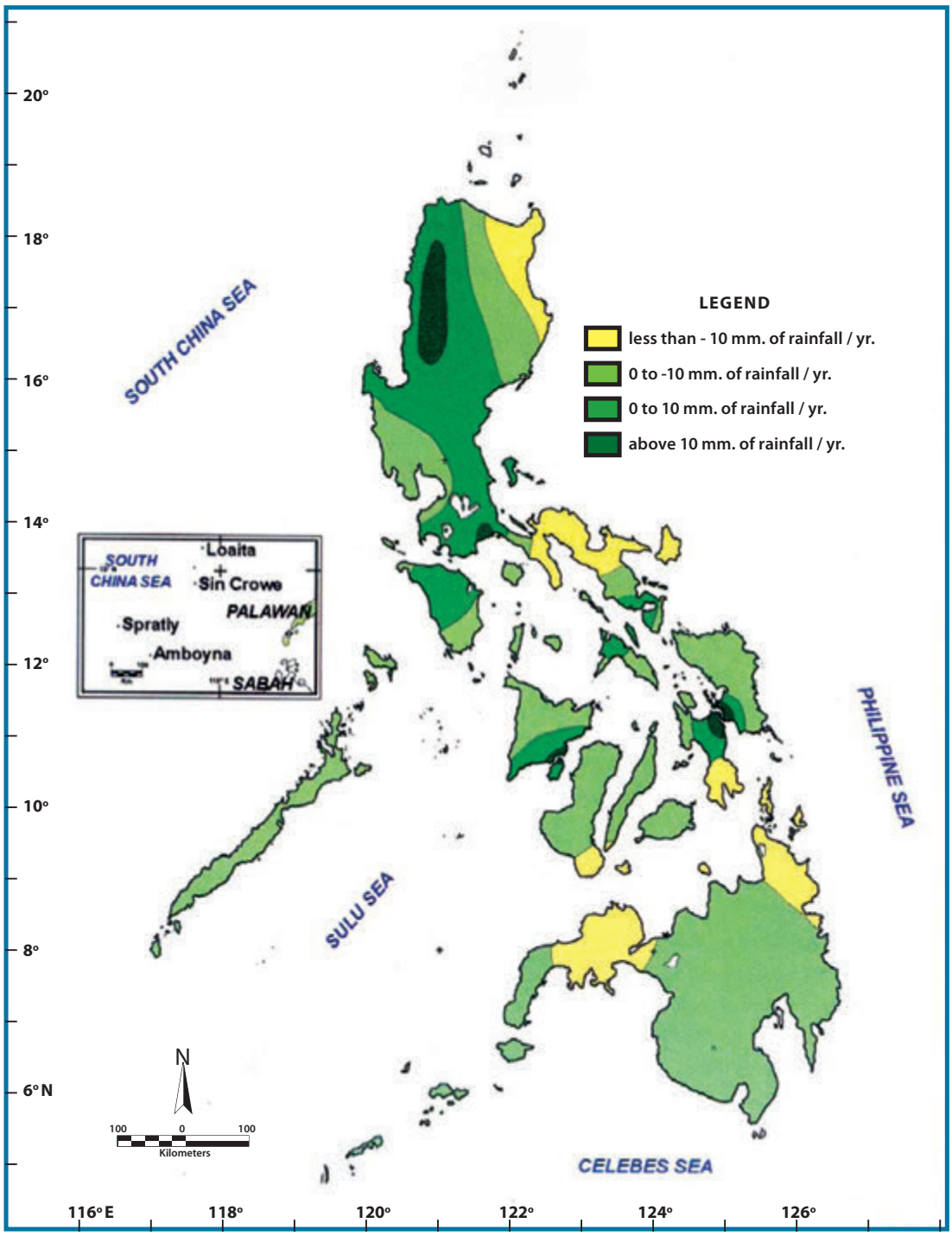
The average annual relative humidity for the Philippines is about 82 percent. High values of relative humidity are usually observed at night and early morning, and low values during the day and early evening except when it is raining.

Map 2.3. Modified Corona's classification of climate (updated using 1961 - 1995 data)



Data Source: PAGASA

Map 2.4. Annual rainfall trend (in milimeter per year, based on 1951 - 1995 records)



Data Source: PAGASA

ANNEX G. Land Classification

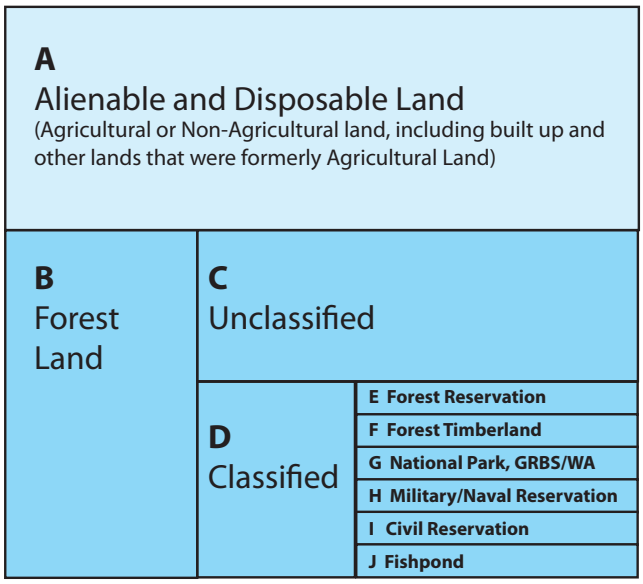
Source: NEDA-NLUC: NFPP, 2002

The 1987 Constitution classifies lands of the public domain into:

- Agricultural
- Forest or timber
- Mineral land
- National park

Agricultural lands of the public domain may be further classified by law according to their uses. Alienable lands of the public domain are limited to lands classified as agricultural lands (Sec. 3, Art. XII, 1987 Philippine Constitution). This classification of public domain under the Constitution comprises the major land classifications of the country.

Under PD 705 (Revised Forestry Code of the Philippines), as well as the Constitution, the Department of Environment and Natural Resources (DENR), specifically the Forest Management Bureau (FMB) provides further classification to the lands of the public domain and adopts the land classification for the country.



Total Land = A + B
Forest Land B = C + D
Classified Land D = E+F+G+H+I+J

These land classifications are summarized in the diagram.

While it is desirable to have the complete range of land classifications, the key and most basic classifications that should be derived and delineated in the map are the Alienable and Disposable and Forest Lands.

ANNEX H. Probability Analysis

Tables of Concentration and Specialization, Histograms and Share Diagrams and Location Quotients may be derived from five probability matrices (Figure 1), starting with the data matrix.[1]

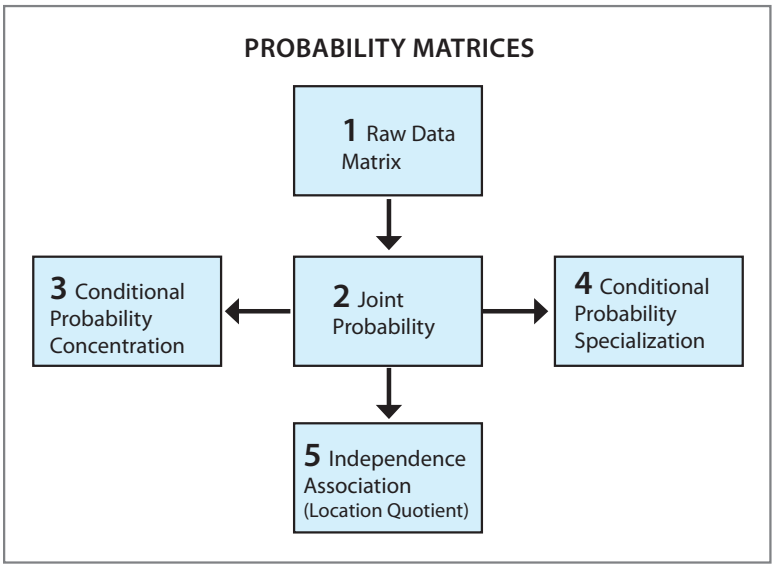


Figure 1. Five Probability Matrices

1. Data Matrix

The data matrix table (M1) is the source of the data from which the rest of the tables are derived. Rows contain the geographical areas under consideration (provinces) while the columns contain the attributes (economic sectors/industries).

In the example below, the data is Total Family Income (PX1000) by Household Head Kind of Business/Industry, by province, sourced from the NSO FIES 2000. The sectors have been simplified to show only the basic sectors, although the available data provide further disaggregation.

Distribution of family income by industry is used as an indicator of the structure of the provincial economy.

[1] The format and interpretation are based on A. G. Corpuz, "Poverty Alleviation and Physical Planning," Utilization Workshop on Enhancing Capabilities of Provinces for Effective Planning, April 2004. The overall structure and concept are from Barclay G. Jones, Cornell University, 1983.

Σ= **Row totals**

M1 Data Matrix

Province	Sector				Σ
	Agriculture	Industry	Service	Undefined	
Batanes	196,766	91,753	216,957	6,624	512,100
Cagayan	9,600,160	1,406,921	5,978,224	1,895,684	18,880,988
Isabela	11,486,569	2,990,548	11,553,816	3,610,213	29,640,146
N Vizcaya	3,920,283	1,369,417	3,125,823	1,156,619	9,572,142
Quirino	1,379,510	315,445	876,740	267,565	2,839,260
Σ	26,583,288	6,174,084	21,750,560	6,936,704	61,444,635

Geographical Areas (Location)

Σ= **Column totals**

Attributes / Variables

Σ Σ= **Grand total (row totals= column totals)**

M1 shows the total income derived by families (represented by the household head) from each of the economic sectors. In terms of family income, the total regional economy amounted to almost P61.5 million.

2. Joint Probability Table

The joint probability table (M2) is derived directly from the data matrix (M1). Each cell in M2 is computed by dividing the corresponding cell in M1 by the grand total (Σ Σ). The row and column totals of M2 provide a summary of the distribution of income by sector and by province.

In the example below, the column totals of M2 show that agriculture is the dominant sector in the region, accounting for 43.3% of total family income. Services is second at 35.4% followed by Undefined industries (11.3%) and lastly by Industry (10%).

Note that this situation is the exception in that Service industries typically dominate the national as well as most regional economies. This suggests that the regional economy is relatively underdeveloped, with primary industries (agriculture, fisheries, and forestry) providing the bulk of the livelihood income.

The row totals, meanwhile, show that Isabela has the largest income among the provinces, accounting for almost half (48.2%) of the total regional income. Cagayan is second with 30.7%, followed by Nueva Vizcaya (15.6%) and Quirino (4.6%). Batanes has the smallest share, with less than one percent (0.8%).

M1 Data Matrix

Province	Sector				Σ
	Agriculture	Industry	Service	Undefined	
Batanes	196,766	91,753	216,957	6,624	512,100
Cagayan	9,600,160	1,406,921	5,978,224	1,895,684	18,880,988
Isabela	11,486,569	2,990,548	11,553,816	3,610,213	29,640,146
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Quirino	1,379,510	315,445	876,740	267,565	2,839,260
Σ	26,583,288	6,174,084	21,750,560	6,936,704	61,444,635

Grand Totals (Σ Σ):
Total income in region

M2: Divide each cell entry in M1 by Σ Σ

M2 Joint Probability

Province	Sector				Σ
	Agriculture	Industry	Service	Undefined	
Batanes	0.3%	0.1%	0.4%	0.0%	0.8%
Cagayan	15.6%	2.3%	9.7%	3.1%	30.7%
Isabela	18.7%	4.9%	18.8%	5.9%	48.2%
N Vizcaya	6.4%	2.2%	5.1%	1.9%	15.6%
Quirino	2.2%	0.5%	1.4%	0.4%	4.6%
Σ	43.3%	10.0%	35.4%	11.3%	100.0%

9.7% of income in region is from service sector in Cagayan

N Vizcaya accounts for 15.6% of income in region

10% of income in region is from Industry sector

3. Concentration and Specialization Tables

The concentration (M3) and specialization tables (M4) are also derived directly from the data matrix.

The concentration table is derived by dividing each cell in M1 by its column total. It is interpreted by column (by industry); it gives an indication of the relative concentration of an industry among the provinces. (Given an industry, how is it distributed across the provinces?)

In the example below (M3), Agriculture is dominated by Isabela (43.2%), followed closely by Cagayan (36.1%). Industry is dominated likewise by Isabela (48.4%) with Cagayan (22.8%) and Nueva Vizcaya (22.2%) virtually sharing second place. The Service and Undefined industries are also dominated by Isabela. At the other end of the distribution, Batanes consistently ranks last, indicating the small size of its economy compared to the larger mainland provinces.

The specialization table is derived by dividing each cell in M1 by its row total. It is interpreted by row (by province); it gives an indication of the extent to which a province specializes in a particular industry. (Given a province, how are the industries distributed within?)

Looking at the row totals of M4, we can see that all the provincial economies followed the overall pattern with agriculture accounting for the dominant share of family income. Cagayan and Quirino are the most specialized in agriculture, with 50.8% and 48.6%, respectively.

M3 Conditional Probability: Concentration

M3: Divide each cell entry in M1 by the column total in M1

Province	Sector			
	Agriculture	Industry	Service	Undefined
Batanes	0.7%	1.5%	1.0%	0.1%
Cagayan	36.1%	22.8%	27.5%	27.3%
Isabela	43.2%	48.4%	53.1%	52.0%
N Vizcaya	14.7%	22.2%	14.4%	16.7%
Quirino	5.2%	5.1%	4.0%	3.5%
Σ	100.0%	100.0%	100.0%	100.0%

Cagayan has 22.8% of region's industry income

Quirino has only 5.2% of region's agri income

M4 Conditional Probability: Specialization

M4: Divide each cell entry in M1 by the row total in M1

Province	Sector				Σ
	Agriculture	Industry	Service	Undefined	
Batanes	38.4%	17.9%	42.4%	1.3%	100.0%
Cagayan	50.8%	7.5%	31.7%	10.0%	100.0%
Isabela	38.8%	10.1%	39.0%	12.2%	100.0%
N Vizcaya	41.0%	14.3%	32.7%	12.1%	100.0%
Quirino	48.6%	11.1%	30.9%	9.4%	100.0%

48.6% of Quirino income comes from agriculture

7.5% of Cagayan income comes from industry

4. Location Quotients

A location quotient is a specific type of independence association measure. It is specific in that it uses geographical areas (provinces) as one variable. As implied by its name, a location quotient provides an indication of the extent that the two variables are independent (or associated) with each other—to what extent, for example, the province of Quirino is associated with industry or service or agriculture.

Depending on the data available (i.e., if there is sufficient detail in terms of industry disaggregation), the use of location quotients in analyzing the structure of the regional or provincial economy can yield interesting and useful information.

An industry that has a high location quotient with respect to a province (which is the same as a province that has a high location quotient with respect to an industry) suggests that the industry is over-represented in that province. This may be an indication that the industry is

producing more than the requirements of the province or the region and thus may be export-oriented. Location quotients, in this case, can provide clues on the production or market orientation of an industry with respect to a geographical area, which can be verified through other information.

A table of location quotients (M5) may be derived from the Joint Probability Table (M2). Each cell in M5 is computed by dividing the corresponding cell in M2 by the product of its row and column totals.

In the example below (M5), Industry is over-represented in Batanes, while Service is under-represented in Quirino.

M2 Joint Probability

Province	Sector				Σ
	Agriculture	Industry	Service	Undefined	
Batanes	0.3%	0.1%	0.4%	0.0%	0.8%
Cagayan	15.6%	2.3%	9.7%	3.1%	30.7%
Isabela	18.7%	4.9%	18.8%	5.9%	48.2%
N Vizcaya	6.4%	2.2%	5.1%	1.9%	15.6%
Quirino	2.2%	0.5%	1.4%	0.4%	4.6%
Σ	43.3%	10.0%	35.4%	11.3%	100.0%

M5 Location Quotient

Province	Sector			
	Agriculture	Industry	Service	Undefined
Batanes	0.89	1.78	1.20	0.11
Cagayan	1.18	0.74	0.89	0.89
Isabela	0.90	1.00	1.10	1.08
N Vizcaya	0.95	1.42	0.92	1.07
Quirino	1.12	1.11	0.87	0.83

M5: Divide each cell entry in M2 by the product of the row total and each entry

$$1.10 = \frac{18.8}{(48.2) \times (35.4)}$$

The values of location quotients may be interpreted as follows:

LQ = 1: Perfect independence (no association between the sector/industry and being in the particular province)
LQ > 1: Positive association; over-representation
LQ < 1: Negative association; under-representation
LQ = 0: Mutually exclusive situation (sector/industry does not exist in the province)

For example:

M5 Location Quotient

Province	Sector			
	Agriculture	Industry	Service	Undefined
Batanes	0.89	1.78	1.20	0.11
Cagayan	1.18	0.74	0.89	0.89
Isabela	0.90	1.00	1.10	1.08
N Vizcaya	0.95	1.42	0.92	1.07
Quirino	1.12	1.11	0.87	0.83

Industry is over-represented in Batanes

Service Sector is under-represented in Quirino

Histograms and Share Diagrams

Histograms and Share Diagrams may be derived from rows or columns of the Concentration (M3) and Specialization tables (M4).

A histogram is simply a bar chart of data from a row or column where the row or column total is 100%. A share diagram, on the other hand, is a similar chart from a row or column where the row or column does not total 100%. Histograms and share diagrams provide graphic representations of concentration and specialization values which are more convenient and easier to interpret.

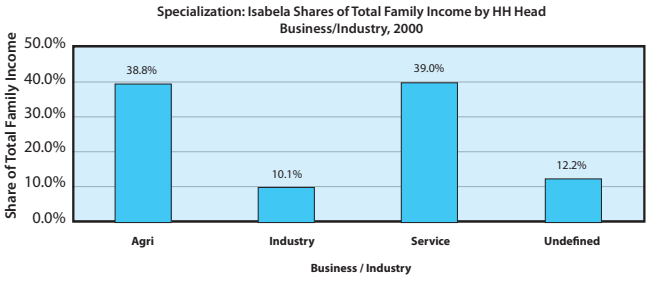
In the examples below, derived from the specialization table, the histogram gives a visual summary of the structure of Isabela's economy; the share diagram, meanwhile, compares the different shares of the industry sector among the different provinces.

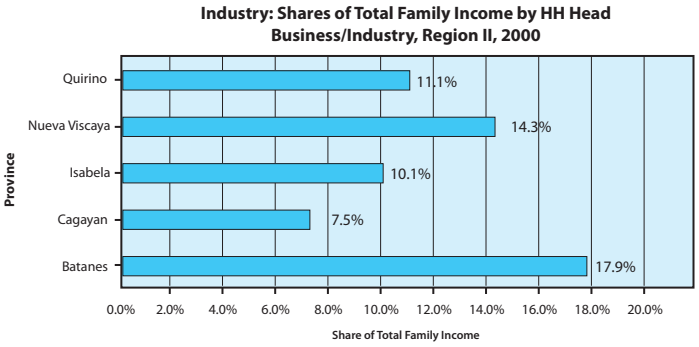
Histogram (total = 1.0)

M4 Conditional Probability: Specialization

Province	Sector				Σ
	Agri	Industry	Service	Undefined	
Batanes	38.4%	17.9%	42.4%	1.3%	100.0%
Cagayan	50.8%	7.5%	31.7%	10.0%	100.0%
Isabela	38.8%	10.1%	39.0%	12.2%	100.0%
N Vizcaya	41.0%	14.3%	32.7%	12.1%	100.0%
Quirino	48.6%	11.1%	30.9%	9.4%	100.0%

Share diagram (total ≠1.0)





ANNEX I. Core Indicators for Population and Development (PopDev) Planning at the Local Level

Selected Population and Development Indicators

Source: Commission on Population: Population and Development Strategy Project, Gender-Responsive Population and Development Planning Guide, 2005.

Indicator	Definition	Level of Desegregation	Frequency	Latest Available Data	Source of Basic Data
Population Processes					
1. Crude Birth Rate	The number of live births per 1,000 population during a given period.	National, regional, provincial, city, municipal, National, regional, provincial	Annual After every census year	1997 1995-2005	1) Vital Statistics Report, National Statistics Office (NSO) 2) Population Projections, NSO
2. Crude Death Rate	The number of deaths per 1,000 population during a given period.	National, regional, provincial, city municipal, National, regional, provincial	Annual After every census year	1997 1995-2005	1) Vital Statistics Report, NSO 2) Population Projections, NSO
3. Total Fertility Rate	The average number of children that would be born alive to a woman during her lifetime if she were to pass through her child-bearing years conforming to the age-specific fertility rates of a given year.	National, regional, provincial National, regional, provincial	Annual After every census year	1997 1995-2020	1) Vital Statistics Report, NSO 2) Population Projections, NSO
4. Maternal Mortality Rate	The number of deaths among women 15-49 years old from pregnancy-related causes per 10,000 or 100,000 live births in a given period.	National, regional, provincial	Every 5 years	1997 1990-1995	1) Vital Statistics Report, NSO 2) TWG-Maternal and Child Mortality, NSO

Indicator	Definition	Level of Desegregation	Frequency	Latest Available Data	Source of Basic Data
Population Outcomes					
5. Annual Population Growth Rate	The pace at which the population is increasing (or decreasing) during a given period on a yearly basis expressed as a percentage of the basic population.	National, regional provincial, city, municipal	Every 10 years	2000	Census of Population and Housing (CPH), NSO
6. Percentage of Population by Five-Year Age Group and by Sex	Percentage distribution of the population classified by 5-year age group and by sex.	National, regional provincial, city, municipal	Every 10 years	2000	CPH, NSO
Development Processes					
7. Percentage Distribution of Local Government Expenditures by Specific Activities	Percentage Distribution of Local Government Expenditures by Specific Activities such as: 1) social improvement; 2) adjudication; 3) protective services; 4) general administration; 5) govt. finance; 6) equipment; 7) economic development; 8) real property; 9) inter govt aids, loans/ advance/ transfers; 10) others.	Regional, provincial, city, municipal	Annual	2001	Administrative Records of the Bureau of Local Government Finance
8. Labor Force Participation Rate by Sex	Percent of population 15-64 years old and over who are either employed or unemployed but looking for work in relation to the total population.	National, regional provincial, key cities	Quarterly	October 2000	Integrated Survey of Households Bulletin, Labor Force Survey, NSO
9. Length of Local Government Roads by surface type	The length of local government roads (in kilometers) by surface type such as: earth, gravel, asphalt and concrete. Paved roads are either of Portland cement concrete or asphalt concrete standsards.	National, regional, provincial, city, municipal	Annual	2001	DPWH

Indicator	Definition	Level of Desegregation	Frequency	Latest Available Data	Source of Basic Data
10. Elementary and Secondary Cohort Survival Rates	The number of total enrollees in the beginning grade/year who reached the final grade/year at the end of the required number of years of study expressed as a percentage of enrollees in the beginning grade/ year.	National, regional provincial, city, municipal	Annual	SY 2000-2001	DepEd Statistical Bulletin and/or Basic Education Statistics
11. Doctor-Population Ratio	The number of population per doctor in a population.	National, regional, provincial, city, municipal	Annual	1996	Philippine Health Statistics (PHS), DOH, PopCom, NSO, Provincial Health Office
12. Hospital Bed-Population Ratio	The number of population per hospital bed.	National, regional, provincial, city	Annual	1996	PHS, DOH, PopCom, NSO, Provincial Health Office
13. Percent of births attended by Health Personnel	The number of births attended by health personnel expressed as a percentage of the total number of births in a given period. Health personnel refer to doctors, nurses, midwives, and trained/ certified "hilots".	National, regional, provincial, city	Annual	1997	1) Vital Statistics Report 2) PHS, DOH 3) Civil Registration System, NSO 4) Provincial Health Office
14. Contraceptive Prevalence Rate	The percentage of women currently using a family planning method among currently married women in the reproductive ages (15-49).	National, regional	Every 5 years	1998	National Demographic and Health Survey (NDHS), NSO
15. Percentage Distribution of Households by Type of Housing Unit Occupied	The number of households by type of unit occupied which include: 1) single house; 2) duplex; 3) apartment/ accessoria/ condominium; 4) improvised barong-barong; 5) commercial/ industrial/ agricultural/ etc.; 6) other housing units, expressed as a percentage of the total number of households.	National, regional, provincial, city, municipal	Annual	2000	CPH, NSO

Indicator	Definition	Level of Desegregation	Frequency	Latest Available Data	Source of Basic Data
16. Percentage Distribution of Households by Main Source of Water Supply	The number of households by main source of water supply which include: 1) tap (inside house); 2) public well; and 3) private deep well, expressed as a percentage of the total number of households.	National, provincial, city, municipal	Every 10 years	2000	CPH, NSO
17. Percentage Distribution of Households by Type of Toilet Facilities Being Used	The number of households by type of toilet facilities used which include: 1) water-sealed, sewer/ septic tank, used exclusively by the household; 2) water-sealed, sewer/ septic tank, shared with other households; 3) water-sealed, other depository, used exclusively by the households; 4) water-sealed, other depository, shared with other households; 5) close pit; 6) open pit; and 7) others, expressed as a percentage of the total number of households.	National, regional, provincial, city, municipal	Every 10 years	2000	CPH, NSO
18. Percentage Distribution of Households by Type of Garbage Disposal	The number of households by type of garbage disposal which include: 1) pick by garbage truck; 2) burning; 3) composting; and 4) burying, expressed as a percentage of the total number of households.	National, provincial, city, municipality	Every 10 years	2000	CPH, NSO
19. Crime Rate by Type	Number of crimes reported per 100,000 population by type. The crimes vs. persons include murder, homicide, physical injuries, and rape. Crime vs. property include robbery.	National, regional, provincial, city, municipality	Annual	2001	Directorate for Intelligence, Philippine National Police, MBN Survey, Census of Population and Housing

Indicator	Definition	Level of Desegregation	Frequency	Latest Available Data	Source of Basic Data
20. Percentage Distribution of DSWD Clienteles Served by Type and by Sex	The number of DSWD clienteles served by type which include: 1) household heads and other needy adults; 2) socially-disadvantaged women; 3) children in difficult situations; 4) victims of calamities and social disorganization; and 5) disabled persons, expressed as a percentage of the total number of clienteles and classified by sex.	National, regional, provincial	Annual	2001	Department of Social Welfare and Development
Development Outcomes					
21. Unemployment Rate, Total and by Sex	Total number of unemployed persons expressed as a percent of the total number of persons in the labor force (15-64), total or by sex. Unemployed persons are those who have no job/business but are available for work and actively looking for work.	National, regional, provincial, key cities	Quarterly	October 2000	Integrated Survey of Households Bulletin, Labor Force Survey, NSO
22. Average Family Income	Refers to the total family income received in cash or in kind realized by all families in the area divided by the total number of families in the same area.	National, regional, provincial, key cities	Every 3 years	2000	Family Income and Expenditure Survey, NSO
23. Literacy Rate by Sex	The percentage of the population aged 10 years and over who can read and write a simple message in any language or dialect classified by sex.	National, regional, provincial	Every 10 years Every 5 years	2000 1994	1) CPH, NSO 2) Functional Literacy, Education and Mass Media Survey (FLEMMS), NSO 3) MBN
24. Percentage of Malnourished 7-10 Years Old Children	The number of 7-10 year old children who are moderately and severely underweight expressed as a percentage of total population of children 7-10 years old.	National, regional, provincial, key cities	Every 5 years	1996	Updating of the Nutritional Status of Filipino Children at the Provincial Level, FNRI

Indicator	Definition	Level of Desegregation	Frequency	Latest Available Data	Source of Basic Data
25. Percentage of Infants (0-6 months) with Low Birth Weight	The number of Infants with birth weight of less than 2.5 kilograms expressed as a percentage of the total number of infants .	National, regional, provincial, municipal, city	Annual	1997	Vital Statistics Report, NSO
26. Morbidity Rates by Leading Causes	The number of reported illnesses from a specific leading cause expressed as a percentage of the total number of illnesses from all causes.	National, regional, provincial, municipal, city	Annual	1996	PHS, DOH

Formula for the Computation of the above Selected Population and Development Indicators

1. Crude Birth Rate (CBR) = $\frac{B}{P} \times 1{,}000$

where:
B = number of live births in a specified year
P = midyear population

2. Crude Death Rate (CDR) = $\frac{D}{P} \times 1{,}000$

where:
D = number of deaths for a particular year
P = midyear population for that particular year

3. Total Fertility Rate (TFR) = $5\Sigma ASFR_i$

where: the age-specific fertility rate or $ASFR_i = \frac{B_i}{W_i}$

B_i = number of live births occurring to women in age group i in a given year
W_i = midyear population of women by 5-year age group, irrespective of marital status in the age group i

4. Maternal Mortality Rate (MMR) = $\frac{D_M}{B} \times 100{,}000$

where:

D_M = number of maternal deaths due to complications of pregnancy, childbirths and the puerperium

B = total live births

k = 10, 000 or 100,000

5. Population Growth Rate (PGR)

Refer to Annex C for the computation of the Annual Population Growth Rate

6. Percentage of Population by Five-Year Age Group and by Sex

$$= \frac{\text{Population by 5-yr Age Group by Sex}}{\text{Total Population}}$$

8. Labor Force Participation Rate (LFPR) by Sex $= \frac{\text{LF by Sex}}{\text{Pop}_{15\text{-}64}} \times 100$

where:

LFPR = Labor force participation rate

LF = total number of employed and unemployed persons by sex but looking for work

$Pop_{15\text{-}64}$ = total population of persons aged 15 years old and over

9. Percentage of Paved Roads (National, Local)

$$\text{Percentage of Paved Roads}_{\text{National}} = \frac{\text{Length of Paved Roads}_{\text{National}}}{\text{Total Length of Roads}_{\text{National}}} \times 100$$

$$\text{Percentage of Paved Roads}_{\text{Local}} = \frac{\text{Length of Paved Roads}_{\text{Local}}}{\text{Total Length of Roads}_{\text{Local}}} \times 100$$

10.1. Elementary Cohort Survival Rate (by Sex) $= \dfrac{\text{Pupils Grade VI}_{t}}{\text{Pupils Grade I}_{t-5}} \times 100$

where:
Pupils Grade VI_{t} = number of pupils enrolled in Grade VI in year t
Pupils Grade I_{t-5} = number of pupils enrolled in Grade I in year t-5

10.2. Secondary Cohort Survival Rate (by Sex) $= \dfrac{\text{Students}_{\text{Fourth Year t}}}{\text{Students}_{\text{First Year t-3}}} \times 100$

where:
$\text{Students}_{\text{Fourth Year t}}$ = number of students enrolled in Fourth Year in year t
$\text{Students}_{\text{First Year t-3}}$ = number of students enrolled in First Year in year t-3

11. Doctor Per Population Ratio $= \dfrac{\text{Number of Doctor}}{\text{Mid-year Population}}$

12. Hospital Bed Per Population Ratio $= \dfrac{\text{Number of Hospital Beds}}{\text{Mid-year Population}}$

13. Percentage of Births Attended by Health Personnel

$$= \frac{\text{Number of births attended by health personnel}}{\text{Total number of births in a given period}} \times 100$$

17. Percentage of Households with Sanitary Type of Toilet Facilities

$$= \frac{\text{Number of households with sanitary type of toilet facilities}}{\text{Number of households}} \times 100$$

18. Percentage of Households with Sanitary Type of Garbage Disposal

$$= \frac{\text{Number of households with sanitary type of garbage disposal}}{\text{Number of households}} \times 100$$

19. Crime Rate by Type (Crimes vs. Persons, Crimes vs. Property)

$$= \frac{\text{Number of Crimes}}{\text{Population}} \times 100$$

21.1. Employment/Unemployment Rate

$$= \frac{\text{Number of employed persons}}{\text{Total number of persons in the labor force}} \times 100$$

$$= \frac{\text{Number of unemployed persons}}{\text{Total number of persons in the labor force}} \times 100$$

21.2. Underemployment Rate $= \frac{\text{Number of underemployed persons}}{\text{Total number of persons in the labor force}} \times 100$

22. Average Income Per Family $= \frac{\text{Total income of families}}{\text{Total number of families}} \times 100$

23.1. Simple Literacy Rate (SLR)

$$= \frac{\text{Population aged 10 years and over who are simple literate}}{\text{Population aged 10 years old and over}} \times 100$$

23.2. Functional Literacy Rate (FLR)

$$= \frac{\text{Population aged 10 years and over who are functionally literate}}{\text{Population aged 10 years old and over}} \times 100$$

24.1. Percentage of Malnourished 7-10 Years Old Children

$$= \frac{\textbf{Total number of children who are moderately and severely underweight}}{\textbf{Total number of children}_{\text{7-10 yrs. old}}\ \textbf{examined}} \times 100$$

25. Percentage of 0-6 Months Old Children with Low Birth Weight

$$\textbf{Percentage of Children}_{LBW} = \frac{\textbf{Number of children}}{\textbf{Total number of children}_{\text{0-6 mos. old}}} \times 100$$

where:
Children_{LBW} = children with low birth weight

26. Morbidity Rate of 1ST/ 2ND/ 3RD Leading Cause

$$\textbf{Morbidity Rate}_{cause} = \frac{\textbf{Number of cases due to patrticular cause of illness}}{\textbf{Mid-year population}} \times 100$$

ANNEX J. Poverty Indicators

List of Core Local Poverty Indicators (CLPI) which captures the multi-dimensional aspects of poverty. The CLPIs were adopted by the Community-Based Monitoring System (CBMS), and are being used to monitor the localization of the Millennium Development Goals (MDG).

Core Indicators for Population and Development (POPDEV) Planning at the Local Level

MDGs	DIMENSION OF POVERTY	CLPI
Goal 1: Eradicate Extreme Poverty and Hunger	Income	1. Proportion of households with income less than the poverty threshold
	Income	2. Proportion of households with income less than the food threshold
	Food and Nutrition	3. Proportion of children 0-5 years old who are moderately and severely underweight
	Income	4. Proportion of households who eat less than three meals a day
	Peace and Order	5. Proportion of households with members victimized by crime
Goal 2: Achieve Universal Primary Education	Education	6. Proportion of 6-12 year old children who are not in elementary school
		7. Proportion of 13-16 year old children who are not in secondary school
Goal 3: Promote Gender Equity		(can be generated from indicators of Goal 2 since data are gender disaggregated)
Goal 4: Reduce Child Mortality	Health	8. Proportion of children 0-5 years old who died
Goal 5: Improve Maternal Health	Food and Nutrition	9. Proportion of women who died due to pregnancy-related causes
Goal 6: Combat HIV/AIDS, malaria, and other diseases	Water and Sanitation	10. Proportion of households without access to safe water
		11. Proportion of households without access to sanitary toilet facility
Goal 7: Ensure Environmental Sustainability	Water and Sanitation	(same indicators as Goal 6)
	Shelter	12. Proportion of households who are informal settlers
		13. Proportion of households with makeshift housing
Goal 8: Develop a Global Partnership for Development	Employment	14. Proportion of 15 year old and above who are not working but are actively seeking work

Sources: A Guidebook on Local Poverty Diagnosis and Planning, 2004
Scaling up Poverty Reduction through CBMS by Reyes, C. M. and A. B. Mandap, 2006
www.dilg.gov.ph/blgd/mdg.htm

ANNEX K. Measures of Poverty

Excerpts from A.G. Corpuz, "Poverty Alleviation and Economic Growth," presentation during the NEDA Utilization Workshops, April 2004.

Definition of Poverty: A State of Being

- Lack of income (**means**) necessary to consume a basic bundle of goods and services; or
- Shortfall in consumption of a basic bundle of goods and services necessary to do basic functions (**outcomes**);
- Subjective valuation (**perceptions**)

Measures of Poverty

- Means-based
- Outcome-based
- Perception-based

Means-based

- **Incidence**
  - -- **Poverty**
  - -- Subsistence
- **Gap (Depth)**
  - -- **Poverty**
  - -- Income
- **Severity**

- Poverty Threshold
- Food Threshold
- Gini Ratio

- $1/day Poverty Line

Outcome-based

- Human Development Index
- Human Poverty Index
- Capability Poverty Measure
- Gender-related Development Index
- Gender Empowerment Measure

Means-based

- **Poverty:** Inability to acquire basic needs for decent quality of life

- **Poverty Incidence (%):** E.g. Philippines = 28.4%

  > **Percent of families (or individuals) whose incomes fall below the Poverty Threshold** as defined by NEDA and/or cannot afford in a sustained manner to provide their basic needs of food, health, education, housing and other amenities of life

$$\frac{\text{Families (or population) with per capita income less than the per capita } \textbf{poverty threshold}}{\text{Total number of families (population)}}$$

→ Cost of basic food & non-food reqmts = P11,605/year per cap P4,835/month per fam

Source: NSCB

Means-based

- **Subsistence Incidence (%):** E.g. Philippines = 13.1%

  > **Percent of families (individuals) whose incomes fall below the Food Threshold**

$$\frac{\text{Families (or population) with per capita income less than the per capita } \textbf{Food Threshold}}{\text{Total number of families (population)}}$$

→ Cost of food required to satisfy nutritional reqmts = P7,829 (Philippines 2000)

Source: NSCB

Means-based

Avg income shortfall of families is 18.5%

- **Poverty Gap (%):** E.g. Romblon = 18.5%

  > Measure of amount needed to eradicate poverty

$$\frac{\text{Total income shortfall of families below poverty threshold (expressed in proportion to the poverty line)}}{\text{Total number of families}}$$

- **Income Gap (%):** E.g. Mt Province = 38.0%

  > Measure of amount needed by poor families to eradicate poverty

$$\frac{\text{Total income shortfall of families below poverty threshold (expressed in proportion to the poverty line)}}{\text{Total number of poor families}}$$

Measures of depth of poverty

Avg income shortfall of poor families is 38.0%

Source: NSCB

Means-based

Poverty more severe in Masbate

- **Severity of Poverty (%):** E.g. Masbate = 10.1%
  Saranggani = 9.7%

  > Measure of inequality among the poor

$$\frac{\text{Total of squared income shortfall of families below poverty threshold (expressed in proportion to the poverty line)}}{\text{Total number of families}}$$

- **Gini Ratio:**

  > Measure of inequality in income distribution (all families/individuals)

1=perfect equal
0=perfect unequal

Source: NSCB

Means-based

- **Poverty Incidence**
- **Subsistence Incidence**
- **Poverty Gap**
- **Income Gap**
- **Severity of Poverty**
- **Gini Ratio**
- **Poverty Threshold**
- **Food Threshold**

Every three years (FIES)

Annual

Official poverty statistics
Pre-2003: national
regional
Since 2003: plus
provincial

- **$1/day Poverty Line** (WB): amount in pesos needed to buy a basket of goods and services that $1 would buy in the US

Source: NSCB

Outcome-based

- **Human Development Index (HDI)**

  Composite of development outcomes:
  -- **Health:** life expectancy
  -- **Knowledge:** functional literacy
  -- **Standard of living:** per capita income

- **Human Poverty Index (HPI)**

  Composite of poverty outcomes:
  -- **Short life:** % of people expected to die before 40
  -- **Lack of education:** % of adults illiterate
  -- **Lack of access to resources:** % of people w/o access to health services & safe water, and & % of underweight children under 5

Source: Monsod and Monsod, 1999

Outcome-based

- **Capability Poverty Measure (CPM)**
  - -- Early version of HPI
- **Gender-related Development Index (GDI)**
  - -- HDI adjusted for gender inequality
- **Gender Empowerment Measure (GEM)**
  - -- Measures gender inequality in key areas of economic and political participation

Source: Monsod and Monsod, 1999

Means-based

- **Poverty Incidence**
- **Subsistence Incidence**
- **Income Gap**
- **Poverty Gap**
- **Severity of Poverty**
- Poverty Threshold
- Food Threshold
- Gini Ratio
- $1/day Poverty Line

Outcome-based

- Human Development Index
- Human Poverty Index
- Capability Poverty Measure
- Gender-related Development Index
- Gender Empowerment Measure

Means-based

- **Poverty incidence**: gives the proportion of the poor
  -- simple but assumes uniform distribution of poor
  -- does not account for improvement within poor

- **Poverty gap**: average income shortfall
  -- shortfall = 0 if non-poor
  -- total amount to eradicate poverty
  -- easy to understand but also does not account for distribution

- **Severity of poverty**: average of the squared income gap of the poor
  -- assigns higher weights to the poorer among the poor
  -- not easy to estimate or understand

Source: Based on Edillon, 2003)

ANNEX L. Basic Guidelines for the Identification of Strategies and Projects Consistent with Poverty Reduction Objectives[1]

1. Causes of Poverty

There is universal agreement that the absence or lack of sustained economic growth is the primary determinant of poverty. Economic growth, therefore, is a necessary condition for meaningful poverty alleviation.

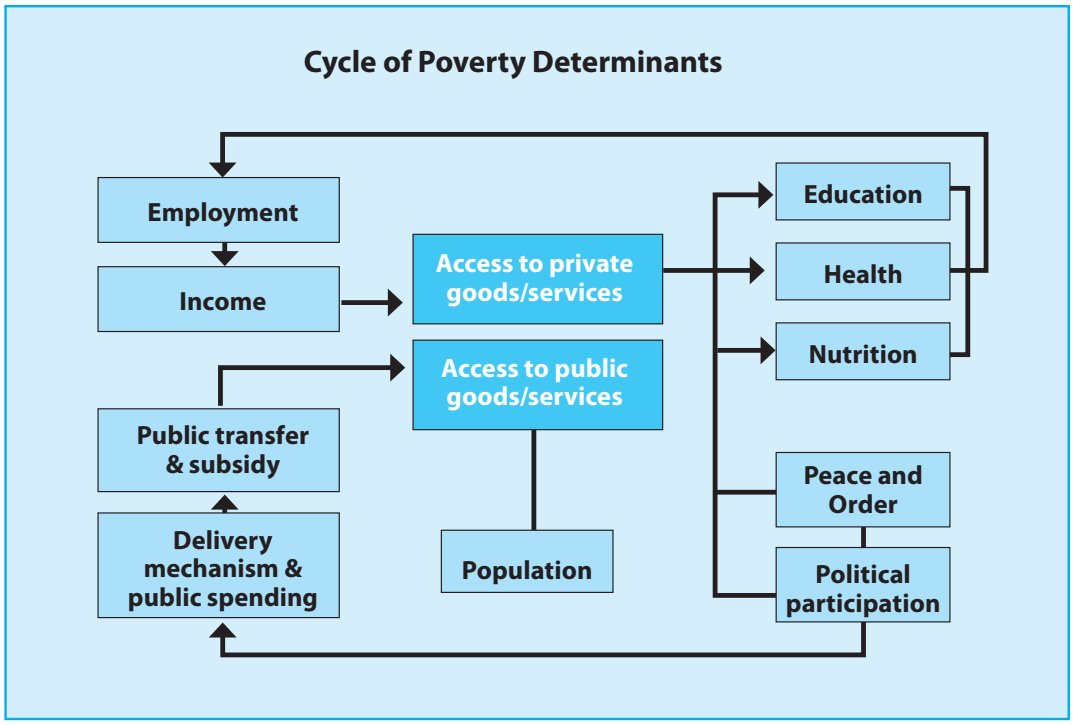
Even with growth, however, poverty conditions are maintained if the poor are unable to benefit from such growth or, because labor is the principal asset of the poor, if they are unable to gain employment in activities that generate growth.

Poverty also results when vulnerable people are subjected to shocks (e.g., natural disasters, drastic price changes, etc.).

It has also been noted, especially in the Philippines, that other factors affect the welfare of the poor:

- Education (e.g., education, particularly if complemented by infrastructure that enhance access, can effectively reduce poverty by providing more opportunities for higher income generating activities)
- Policy environment (e.g., terms of trade for agriculture may be biased against local production thus negatively affecting the incomes of local farmers)
- Investment in land quality (e.g., irrigation facilities increase production efficiency and capacity)
- Agrarian reform (increases the assets of the poor)
- Governance (e.g., political dynasties hurt the poor)
- Transportation (high transport costs are poverty traps)[2]

Overall, the lack of access to the "basic needs of food, health, education, housing and other amenities of life" characterizes poverty and the extent to which these needs are made available to the poor, through growth and through the distribution of the benefits of such growth to the poor, will determine if poverty is reduced accordingly.



Source: Guidebook on Local Poverty Diagnosis and Planning," 2002.

2. Policy Responses to Poverty Alleviation

In terms of policies, poverty alleviation strategies of various international institutions have evolved since the 1970s and these may be summarized by three general policy areas or "pillars" identified by the ADB:

- Pro-poor economic growth
- Social development
- Good governance[3]

Pro-poor economic growth distinguishes growth that favors the poor given that economic growth, based on the experiences of various countries, may be biased towards higher income groups. While growth in general generates employment and income and is a necessary condition for poverty reduction, pro-poor economic growth can further reduce poverty through labor intensive projects and activities, by giving priority to employment creation, increasing labor mobility, enhancing access to credit by SMEs, and other measures that serve to remove biases against the poor.

Social development refers to strategies that target basic social services for the poor—those involving human capital development and social protection, including an effective population policy program that would ease the demand for scarce development resources.

Good governance, meanwhile, is a necessary condition to carry out pro-poor growth and social development activities. It deals with increasing access to basic services by the poor through reduced corruption, greater accountability, increase participation, and sound macroeconomic management.[4]

Other institutions have similar approaches; as a whole, all of them emphasize the importance of broad-based labor intensive and inclusive growth, good governance and accountability, human and social development, social protection, and special poverty alleviation policies or direct anti-poverty interventions such as land reform, micro credit, public employment schemes, and their various combinations.[5]

3. Local Policy Framework for Poverty Reduction

In the Philippines, the Social Reform and Poverty Reduction Act (RA 8425) provides a policy framework for addressing poverty in the country. This framework involves the following policy areas and corresponding programs and services:

- Asset reform
  - urban housing and land distribution
  - capital and infrastructure provision for marginalized sectors in urban and rural poor areas
  - agrarian reform and land distribution
  - priority access of small fisherfolk to 15 km zone municipal waters
  - granting of ancestral domain titles to indigenous people

- Improved access to human development services
  - basic education
  - health
  - shelter
  - potable water
  - sanitation facilities/services
  - electrification

- Increased employment and livelihood opportunities
  - creation of rural jobs (agricultural and fishery activities)
  - improved access to credit facilities, microfinance services
  - entrepreneurial training

- Enhanced participation in governance and institution building
  - participation of civil society and basic sectors in policy-making at national and local levels

- Increased social protection and security from violence
- provision of social welfare and assistance that maintains a minimum living standard among the poor and that reduces risks arising from such incidents as violence, illness, disability, old age, unemployment, resettlement, and harvest failure
- safety nets or mechanisms that mitigate adverse impacts of economic dislocations and shocks, disasters and calamities, and structural adjustments
- social security that mitigates risks among the poor arising from retirement, unemployment, illness, and disability[6]

4. Pro-Poor strategies

Pro-poor strategies should be integral components of the province's development strategies. A simple example of how pro-poor strategies relate to overall strategies is shown in Figure 2 below.

Examples for Benguet Province:
Pro-poor Strategies as integral components of Development Studies

Strategies	Pro-Poor Strategies
• Improve access/linkages: – With Regions 1 and 2 (ports, airports, domestic/foreign markets) – With NCR domestic/foreign market (NLE extension to Tarlac/Rosario) – Lateral/internal (strategic)	• Improve access/linkages: construction and operations employment; relocation from disaster prone areas/disaster mitigation
• Protect and expand tourism market (e.g. environmental integrity, New Baguio?)	• Local employment: service industry, environment management; construction
• Hi-tech, environment-friendly mining?	• Local employment
• Industry development – BEPZ retention/expansion: cluster development; – IT? – niche industries?	• Skills training; microlending/credit to SMEs (e.g. tourism-oriented; specialty crafts, cash crops/agri- and food processing)
• Education center (including tourism, upland agriculture research, IT-based?)	• Rural school dev with road/access improvement; clustering? Scholarships
• Process streamlining/remove transaction obstacles (e.g. land titling)	• Land/property reform/IP rights
• Enhance/ensure security (image?)	

1 Based on Arturo G. Corpuz, "Poverty Alleviation, Economic Growth, and Physical Planning," Utilization-Workshop on Enhancing Capabilities of Provinces for Effective Planning, NEDA, 2003.
2 R. Edillion, "Framework on Growth and Development," powerpoint presentation, Module 1, Training Program on Poverty Analysis and Development of Policy Responses for Poverty Reduction, Asia-Pacific Policy Center, Training Manual.
3 ADB, "Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy," p.3.
4 ADB, "Fighting Poverty in Asia and the Pacific: The Poverty Reduction Strategy," pp.8-13.
5 A. Deolalikar, et al., "Poverty Reduction and the Role of Institutions in Developing Asia," ADB, May 2002, p.5.
6 "Guidebook on Local Poverty Diagnosis and Planning," December 2002, pp.6-7.

ANNEX M. Urban-Regional Planning and Disaster Mitigation in the Philippines*

The following are some implications of recent disasters on the practice of urban and regional planning in the Philippines.

1. Land use planning vs. strategic planning

Land use planning is a major concern of many urban and regional planners, especially those involved with government, because it is a direct input to the formulation of zoning ordinances and other land development regulations. It may be expected to become an even more active field of planning with the signing into law of the 1991 Local Government Code, which decentralizes many planning functions and responsibilities to local governments. This means that more planners are going to be engaged in land use planning as the initiative and responsibility for this activity shifts from a handful of national planning agencies to over 1,600 local government planning and development offices.

However, because it deals primarily with the identification of broadly-defined activities for certain land areas, land use planning cannot directly address disasters caused by structural failures, e.g., during earthquakes. Standard land use classifications (residential, commercial, industrial, etc.) do not distinguish among the abilities of buildings to withstand earthquakes and, therefore, it is indifferent to varying degrees of disasters (from the minor to the catastrophic). Although it can be useful, through zoning, in limiting the density of activities in areas identified as susceptible to disasters--in restricting liquefaction-prone riverside areas from being densely occupied, for example--it needs to be complemented by strategic urban and regional planning. (Armillas et al. 1990)

By strategic planning, I refer to planning that deals directly with the mitigation of disasters associated with, first, production and service networks that cut across standard land use categories (e.g., water, power, communication systems) and, second, production and service elements within a particular land use area-category (e.g., individual buildings in an industrial estate or government center or university complex). In both cases, land use planning will not directly lead to measures that can reinforce, for example, specific sections of a water distribution network that services residential subdivisions relative to sections that service open spaces-parks, or measures that give priority to the structural integrity of a widely patronized public market over an adjacent and unoccupied market storehouse, to cite another example.

* This is a slightly modified version of Arturo G. Corpuz, "Some Implications of the July 16, 1990 Earthquake on Urban and Regional Planning in the Philippines," The July 16, 1990 Luzon Earthquake: A Technical Monograph, Inter-Agency Committee for Documenting and Establishing Database on the July 1990 Earthquake, 1992.

An additional limitation to the use of land use planning for disaster mitigation, especially in large cities such as Metro Manila, is the difficulty in or the slow process of changing land uses. Often, urban land use cannot be altered according to proposed disaster mitigation measures because changes in the ownership, occupancy, or physical environment of urban lands are difficult to do in the short-term. Substantial changes in urban land use usually take place only after decades of conscious and purposeful efforts on the part of the public and private sectors. This requires a relatively stable structure of public administration that is the exception rather than the rule in developing countries. Frequently, more immediate action steps can be taken to mitigate the effects earthquake-related disasters through strategic planning.

2. Lifeline systems planning

The effects of the July 16, 1990 earthquake have emphasized the importance of decentralizing and strengthening key utility systems, particularly those concerned with the delivery of water, power, transportation and communication services to large urban centers. Here, the objective is to minimize the possibility of a total disruption of these services in the event of similar disaster. This can be achieved by a) decentralizing these utilities in terms of the location or alignment of their production and distribution elements and by b) strengthening vulnerable components or sections of the systems. (Armillas et al., 1990) In the former, decentralization would help minimize the possibility that damage suffered in one part of the system will paralyze the entire service operation. A process can be initiated so that systems can be gradually decentralized, inputting local risk analyses in order to avoid sites identified as prone to disaster-related damage. It should be mentioned, however, that decentralization does not necessarily mean deconcentration or a reduction of land use densities. For utility and service networks, decentralization refers to the physical structure of systems that support land use activities, which may remain at high density levels.

As far as strengthening vulnerable components of production and distribution systems is concerned, this may be used as an initial alternative or as a complementary task to decentralization. In this case, the spatial layout of a service system is maintained but potentially vulnerable sections, identified through seismic or hazard zonification studies, are strengthened to withstand specific disaster intensities.

The crucial role of transportation networks in disaster mitigation should be given appropriate attention by urban and regional planners, especially in light of the isolation of many parts of Luzon from major market and supply centers soon after the 1990 earthquake or the more recent floods (2004) in the province of Quezon. Planners need to incorporate into their planning processes, as an additional criterion for selecting and prioritizing road projects, consideration for projects that may serve as important alternate routes in the event that primary thoroughfares are rendered impassable by future disasters.

3. Building stock management

A scientific planning approach to disaster mitigation requires detailed information about an area's building stock. This should include data on the location, type of structure and materials used, floor area, date of construction, renovations and additions, cost or market value, density, occupancy, and activities that have taken and are taking place in individual structures. (Petrovski 1990) This information is particularly relevant in helping planners estimate the probabilities and consequences of various kinds of earthquake-related damage according to earthquakes of different intensities and serve to guide the formulation and prioritization of earthquake disaster mitigation plans.

Building stock inventories is also useful for other purposes that are not directly related to disaster mitigation. They can be important inputs to other development planning efforts--to the fiscal objectives of local governments in relation to building and property tax assessments, to historic preservation efforts, and as a contribution towards the documentation of local culture and tradition.

Building stock inventories are not easy to make and to update, especially in large cities in the developing world where a large part of the total stock is associated with the informal sector. Many structures in Metro Manila, for example, are squatter houses that are of temporary construction, difficult to document in detail and to monitor for future inventories. Further, there is likely to be resistance on the part of resident families to be surveyed for fear that this will lead to unwanted government measures such as additional taxes or relocation.

One specific step that may be taken to institutionalize building stock inventories is to make use of census surveys so that additional, detailed building stock information is gathered regularly. In particular, the ten-year population and housing census conducted by the government may be expanded so that a) additional data on the physical characteristics of structures, especially their specific locations, are acquired, and b) data disaggregation goes down from the level of individual cities or provinces to the barangay or even sub-barangay level.

4. Metropolitanization and regional planning

Functional metropolitanization or the interrelated growth and expansion of cities and their adjacent areas should be expected throughout the country and previous disasters have served to emphasize the importance of coordinating urban planning and project implementation in these areas.

Aside from Metro Manila, Metro Cebu, and Metro Davao, other urban centers of the country have grown to the point that their influence on adjacent municipalities is already difficult to ignore.

The virtue of metropolitan planning is that it allows for greater coordination and implementation of disaster mitigation plans and programs at the same time that urgent measures to improve or provide basic services are also implemented. For example, it allows for greater flexibility in identifying and tapping potable water sources, because the planning area extends beyond a single city or municipality, at the same time that decentralization of the water distribution system, following disaster mitigation objectives, is implemented. (Corpuz 1991)

In the field of transportation, to cite another example, circumferential routes may be planned and constructed in many urban centers in order to relieve congestion in or near the central business district as well as to establish or influence the direction of future growth. At the same time, circumferential routes can also play an important role in times of emergency by providing alternate routes to and from various areas of the metropolitan area. Such routes reduce the possibility that parts of the metropolitan area will be isolated when other routes are blocked due to a disaster. In almost all cases, circumferential routes have to run across several cities and municipalities so that they are best planned, built, and maintained under a metropolitan framework.

5. Housing and non-engineered structures

About 90 percent of the building stock in the areas affected by the 1990 earthquake was non-engineered, designed and built by private homeowners, carpenters, and other non-professional builders. Most of these structures were residential buildings.

Among the residential buildings, reinforced concrete structures performed badly compared to timber-framed houses during the 1990 earthquake. (Booth et al. 1990) The large proportion of non-engineered structures in the earthquake-affected areas is indicative of a trend towards the use of concrete and masonry construction materials, instead of traditional native building materials, without the benefit of formal engineering know-how. The trend is a result of a combination of factors which has led to the scarcity of traditional building materials: increased demand for housing, reductions in timber and other natural resources due to land conversion and exploitation, and a predominant desire among homeowners for structural permanence, to name several.

It is difficult or unrealistic to expect that the trend towards concrete and masonry construction will not continue so that a proper response, with a view towards increasing the ability of non-engineered structures to withstand earthquakes, would involve the dissemination of appropriate information about concrete and masonry technology, design, and construction. The mechanisms for doing this are still unclear, primarily because of the complicated principles of reinforced concrete construction relative to timber construction.

In the case of the latter, a traditional apprenticeship system has sufficed. It is more difficult to institutionalize a similar system for reinforced concrete construction but it may be the only option for the immediate future. As a first step, stricter implementation of housing construction standards through building and local occupancy permits would be welcome. This may be complemented by spreading the liabilities for unexpected structural failures to include local building and inspection officials. On the part of urban planners, geological analyses including hazard mapping and seismic zonification studies need to be incorporated into local land use plans and strategic utility system designs.

6. Planning education

Formal urban and regional planning education in the Philippines as well as in the rest of the world is fairly recent compared to other disciplines. Because of this, and since major disasters are relatively infrequent events, the occurrence and effects of disasters have yet to be sufficiently integrated into planning education programs. For example, the country's only advanced institution dedicated to urban and regional planning the School of Urban and Regional Planning of the University of the Philippines, was established only in the 1960s and although there have been about a dozen major earthquakes (Intensity VI or higher) recorded in the archipelago since then, only one or two solicited serious, albeit fleeting, professional attention from urban and regional planners. This is largely due to the lack of expertise among planners in dealing with earthquakes, which is also indicative of the fledgling interaction among planners, geologists, seismic engineers, and other related professionals.

Ideally, in the formal planning sector, disaster mitigation should be integrated into school curricula, training programs, and into public and private reference planning guidelines and manuals. Unfortunately, there is a lack of understanding of how disaster-prone conditions can be translated into specific courses of action. For example, urban and regional planners have contributed little, by way of what activities and other physical developments should be allowed, to the debate on the existence of an active fault line in Metro Manila. Aside from learning from the experiences of other countries, one step that may be taken is to increase interdisciplinary linkages with other fields that are key to disaster mitigation. This would mean increased interaction with geologists, seismic engineers, and architects. A university-based research institute or committee, encompassing earthquakes as well as other natural disasters, could serve as a venue for such interaction.

7. River management

The effects of the 1990 earthquake, the Ormoc, tragedy and the Quezon floods have provided additional justification for planners to focus greater attention on the rehabilitation and

management of river systems. Apart from the obvious need to curb waterborne pollution, appropriate planning and management of waterways and watersheds are required because: a) these are the areas which are susceptible to other forms of disaster-related damage (caused by liquefaction, riverbank failures, etc.), b) rivers serve as emergency routes when other land-based transport routes are rendered impassable, and c) river banks are sites of large concentrations of residential communities, usually low-income, that are especially vulnerable to floods, slope failures, and earthquakes.

References

Armillas, I., J. Petrovski, A. Coburn, D. Lewis, and A. Corpuz. December 1990. *Technical Report on Luzon Earthquake of 16 July 1990, Republic of the Philippines, with Recommendations for Reconstruction and Development.* Expert Mission to Assist in Reconstruction and Development after the Philippines Earthquake of 16 July 1990 PHI/90/F01, United Nations Centre for Human Settlements (HABITAT), Nairobi.

Booth, E., A. Chandler, P. Wong, A. Coburn. 1990. *"The Luzon, Philippines Earthquake of July 16, 1990: A Field Report by EEFIT."* London: EEFIT, 1991. See also: National Economic and Development Authority, Republic of the Philippines. Reconstruction and Development Program.

Corpuz, A. G. September 1991. *"Dagupan City Urban Planning and Land Use Assessment after the July 16, 1990 Earthquake."* Technical Report submitted to the Development Academy of the Philippines.

Petrovski, J. 1990. "*Building Damage Classification and Loss Assessment*," attachment to I. Armillas, J. Petrovski, A. Coburn, D. Lewis, and A. Corpuz.

case studies

Misamis Oriental

Population and Settlement Analysis

Case Study 1

SUMMARY

This case study is an example of how the Population and Settlements analysis described in Section C-2 of the Guidelines for the Preparation of the PDPFP is applied, in this case to the province of Misamis Oriental. As described in the guidelines, the objective of the analysis is to describe basic demographic characteristics and settlement patterns of the province. The case study follows the outline described in the guidelines. It covers a range of demographic characteristics starting with a regional/national comparison followed by an assessment of internal characteristics. The distribution of population is then considered by looking at the existing settlement pattern:

- Regional and national context: population size, density and growth rate
- Population size, density, growth rate; spatial distribution
- Existing settlement hierarchy

The case study shows that basic data (population size and land area and provincial and regional base maps) can be translated into sufficient information to appreciate the size, distribution and trend of the provincial population. Key results of the analysis are:

1. Misamis Oriental has a population of 1,126,123 (census 2000) and is the largest province (in terms of population) in Region X. Its population density of 317 persons/sqkm is also the highest in the region. Likewise, its Annual Population Growth Rate (APGR) of 2.67% (1990-2000) is the fastest (regional average is 2.19%) and is faster than the country's comparable growth rate (2.34%).

Given its current growth rate, the population of Misamis Oriental is expected to grow to 1,319,205 by the end of the plan period (2006). This translates into an additional population of 193,082 or an average increase of 32,180 persons every year.

2. Cagayan de Oro is the largest and fastest-growing urban center in the province. It has a population of 461,877 which accounts for 41% of the provincial population. It is the provincial capital and regional center of Region X, and is the primary gateway (air and sea ports) to northern Mindanao. Cagayan de Oro is the core city of Metro Cagayan de Oro, which is one of the major regional centers of the country. The metropolitan area is expected to continue to expand its direct area of influence over surrounding towns.

3. With Cagayan de Oro as the gateway to northern Mindanao and as the largest service center in the region, Misamis Oriental has strong linkages to its adjacent provinces: Lanao del Norte (Iligan City), Bukidnon (Malaybalay) and Agusan del Norte (Butuan City), and other provinces of Region X (Camiguin and Misamis Occidental). Outside Region X, Misamis Oriental has strong trade linkages to Cebu and Metro Manila.

4. Given current trends (described above), Misamis Oriental will double its population in 25 years with the metropolitan area around Cagayan de Oro accounting for more than half.

1. Regional and national context

1.1. As of the 2000 census, Misamis Oriental has a population of 1,126,123 and a density of 317 persons/sq km. Between 1990 and 2000 (see Table 4 below), its population grew at annual growth rate of 2.67%, faster than the 2.29% rate during the previous decade (1980-1990).

1.2. Misamis Oriental has the largest population among the provinces of Region X, accounting for 32.3% of the regional total. It is the only province of the region with an annual growth rate that exceeds the regional (2.19%) and national averages (2.34%). If its 1990-2000 growth rate is maintained, Misamis Oriental will double its population in 25 years.

Table 4. Region X, Population, Annual Population Growth Rate, Density, Area, by Province, Philippines, 1990, 2000

Province	Pop 1990	Pop 2000	Pop 2000 % Share	APGR 1990-2000	Density 1990	Density 2000	Area (sqkm)	Area (sqkm) %
Camiguin	64,247	74,232	2.1%	1.46%	258	299	249	1.4%
Misamis Oriental	865,051	1,126,123	32.3%	2.67%	244	317	3,547	20.6%
Misamis Occidental	418,562	477,404	13.7%	1.32%	217	248	1,928	11.2%
Lanao del Norte	614,092	758,123	21.8%	2.13%	209	258	2,941	17.1%
Bukidnon	843,891	1,048,605	30.1%	2.20%	99	123	8,519	49.6%
Region X	2,805,843	3,484,487	100.0%	2.19%	163	203	17,183	100.0%
Philippines	60,703,216	76,498,735		2.34%	206	260	294,554	

2. Population size, density and growth rate

2.1. Size and distribution

2.1.1. The largest city in the province is Cagayan de Oro, the provincial capital and administrative center of Region X. It has a population of 461,877 (census 2000), accounting for 41% of the total provincial population, while occupying 12.9% of the provincial land area. Cagayan de Oro has the largest population among the cities in the region:

Region X Cities with Population> 100,000	Population (2000)
Cagayan de Oro	461,877
Iligan	285,061
Valencia	147,924
Malaybalay	123,672
Ozamiz	110,420
Gingoog	102,379

2.1.2. Cagayan de Oro is the fifth largest city in the Philippines outside Metro Manila (next to Davao City, Cebu City, Zamboanga City, and Antipolo).

2.1.3. In addition to Cagayan de Oro, Gingoog, Balingasag, Tagoloan, and Claveria are the five largest settlements, accounting for 62.5% of the population. The rest of the population is distributed among the 21 other municipalities of the province, with Binuangan having the smallest share (5,924 or 0.5% of the provincial population). (See Table 5 on next page)

2.1.4. Misamis Oriental is the only province in the region that increased its share of the regional population.

2.1.5. Within the province, only five of the 26 cities/municipalities increased their population shares since 1990—the largest increase was experienced by Cagayan de Oro (net increase of 1.8%); Opol and Tagoloan, which border Cagayan de Oro, had the next largest increases, with Jasaan and Claveria also experiencing net increases.

2.1.6. Cagayan de Oro and the adjacent municipalities of Opol and Tagoloan account for almost 60% of the additional population (1990-2000) in the entire province. (See Table 6, page 171)

These population growth trends suggest that Cagayan de Oro remains the biggest driver of population growth in the province, as well as in the region.

Table 5. Population, Annual Population Growth Rate, Density, Area, Misamis Oriental,by city/ municipality, 1990, 2000

City/ Municipality	Pop 1990	Pop 2000	Pop 2000 % Share	APGR 1990-2000	Density 1990	Density 2000	Area (sqkm)	Area (sqkm) %
Cagayan de Oro	339,598	461,877	41.0%	3.12%	741	1,008	458	12.9%
Gingoog	82,582	102,379	9.1%	2.17%	224	278	368	10.4%
Balingasag	41,506	51,782	4.6%	2.24%	337	421	123	3.5%
Tagoloan	33,919	46,649	4.1%	3.24%	650	894	52	1.5%
Claveria	31,130	41,109	3.7%	2.82%	30	40	1,030	29.0%
Jasaan	29,146	39,969	3.5%	3.21%	374	513	78	2.2%
Opol	20,473	36,389	3.2%	5.92%	120	214	170	4.8%
El Salvador	26,721	34,650	3.1%	2.63%	196	254	136	3.8%
Initao	23,113	27,035	2.4%	1.58%	272	319	85	2.4%
Medina	21,796	25,810	2.3%	1.70%	160	189	136	3.8%
Villanueva	17,122	24,867	2.2%	3.80%	374	543	46	1.3%
Magsaysay	22,099	24,550	2.2%	1.06%	140	156	157	4.4%
Manticao	21,443	24,072	2.1%	1.16%	180	202	119	3.4%
Alubijid	19,531	23,397	2.1%	1.82%	353	422	55	1.6%
Talisayan	17,015	19,959	1.8%	1.61%	210	247	81	2.3%
Salay	18,101	19,664	1.7%	0.83%	336	365	54	1.5%
Laguindingan	15,503	18,451	1.6%	1.76%	358	426	43	1.2%
Lagonglong	12,705	16,882	1.5%	2.88%	316	420	40	1.1%
Naawan	13,345	16,173	1.4%	1.94%	186	226	72	2.0%
Lugait	11,973	14,704	1.3%	2.08%	434	533	28	0.8%
Gitagum	10,994	13,522	1.2%	2.09%	327	402	34	0.9%
Kinogitan	8,795	10,519	0.9%	1.81%	265	317	33	0.9%
Libertad	8,487	10,231	0.9%	1.89%	169	204	50	1.4%
Balingoan	6,689	8,197	0.7%	2.05%	139	170	48	1.4%
Sugbongcogon	6,175	7,362	0.7%	1.77%	178	213	35	1.0%
Binuangan	5,090	5,924	0.5%	1.53%	345	402	15	0.4%
Misamis Oriental	865,051	1,126,123	100.0%	2.67%	244	317	3,547	100.0%

2.2. Density

(Refer to Table 5 above and Maps 3a, 3b, 3c on succeeding pages)

2.2.1. The city/municipality with the highest population density is Cagayan de Oro (1,008 persons/square kilometers in 2000). Claveria has the lowest at 40 persons/square kilometer. The provincial and national averages are 317 and 260, respectively.

2.2.2. Other municipalities with population densities substantially higher than the provincial average are: Tagoloan (894), Villanueva (543), Lugait (533), and Jasaan (513).

2.2.3. Outside the province, Cagayan de Oro's density is comparable to the largest urban centers of the country, such as Davao City (947) and Metro Cebu (2,280 for Cebu City, Mandaue and Lapulapu). For reference, Metro Manila's 2000 population density is 15, 617 persons/square kilometer.

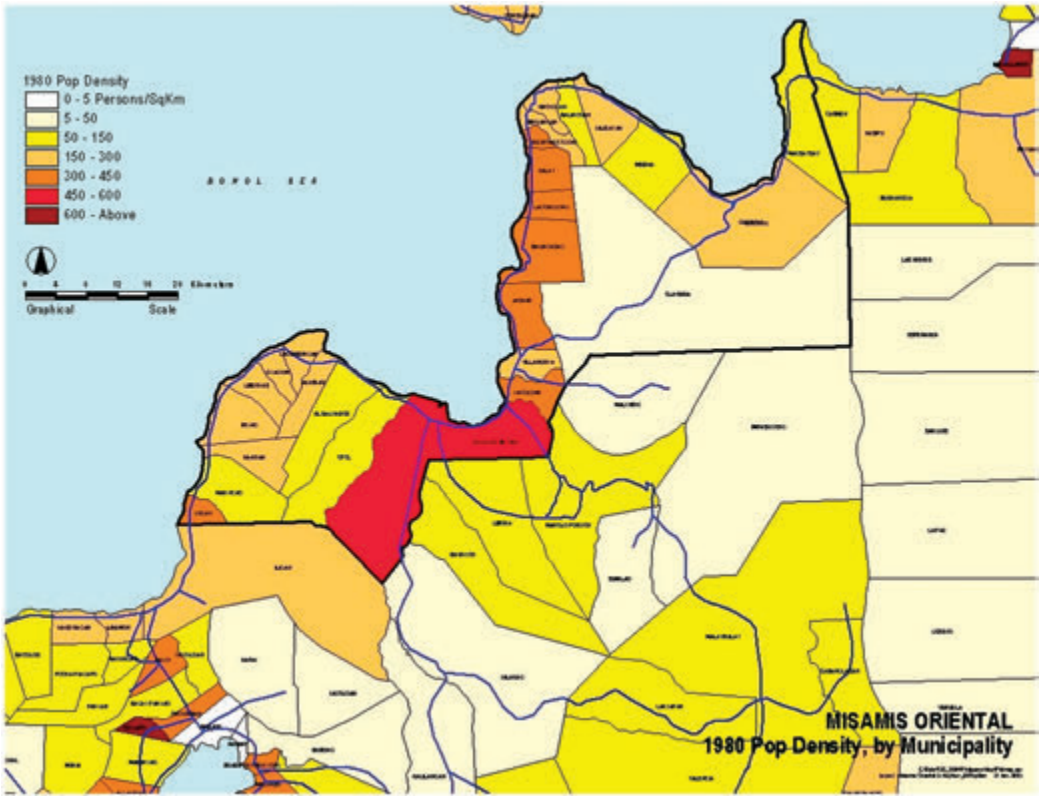
Table 6. Population shares, Misamis Oriental, by City/Municipality, 1990, 2000

City/Municipality	Pop 1990	Pop 2000	CumPop 1990 % Share	CumPop 2000 % Share	2000-1990 % change
Cagayan de Oro	39.3%	41.0%	39.3%	41.0%	1.8%
Gingoog	9.5%	9.1%	48.8%	50.1%	-0.5%
Balingasag	4.8%	4.6%	53.6%	54.7%	-0.2%
Tagoloan	3.9%	4.1%	57.5%	58.8%	0.2%
Claveria	3.6%	3.7%	61.1%	62.5%	0.1%
Jasaan	3.4%	3.5%	64.5%	66.0%	0.2%
Opol	2.4%	3.2%	66.9%	69.3%	0.9%
El Salvador	3.1%	3.1%	69.9%	72.4%	0.0%
Initao	2.7%	2.4%	72.6%	74.8%	-0.3%
Medina	2.5%	2.3%	75.1%	77.0%	-0.2%
Villanueva	2.0%	2.2%	77.1%	79.3%	0.2%
Magsaysay	2.6%	2.2%	79.7%	81.4%	-0.4%
Manticao	2.5%	2.1%	82.2%	83.6%	-0.3%
Alubijid	2.3%	2.1%	84.4%	85.7%	-0.2%
Talisayan	2.0%	1.8%	86.4%	87.4%	-0.2%
Salay	2.1%	1.7%	88.5%	89.2%	-0.3%
Laguindingan	1.8%	1.6%	90.3%	90.8%	-0.2%
Lagonglong	1.5%	1.5%	91.7%	92.3%	0.0%
Naawan	1.5%	1.4%	93.3%	93.7%	-0.1%
Lugait	1.4%	1.3%	94.7%	95.0%	-0.1%
Gitagum	1.3%	1.2%	95.9%	96.2%	-0.1%
Kinogitan	1.0%	0.9%	96.9%	97.2%	-0.1%
Libertad	1.0%	0.9%	97.9%	98.1%	-0.1%
Balingoan	0.8%	0.7%	98.7%	98.8%	0.0%
Sugbongcogon	0.7%	0.7%	99.4%	99.5%	-0.1%
Binuangan	0.6%	0.5%	100.0%	100.0%	-0.1%
Misamis Oriental	100.0%	100.0%			

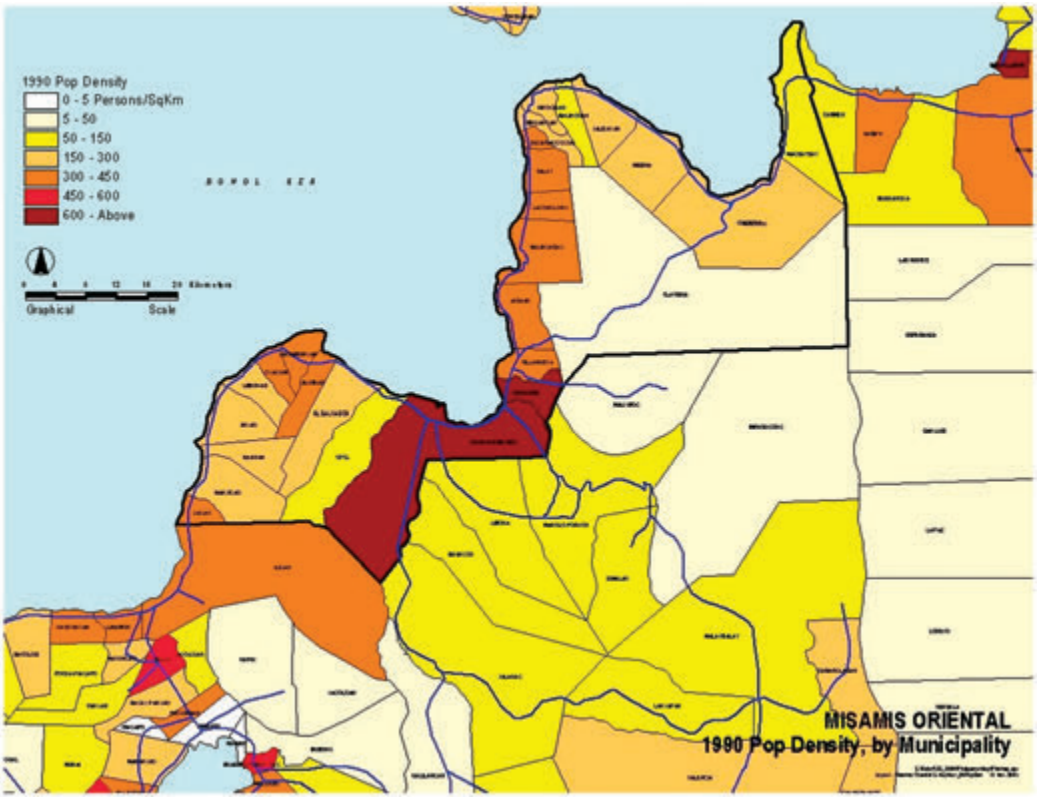
2.2.4. Based on the following density maps (3a, 3b, 3c):

a. The highest density settlements are along the coastal areas of the province and its neighboring provinces. This is consistent with the location of most urban and industrial areas along the coastal highway stretching throughout the northern edge of Mindanao, including Cagayan de Oro, and Iligan to the west and Gingoog and Butuan to the east.

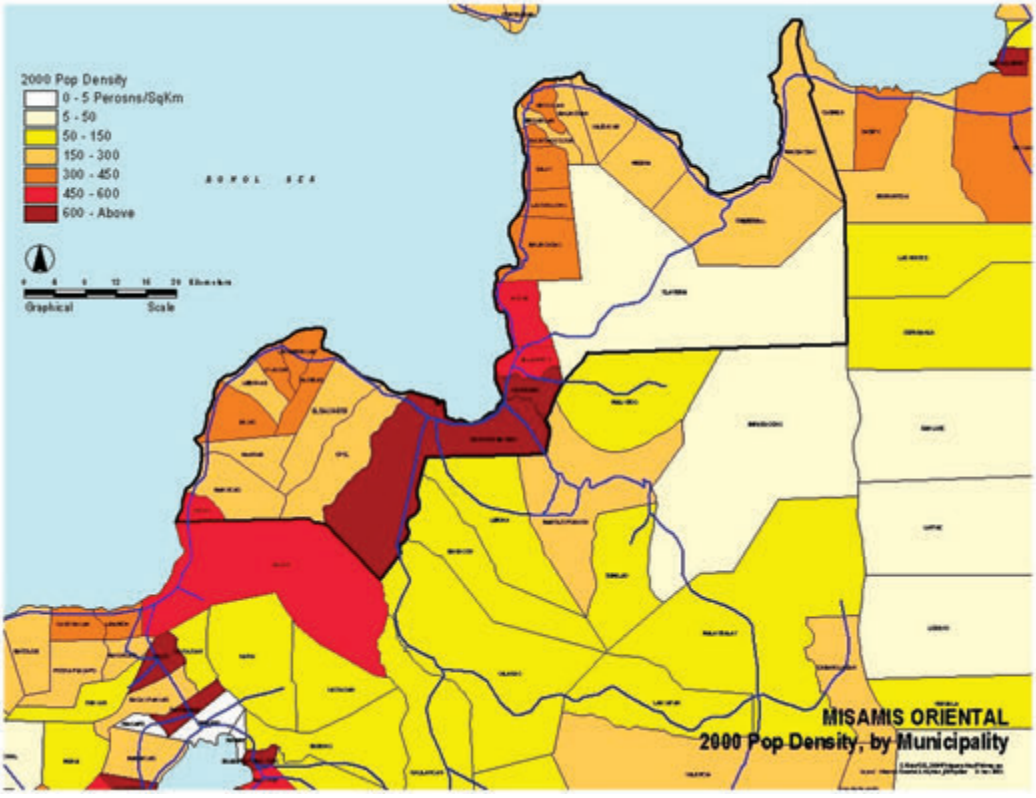
b. Increases in density in 1980-1990 are particularly noticeable in the coastal towns northeast of Cagayan de Oro from Tagoloan to Sugbongcogon, and later (1990-2000) in the western part from Alubijid to Initao.



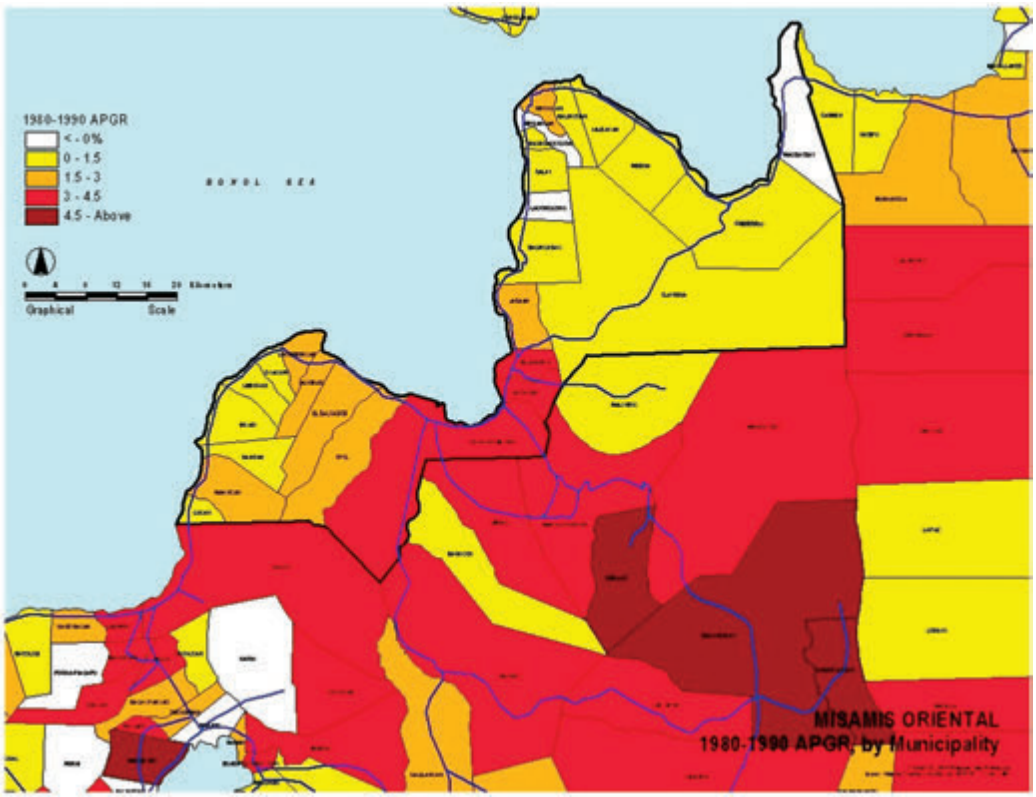
Map 3a. 1980 Density



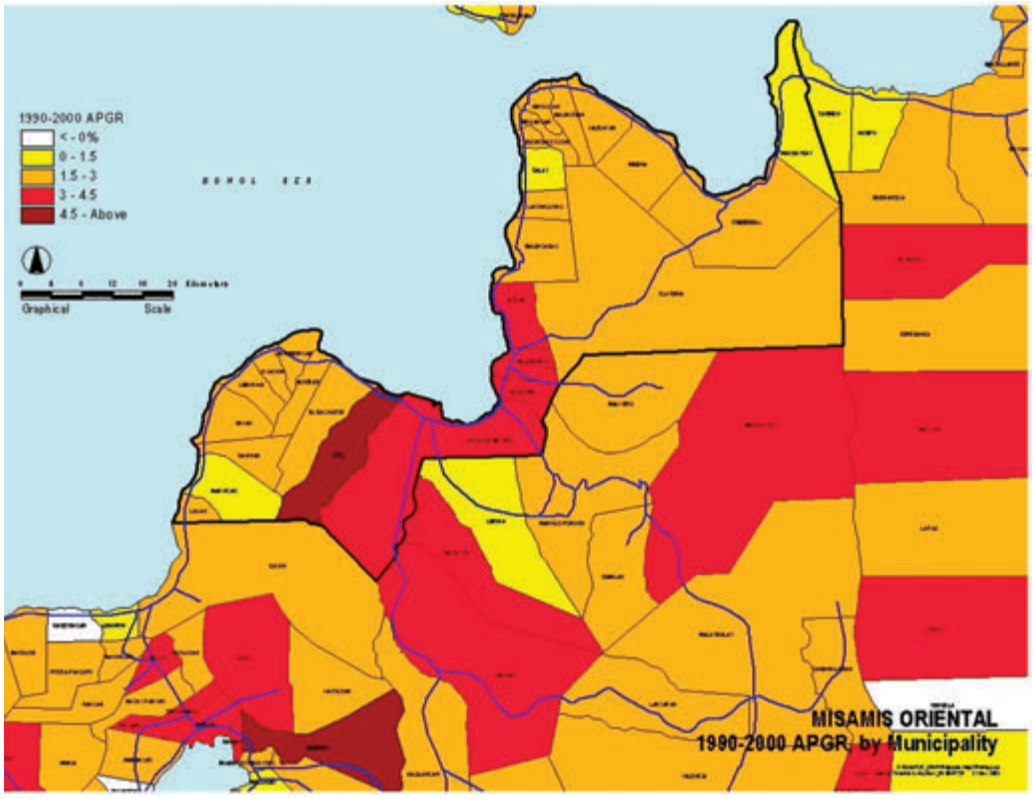
Map 3b. 1990 Density



Map 3c. 2000 Density



Map 4a. 1980-1990 APGR Density



Map 4b. 1990-2000 APGR

2.3 Growth rate

(Refer again to Table 5 and Maps 4a, 4b on previous page)

2.3.1. Within the province, Cagayan de Oro (4.10%), Tagoloan (4.41%) Villanueva (3.71%), and to a lesser degree other coastal towns exhibited fast growth in 1980-1990. In 1990-2000, this pattern spread to include Jasaan and Opol, with Opol growing the fastest in the province at a very rapid rate of 5.92%.

2.3.2. Considering neighboring provinces, however, growth rate patterns differ from density patterns in that fast growing settlements included both coastal and inland towns and cities such as Malaybalay, and those bordering Cagayan de Oro and Iligan.

2.3.3. Densities and growth rates

a. High density and fast-growing settlements: Cagayan de Oro, and adjacent established coastal towns of Tagoloan, Villanueva, Jasaan

   The dominance of Cagayan de Oro is especially striking considering that it is the largest urban center with the highest density and among the fastest (if not the fastest) growing settlements in the province and region. Tagoloan is adjacent to Cagayan de Oro and hosts the PHIVIDEC industrial center.

b. Low density and fast-growing settlements: Opol

   Opol is also adjacent to Cagayan de Oro and, as mentioned earlier, was the fastest growing municipality in 1990-2000. Its rapid growth is expected given the continued development of Cagayan de Oro. Together with Opol and other adjacent coastal towns, Opol is increasingly becoming part of the metropolitan area of the capital city.

c. High density and slow-growing settlements: Lugait

   Among the high density towns (>500 persons/square kilometer), only Lugait showed a slowing down of growth, with a population growth rate of 2.07% in 1990-2000, below the provincial average of 2.67%. Lugait borders Iligan City, the second largest urban center in northern Mindanao (not just Region X), and has benefited from the industrial growth of Iligan in the past decades. The decline in Iligan's growth due to the overall decline of its staple heavy industries has similarly affected Lugait.

d. Low density and slow-growing settlements: Balingoan, Gingoog, Libertad, Magsaysay, Manticao, Medina, Naawan, Sugbongcogon.

These towns are all farther away from Cagayan de Oro, towards the west as well as east of the provincial capital. This further supports Cagayan de Oro's role as the principal driver of growth in the province.

2.3.4 Given the current growth rate, the estimated total population and overall density at the end of the plan period (2006) of the province are 1,319,205 and 372 persons/square kilometer. This translates into an additional population of 193,082 or an average increase of 32,180 persons every year. Almost half of the additional population will be accounted for by Cagayan de Oro. (See the following table)

3. Existing settlement pattern

The existing settlement pattern may be described as a three-level hierarchy (see Figure 1 and Map 5 on succeding pages):

3.1. Regional metropolitan center: Metro Cagayan de Oro (composed of Cagayan de Oro City, Tagoloan, and Opol)

With a combined population of almost 550,000 (census 2000), the metropolitan area composed of Cagayan de Oro, Tagoloan and Opol is one of the major metropolitan areas of the country. It has strong inter-regional linkages to Metro Cebu, Iligan City, Butuan City and other provincial centers of northern Mindanao (Malaybalay, Ozamiz).

3.2. Small city: Gingoog City

With a population just over 100,000, Gingoog is the second largest urban center of Misamis Oriental, serving the eastern towns of the province.

3.3. Medium-small towns: rest of the province

The rest of the provincial towns are in the 50,000 and below range and generally have local service catchments. Two groups are notable:

a. Towns close to Metro Cagayan de Oro. These towns are poised to become part of the metropolitan area as the latter continues to grow and expand its direct sphere of influence. They include El Salvador, Alubijid, and Laguindingan in the west, and the towns of Villanueva, Jasaan, and Balingasag in the east. As a whole, these towns have been growing faster than the provincial average.

b. Towns farther away from Cagayan de Oro. These towns are lower in density and have exhibited slower growth during the past decade. Functionally, the town of Lugait is exceptional because it is a border town adjacent to Iligan City (the second largest city in

Table 7. Estimated Population and Density, Misamis Oriental, by City/Municipality, 2006

City/Municipality	Pop 1990	Pop 2000	APGR 1990-2000	Density 2000	Area (sqkm)	APGR Factor 1990-2000	PGR Factor 2000-2006	Est Pop 2006	Est Density 2006	Add Pop 2000-2006
Cagayan de Oro	339,598	461,877	3.12%	1,008	458	1.0312	1.2026	555,473	1,212	93,596
Gingoog	82,582	102,379	2.17%	278	368	1.0217	1.1376	116,468	316	14,089
Balingasag	41,506	51,782	2.24%	421	123	1.0224	1.1419	59,132	481	7,350
Tagoloan	33,919	46,649	3.24%	894	52	1.0324	1.2107	56,478	1,082	9,829
Claveria	31,130	41,109	2.82%	40	1,030	1.0282	1.1816	48,573	47	7,464
Jasaan	29,146	39,969	3.21%	513	78	1.0321	1.2086	48,307	620	8,338
Opol	20,473	36,389	5.92%	214	170	1.0592	1.4121	51,386	302	14,997
El Salvador	26,721	34,650	2.63%	254	136	1.0263	1.1687	40,496	297	5,846
Initao	23,113	27,035	1.58%	319	85	1.0158	1.0986	29,701	350	2,666
Medina	21,796	25,810	1.70%	189	136	1.0170	1.1067	28,565	209	2,755
Villanueva	17,122	24,867	3.80%	543	46	1.0380	1.2510	31,107	680	6,240
Magsaysay	22,099	24,550	1.06%	156	157	1.0106	1.0651	26,149	166	1,599
Manticao	21,443	24,072	1.16%	202	119	1.0116	1.0719	25,802	217	1,730
Alubijid	19,531	23,397	1.82%	422	55	1.0182	1.1145	26,075	471	2,678
Talisayan	17,015	19,959	1.61%	247	81	1.0161	1.1005	21,965	272	2,006
Salay	18,101	19,664	0.83%	365	54	1.0083	1.0509	20,666	384	1,002
Laguindingan	15,503	18,451	1.76%	426	43	1.0176	1.1101	20,482	473	2,031
Lagonglong	12,705	16,882	2.88%	420	40	1.0288	1.1860	20,021	498	3,139
Naawan	13,345	16,173	1.94%	226	72	1.0194	1.1222	18,150	254	1,977
Lugait	11,973	14,704	2.08%	533	28	1.0208	1.1312	16,633	603	1,929
Gitagum	10,994	13,522	2.09%	402	34	1.0209	1.1322	15,310	455	1,788
Kinogitan	8,795	10,519	1.81%	317	33	1.0181	1.1134	11,712	353	1,193
Libertad	8,487	10,231	1.89%	204	50	1.0189	1.1187	11,445	228	1,214
Balingoan	6,689	8,197	2.05%	170	48	1.0205	1.1297	9,260	192	1,063
Sugbongcogon	6,175	7,362	1.77%	213	35	1.0177	1.1113	8,181	236	819
Binuangan	5,090	5,924	1.53%	402	15	1.0153	1.0953	6,489	440	565
Misamis Oriental	865,051	1,126,123	2.67%	317	3,547	1.0267	1.1715	1,319,205	372	193,082

northern Mindanao). Lugait's services and service requirements, therefore, are more closely linked with Iligan than with the rest of the province.

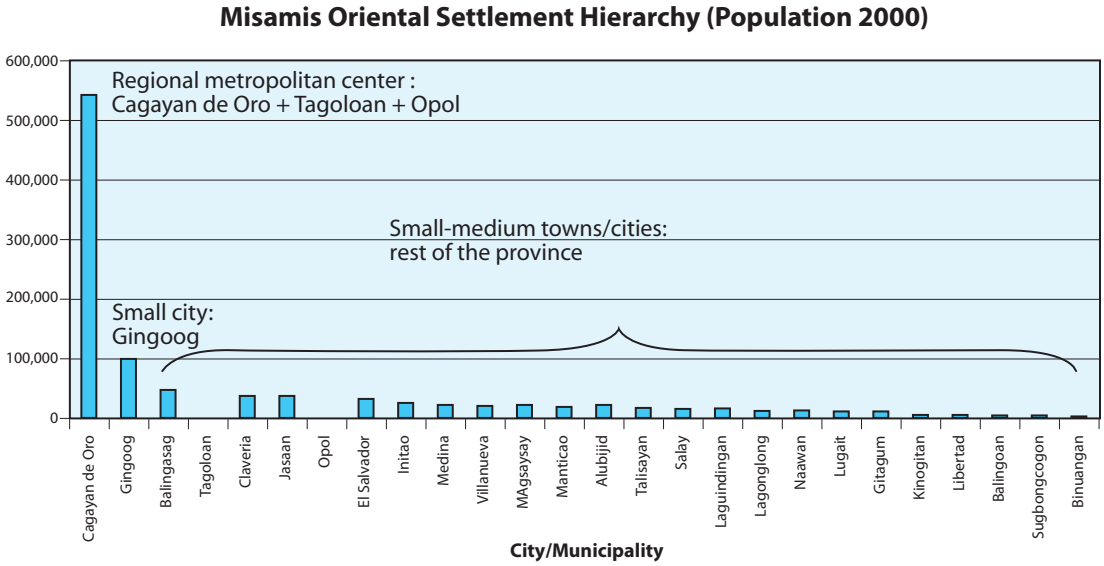
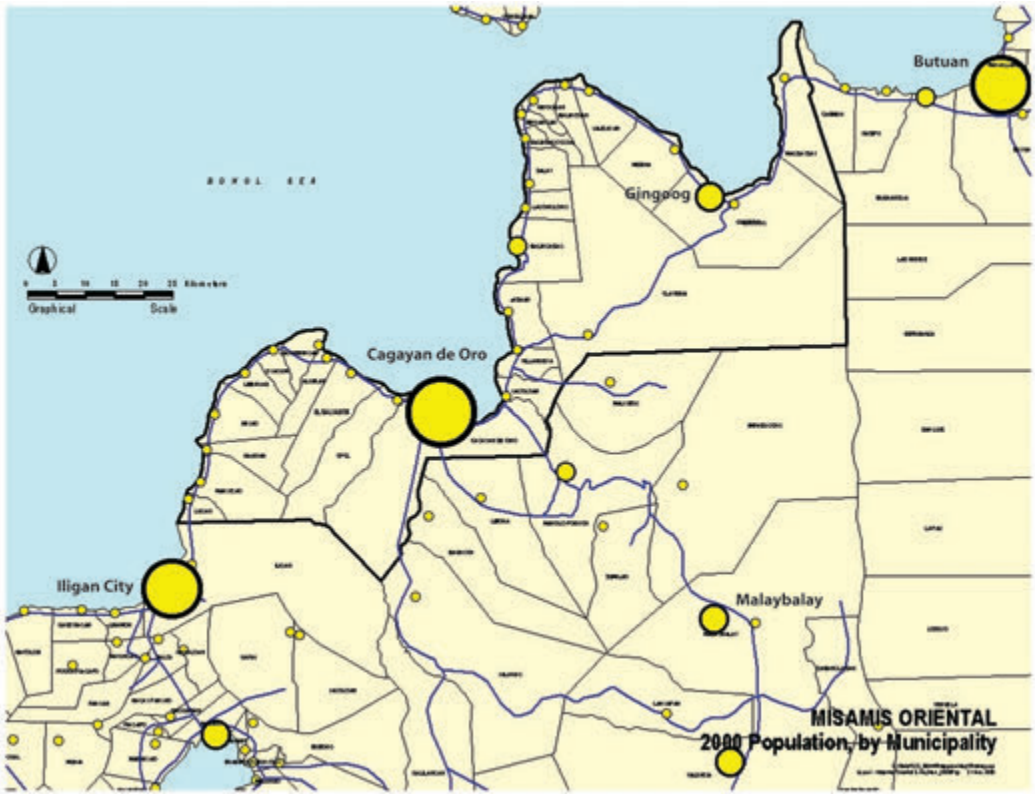


Figure 1. Misamis Oriental Settlement Hierarchy (based on Population 2000).



Map 5. Hierarchy of settlements, Misamis Oriental, showing major cities in adjacent provinces (based on 2000 population).

4. Summary

4.1. Misamis Oriental has a population of 1,126,123 (census 2000) and is the largest province (in terms of population) in Region X. Its population density of 317 persons/square kilometer is also the highest in the region. Likewise, its APGR (1990-2000) of 2.67% is the fastest (regional average is 2.19%) and is faster than the country's overall growth rate (2.34%).

Given its current growth rate, the population of Misamis Oriental is expected to grow to 1,319,205 by the end of the plan period (2006). This translates into an additional population of 193,082 or an average increase of 32,180 persons every year.

4.2. Cagayan de Oro is the largest and fastest-growing urban center in the province. It has a population of 461,877 which accounts for 41% of the provincial population. It is the provincial capital and regional center of Region X, and is the primary gateway (air and sea ports) to northern Mindanao. Cagayan de Oro is the core city of Metro Cagayan de Oro, which is one of the major regional centers of the country. The metropolitan area is expected to continue to expand its direct area of influence over surrounding towns.

4.3. With Cagayan de Oro serving as the gateway to northern Mindanao and as the largest service center in the region, Misamis Oriental has strong linkages with its adjacent provinces, particularly Lanao del Norte (Iligan City), Bukidnon (Malaybalay) and Agusan del Norte (Butuan City), as well as the other provinces of Region X (Camiguin and Misamis Occidental). Outside Region X, Misamis Oriental has strong trade and transportation linkages with Cebu City and Metro Manila.

4.4. Given current trends (described above), Misamis Oriental will double its population in 25 years with the metropolitan area around Cagayan de Oro accounting for more than half of the provincial population.

Central Luzon Provinces

Project Ideas for Economic Growth in the W Corridor

Case Study 2

BACKGROUND AND SUMMARY

This case study presents the process and results of a research study initiated by the Presidential Commission for the Central Luzon Growth Corridor (PC-CLGC) in 2002. The objective of the study was to derive project ideas for the W Corridor, an area that cuts across the provinces of Central Luzon (before Aurora province became part of Region III) (Figure 1). The project ideas were intended as inputs to pre-feasibility studies that would, in turn, be part of an investment package that the Commission, together with Department of Trade and Industry (Region III), could promote to the private sector.

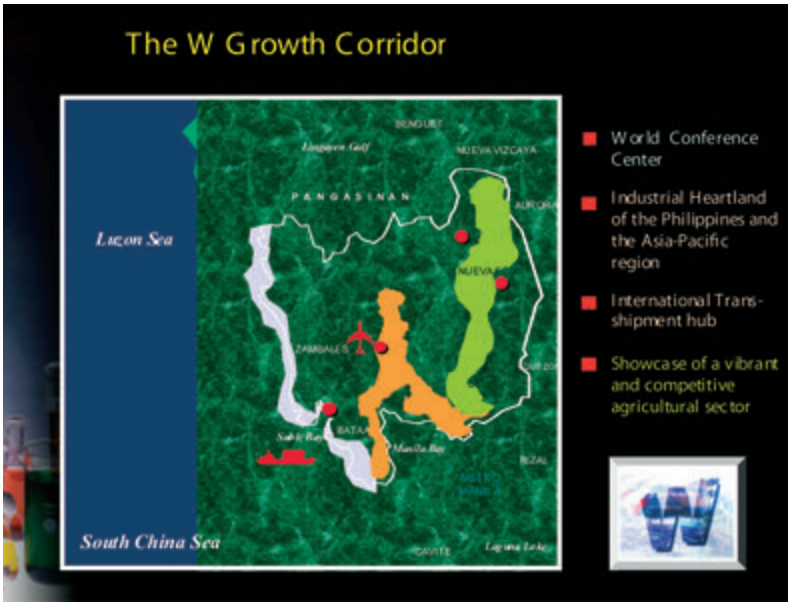


Figure 1. W Corridor (ca. 2002)

The PC-CLGC was created by Executive Order No. 321 (April 9, 1996), mandating it to integrate and coordinate development efforts in Central Luzon by formulating and implementing an integrated development plan for the Growth Corridor, also known as the W Corridor. As described in the Central Luzon Regional Development Plan, the W Corridor is intended to anchor the development of Central Luzon. Ideally, the W Corridor provides

a spatial framework that focuses sectoral investments while rationalizing the distribution of resources and benefits throughout the provinces of the region.

The process by which project ideas were generated in this case study is similar to the approach discussed in Section C-4 of the guidelines. It started with an overview of the regional economy, providing a national/regional context, and then looked into the performance of specific sectors/industries. It considered growth potentials (from export, employment, and competitiveness points of view), and involved sector- or industry-based consultations and discussions with stakeholders. Specific project ideas were then identified in the context of the value chain of the concerned industry. Project ideas were grouped according to four types based on phases of the value chain:

- External/Policy: projects that deal with external or policy type of issues such government regulations, legislation, peace and order, bureaucratic red tape, standardization, etc.
- Pre-Production/Pre-Operation: projects that concern issues before or in support of the actual production activity, such as sourcing of raw materials, infrastructure support, research and development, etc.
- Production/Operation: projects that deal directly with production activities such as production equipment and technology, labor, environmental impacts during production, and production facilities.
- Post-Production/Post-Operation: projects that involve activities after commodities have been produced such as marketing, promotions, pricing, and distribution.

The project ideas that resulted from the consultations were further prioritized according to the region's competitive advantages. Three types of industries were identified:

- Industries consistent with the region's competitive advantages;
- Industries that generated significant employment and/or income but were showing signs of decline; and
- Industries that supported the above industries (or enabling industries).

The next section provides an overview of the regional economy (Section 1), followed by a description of the consultations, discussions and the resulting project ideas (Section 2). A concluding section (Section 3) prioritizes and summarizes the projects according to the three types of industries listed above.

1. Overview of Economy

Regional/National Context

Historically, the provinces of Central Luzon combined contribute a substantial part of the national economy, accounting for about 7% of GDP, trailing only the Southern Tagalog provinces (Figure 2). Overall, Central Luzon has consistently ranked in the top three in terms of national economic performance. Outside Metro Manila, it ranks second in manufacturing and third in services, trailing the Southern Tagalog region in both cases.

The W Corridor accounts for a large majority of the region's economic performance. Although economic data are not disaggregated sufficiently to make detailed estimates, it is speculated that the W Corridor accounts for more than 75% of the regional economy given that: the urban share of GDP has been estimated at 75%-80%; the urban population share (60%) of Central Luzon is higher than the national share (50%); and the W Corridor contains most of the region's urban areas.

The sectoral distribution of the Central Luzon economy is similar to the national economy. The service sector dominates with 48% of total output, followed by manufacturing (24%) agriculture (19%), construction (4%), and utilities (4%) (Figure 3). This is a pattern shared with other regions with the exception of Cagayan Valley, ARMM and Western Mindanao, where agriculture has the largest share among the economic sectors (Figure 4).

Figure 2. GDP Regional Shares 2000

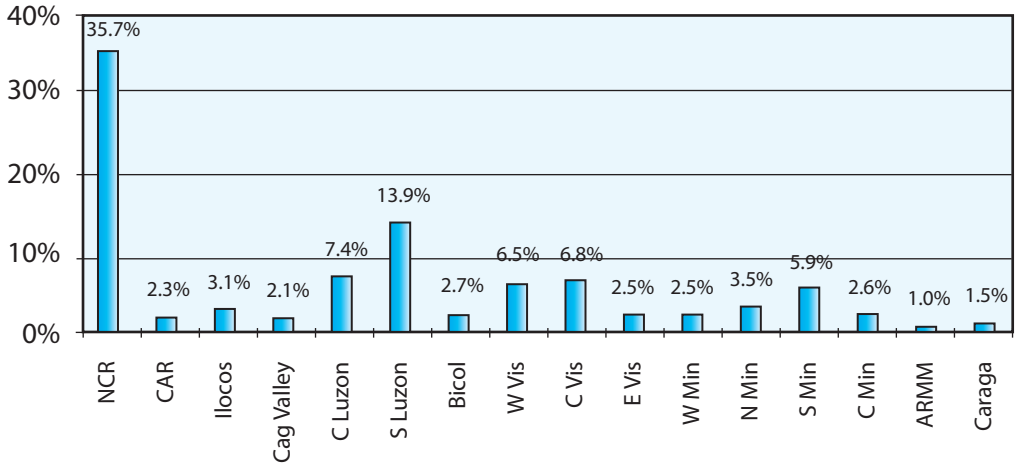


Figure3. C Luzon GRDP Sectoral Shares 2000

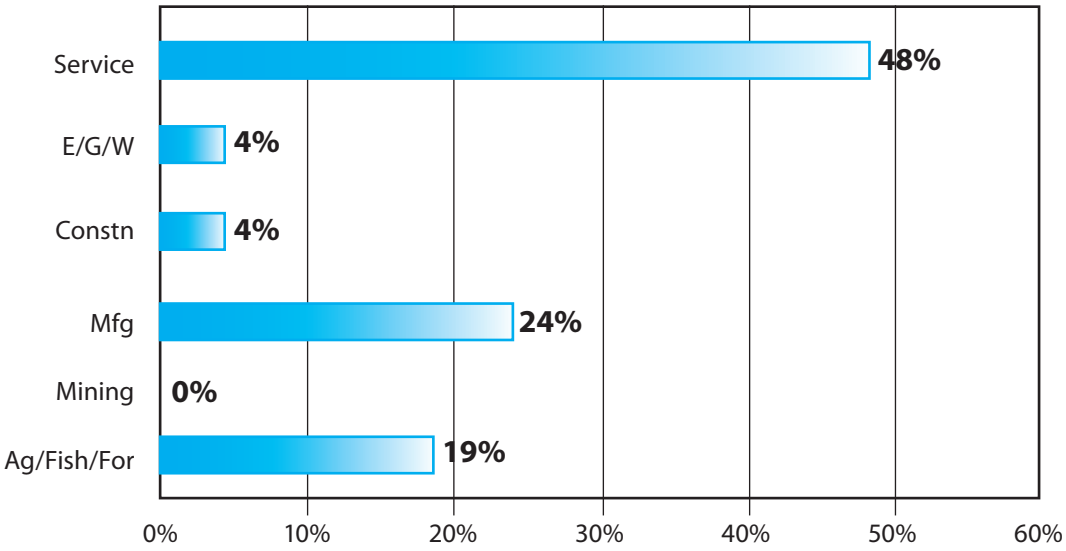
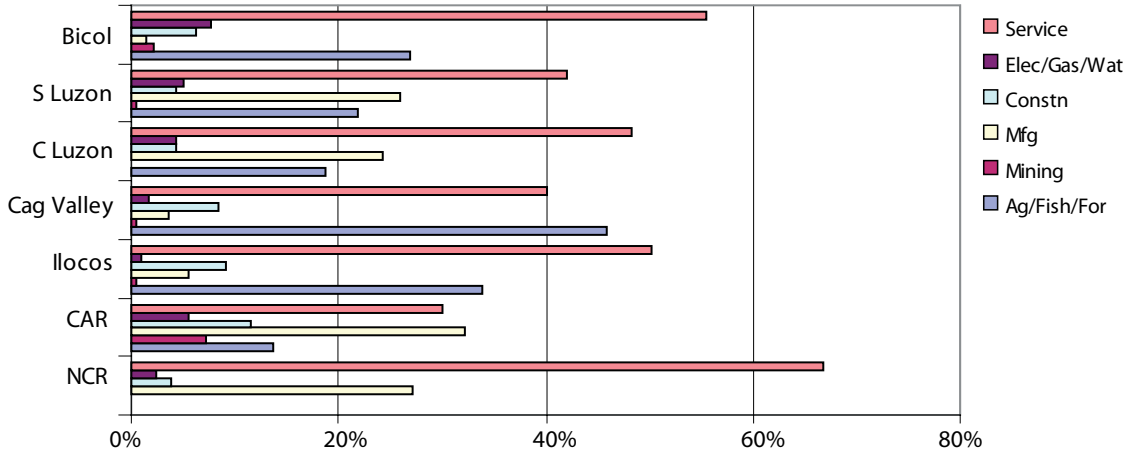


Figure 4. GRDP Sectoral Shares 2000



The W corridor serves to define three investment priority areas that have been identified for Central Luzon —the industrial hub, the tourism belt, and the green corridor. The following are characteristics of these three investment priority areas taken from: Component 1, Existing Conditions and Trends: Central Luzon Investment Program Priority Projects, Republic of the Philippines, Presidential Commission for the Central Luzon Growth Corridor, September 2002.

Industry

Under the W Corridor development strategy, the Industrial Hub of the region is anchored on the Clark Special Economic Zone (CSEZ), where industrial estates and economic zones shall serve as investment magnets. The specific objective for the industry sector is to become the next transshipment hub in the Asia Pacific region.

Focusing on manufacturing (average of at least 10 workers), Central Luzon accounted for 9% of all manufacturing firms in the country, with 7% of all manufacturing employment, and almost 10% of manufacturing output. In terms of value of exports monitored, the industry sector accounted for about US$3.12 billion in 2000.

The top export products of Central Luzon in 2000 were electronics, garments and textiles, and other industrial manufactures. The major export markets of the region are United States, Japan, Europe, Singapore, Taiwan, and Hong Kong[2] (Tables 1 and 2 below). Regional exports of electronics amounted to US$1.825 billion in 2000, or 6.7% of the country's total electronics exports.

Garments/textiles exports of Central Luzon amounted to US$503 million or 16.3% of total garments/textiles exports of the country in 2000. As of 1997, 192 of the country's 1,154 registered exporters were located in the region, with 22% of these exporters located in export/industrial zones including the Bataan Economic Zone, Clark SEZ, Luisita Industrial Park, and the Subic Freeport Zone.

Table 1. Value of Exports Monitored, by Industry, Region 3, FOB Million US$, 1996-2000.

	1996	1997	1998	1999	2000	Total
Total Country Exports	20,543	25228	29496	35033	38078	148,378
Total Cen Luzon Exports	1,012	1,131	1,643	2,359	3,122	9,267
% Share of Cen Luzon	4.93%	4.48%	5.57%	6.73%	8.20%	6.25%
Industry Sector						
Ceramics	2.304	19.823	7.932	10.466	8.125	48.650
Electronics	474.256	440.894	728.714	1,349.344	1,825.871	4,819.079
Furniture	18.753	30.172	41.705	39.131	46.424	176.185
Fashion Acc/Leather	22.472	31.305	35.879	8.801	92.182	190.639
Footwear	94.775	68.227	92.990	49.560	30.795	336.347
Garments/Textile	232.742	409.899	444.065	492.857	503.522	2,083.085
Gifts/Toys/HW	73.978	69.961	47.840	43.978	65.315	301.072
Marble	0.000	0.000	0.533	1.873	0.792	3.198
Marine/Aquaculture	0.028	0.483	0.296	6.667	0.000	7.474
Processed Foods/Bev	6.302	13.543	19.724	11.860	11.338	62.767
Other Consumer Mfrs	0.000	0.000	73.214	147.385	73.436	294.035
Other Industrial Mfrs	86.685	46.424	150.415	194.860	462.980	941.364
Other Resource-based	0.000	0.000	0.120	1.830	1.318	3.268
Total	1,012.295	1,130.731	1,643.427	2,358.612	3,122.098	9,267.163

Source: Central Luzon Facts and Figures/Regional Situationer

Table 2. Shares of Value of Exports Monitored, by Industry Sector, Region 3, FOB Million US$, 1996-2000

Industry Sector	1996	1997	1998	1999	2000	Total
Ceramics	0.23%	1.75%	0.48%	0.44%	0.26%	0.52%
Electronics	46.85%	38.99%	44.34%	57.21%	**58.48%**	52.00%
Furniture	1.85%	2.67%	2.54%	1.66%	1.49%	1.90%
Fashion Acc/Leather	2.22%	2.77%	2.18%	0.37%	**2.95%**	2.06%
Footwear	9.36%	6.03%	5.66%	2.10%	0.99%	3.63%
Garments/Textile	22.99%	36.25%	27.02%	20.90%	**16.13%**	22.48%
Gifts/Toys/HW	7.31%	6.19%	2.91%	1.86%	2.09%	3.25%
Marble	0.00%	0.00%	0.03%	0.08%	0.03%	0.03%
Marine/Aquaculture	0.00%	0.04%	0.02%	0.28%	0.00%	0.08%
Processed Foods/Bev	0.62%	1.20%	1.20%	0.50%	0.36%	0.68%
Other Consumer Mfrs	0.00%	0.00%	4.45%	6.25%	2.35%	3.17%
Other Industrial Mfrs	8.56%	4.11%	9.15%	8.26%	**14.83%**	10.16%
Other Resource-based	0.00%	0.00%	0.01%	0.08%	0.04%	0.04%
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Central Luzon Facts and Figures/Regional Situationer

Total leathergoods exports of the country in 2000 were US$92.1 million, to which Central Luzon contributed 33.8% or US$92.1 million. There are about 140 small and medium-sized leathergoods manufacturing firms in the region, and about 10 large scale establishments. Central Luzon has the largest number of tanneries (50 to 70 operational) in the country.

Of the total 17,399 hectares of the registered (PEZA, BOI, special charter) industrial areas of the region, almost 50% are in the industrial zones of Subic in Zambales; Pampanga accounts for 26% while Bataan has 19.5%; the shares of Tarlac, Bulacan, and Nueva Ecija are 2.4%, 1.4%, and 0.8%, respectively. Except for the Grand Industrial Estate in Plaridel, Bulacan, all of the registered industrial land is located in the W corridor, with Clark and Subic accounting for 66% of the region's registered industrial areas.

The major concerns of the industry sector vary according to the specific production and market requirements of the different industries. But there are several common and major issues:

- The continued threat of foreign competition;
- The need for legislative reform and support and for less red tape;
- The need to upgrade production technology and processes and improve productivity and quality;
- Infrastructure gaps and inefficiencies, particularly with respect to transportation, communication, and other support utilities;
- Security and the perception of the lack of peace and order;
- The need to promote and market local products and services; and
- Negative publicity arising from developments elsewhere in the country.

Tourism

The contribution of the tourism industry to the Central Luzon economy is not easy to establish because tourism is not presented as a specific category in regional production estimates. However, if we apply the average receipt/visitor per annum for the country as a whole for the 1993-1997 period (before the Asian financial crisis) to 2000 regional visitor arrival data, we get an estimate of US$323.7 million, which is equivalent to about 3.5% of GRDP for the same year. Central Luzon's share of national tourism arrivals averaged 3% during 1990-1993. This improved to 8% in 1994, reportedly because of the opening of the Subic and Clark areas as investment and tourist destinations. In 1996-2000, arrivals to Central Luzon averaged about 12.7% of total country visitor arrivals, with a high of 16% and a low of 9%. The highest recorded numbers of visitors were in 1997 and 1998 with 384,692 and 284,448 respectively.

Tourist traffic started to decline in 1998 as a result of both domestic and global problems. The situation was aggravated in 1998 with the Asian crisis. 2001 visitor arrivals to Central Luzon continued to be low, especially when compared to other regions of the country; the number of regional visitors ranked third from the lowest, surpassing only the Eastern Visayas and Western Mindanao regions. Each of the other three regions in Mindanao, according to the 2001 data, had more visitor arrivals than Central Luzon. Central Visayas, which had the largest number of visitor arrivals for January-September 2001 outside Metro Manila, had four times as much visitors as Central Luzon. Visitor arrivals in the CAR Region outnumbered Central Luzon by almost the same factor, while the Southern Tagalog region had almost triple the number of visitors of Central Luzon during the same period. The comparison with the Southern Tagalog region is especially alarming, considering that Central Luzon is also adjacent to the large Metro Manila market, and that Central Luzon has Clark and Subic as anchor destinations (Table 3).

Table 3. Regional Visitors, by type of Visitor and Region, Jan-Sep 2001

Region	Foreign	Overseas	Domestic	Total
CAR	24,224	5,271	723,863	753,358
Region 1	64,558	992	189,231	254,781
Region 2	25,892	0	391,885	417,777
Region 3	43,390	1,532	146,946	191,868
Region 4	99,049	1,266	464,128	564,443
Region 5	7,394	2,495	231,252	241,141
Region 6	69,223	447	312,815	382,485
Region 7	243,084	3,316	535,772	782,172
Region 8	8,011	2,890	114,990	125,891
Region 9	6,775	2,340	176,106	185,221
Region 10	12,751	858	380,935	394,544
Region 11	54,027	9,069	422,203	485,299
Region 12	2,467	703	232,107	235,277
Region 13	6,728	239	199,687	206,654
Total	667,573	31,418	4,521,920	5,220,911

Source: DOT-Region III

Visitor arrival data indicate that the low number of arrivals in Central Luzon is linked primarily to the low number of domestic visitors. Domestic visitors comprise the overwhelming majority of visitors (86.7%) and of these, Central Luzon accounted for only 3.7%.

Clark and Subic, which anchor the tourism and industrial cores of the W Corridor, continue to dominate as the region's premier attractions; Pampanga and Zambales accounted for 72% of Central Luzon arrivals in 2000. Bulacan ranked a distant third with 13.9%.

The most pressing concerns of the tourism sector in the region are the need to:

- Upgrade and develop tourism attractions and their corresponding support infrastructure;
- Integrate tourism packages towards the development of viable tourism circuits;
- Enhance tourism services, promote the region's attractions, and to strengthen institutional linkages; and
- Counteract negative publicity and damaging natural calamities.

There may also be a need to upgrade tourism data collection in the region to assist planning and monitoring, considering the relatively low number of visitor arrivals in the region. This may require a review of the extent to which visitor arrivals are documented in both accredited and non-accredited tourism establishments, as well as the magnitude of excursionists (visitors within a day) which could have a significant but unknown impact on the region's tourism industry.

Agriculture

The Green Corridor, according to the W Corridor development concept, features high-value and agro-forestry farms. The two anchors of the Green Corridor are Palayan City, which is intended to serve as the center for agro-processing activities, and Muñoz as the agro-science and research center.[3]

The agricultural/fisheries/forestry sector accounted for 19% of Central Luzon's GRDP in 2000, next to services (48%) and manufacturing (24%). The region, meanwhile, had the fourth largest contribution, at 9%, to the country's total agricultural/ fishery/forestry production. The Southern Tagalog region had the largest contribution at 19%, followed by Southern Mindanao (12%) and Western Visayas (10%). Some of the key agricultural crops and commodities in Central Luzon are rice/palay, mango, eggplant, onion, tomato, sugarcane, fish (aquaculture), livestock (swine, goat, cattle), and poultry (chicken and duck), with corresponding shares to national production shown in Table 4.

Fishpond production is highest in Central Luzon, with a total of 92,501 hectares in 1999, out of a nationwide total of 232,365 hectares. Pampanga had the largest share in the region at 54,492 hectares, followed by Bulacan (20,650 hectares), Bataan (9,330 hectares), Nueva Ecija (5,212 hectares), Zambales (1,793 hectares), and Tarlac (1,024 hectares). Western Visayas trailed Central Luzon with 48,482 hectares.[4]

Within the region, 1999/2001 data indicate provincial specialization trends in agricultural production. (Tables 5a-d) Among others, they confirm Nueva Ecija's role as the agricultural center of the region—in the production of many cereal and vegetable products—even as other provinces led the region in the production of other agricultural commodities:

Crop	% to National Production	Rank (Share)
Palay	16.2%	1
Mango	8.4%	4
Eggplant	10.9%	3
Onion	51.9%	1
Tomato	10.8%	4
Sugarcane	6.8%	5
Fish (aquaculture)	12.7%	4
Swine	16.1%	1
Goat	8.7%	5
Cattle	7.4%	7
Chicken	29.4%	1
Duck	23.5%	1

Table 4. Share of National Production, Central Luzon, Selected Crops and Agricultural Commodities, 1999/2001

Source: BAS

- Nueva Ecija: palay (45.5%), calamansi (89.2%), mango (36.4%), eggplant (41.1%), garlic (100.0%), onion (99.9%), tomato (52.9%);
- Tarlac: corn (76.8%), camote (77.9%), mongo (92.5%), peanut (64.5%), sugarcane (89.5%), tobacco (100%);
- Pampanga: cassava (73.7%), inland fisheries (61.5%), aquaculture (42.1%);
- Bulacan: banana (38.3%), mango (36.1%), pineapple (100.0%), cacao (100.0%), coffee (92.9%), aquaculture (42.0%);
- Bataan: coconut (32.1%), commercial fisheries (46.5%), marine fisheries (59.7%);
- Zambales: commercial fisheries (38.2%)

Overall, Central Luzon continues to be a key contributor to the agriculture sector of the country, although the area and quantity of production have not increased or have even declined. The region's proximity to Metro Manila will continue to exert pressure towards land conversion, especially in Bulacan, just as the continued growth of its major cities will have a similar effect.

Other concerns of the agriculture sector in the region include the need for support infrastructure (farm to market roads and other transportation and communication facilities, irrigation); post-harvest facilities (including appropriate storage facilities that will allow more stable supply and price levels of local products, and processing facilities that allow higher value added production); farm modernization and the application of more efficient technologies; and other measures to improve productivity, particularly in response to foreign competition (cheap imports).

Table 5a. Volume of Production (MT), Cereal, Fruit, Vegetable/Root Crop, by Region, 1999/2001

Region	Cereal		Fruit				Vegetable/Root Crop								
	Palay	Corn	Banana	C'mansi	Mango	P'apple	Cabbage	Camote	Cassava	Eggplant	Garlic	Mongo	Onion	Peanut	Tomato
NCR															
CAR	2.43%	2.07%	0.61%	0.36%	0.44%	0.07%	73.38%	3.54%	0.11%	0.46%	0.12%	0.44%		0.57%	2.51%
Ilocos	9.47%	4.04%	1.33%	3.31%	39.27%	0.02%	2.92%	2.62%	0.90%	35.35%	70.06%	41.46%	45.67%	41.12%	33.96%
Cagayan	13.97%	20.05%	6.34%	6.77%	11.71%	1.06%	0.94%	4.28%	1.20%	10.72%	0.77%	12.01%	1.42%	13.28%	5.52%
C Luzon	16.22%	2.51%	0.78%	8.90%	8.36%	0.02%		5.23%	0.49%	10.86%	2.12%	7.52%	51.90%	3.23%	10.76%
S Tagalog	9.38%	2.25%	4.14%	50.34%	15.30%	4.17%	2.50%	9.23%	4.31%	18.55%	25.53%	4.36%	0.41%	9.55%	12.11%
Bicol	5.38%	1.39%	0.35%	6.78%	0.17%	1.58%	0.84%	19.70%	9.22%	2.93%	0.16%	0.49%		3.21%	2.40%
W Visayas	12.27%	1.67%	5.18%	4.78%	5.41%	0.76%	0.47%	5.17%	3.10%	6.18%	1.04%	6.12%	0.10%	3.95%	6.99%
C Visayas	1.74%	3.40%	2.35%	2.04%	2.84%	0.14%	6.95%	9.99%	5.07%	3.48%	0.16%	3.53%	0.08%	5.78%	3.85%
E Visayas	4.37%	1.05%	3.41%	3.61%	0.06%	0.32%	0.15%	19.13%	3.81%	1.12%	0.03%	0.86%	0.02%	1.72%	0.45%
W Mindanao	3.36%	3.03%	3.36%	3.03%	3.14%	0.08%	0.35%	2.01%	13.91%	1.05%		0.99%	0.20%	1.87%	0.90%
N Mindanao	2.50%	11.77%	5.02%	1.84%	2.22%	51.39%	2.65%	2.52%	4.37%	0.87%		0.29%	0.09%	2.13%	14.35%
S Mindanao	5.36%	13.18%	45.48%	2.59%	6.70%	40.07%	6.27%	3.69%	0.96%	4.72%		4.01%	0.08%	2.24%	3.05%
C Mindanao	7.56%	16.29%	9.80%	1.57%	1.39%	0.13%	1.28%	2.76%	0.86%	2.37%		2.59%	0.02%	7.88%	2.68%
ARMM	3.40%	15.81%	6.41%	1.38%	1.58%	0.02%	1.00%	0.65%	49.17%	0.31%		14.85%		2.39%	0.27%
Caraga	2.60%	1.50%	5.42%	2.71%	1.40%	0.17%	0.29%	9.47%	2.50%	1.04%		0.47%		1.06%	0.20%
Philippines	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5b. Central Luzon Volume of Production (MT), Cereal, Fruit, Vegetable/Root Crop, by Province, 1999/2001

Province	Cereal		Fruit				Vegetable/Root Crop								
	Palay	Corn	Banana	C'mansi	Mango	P'apple	Cabbage	Camote	Cassava	Eggplant	Garlic	Mongo	Onion	Peanut	Tomato
Bataan	4.93%	0.72%	29.44%	1.10%	3.90%			5.77%	2.61%	2.36%		0.24%		11.12%	0.92%
Bulacan	13.33%	0.71%	38.31%	4.50%	36.09%	100.00%		1.16%	10.74%	6.23%		0.91%		2.49%	2.39%
N Ecija	45.45%	2.83%	22.87%	89.25%	36.45%			3.04%	3.50%	41.08%	100.00%	2.11%	99.89%	1.89%	52.92%
Pampanga	11.79%	18.85%	2.65%	1.72%	7.75%			8.59%	73.73%	11.98%		0.81%		19.29%	15.00%
Tarlac	20.32%	76.84%	1.91%	0.95%	4.54%			77.91%	1.23%	33.50%		92.53%		64.50%	25.34%
Zambales	4.17%	0.06%	4.82%	2.48%	11.28%			3.54%	8.19%	4.85%		3.40%	0.08%	0.71%	3.44%
C Luzon	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5c. Volume of Production (MT), Industrial Agri, Fisheries, Livestock, Poultry, by Region, 2001

Region	Industrial/Non-Food							Fisheries				Livestock				Poultry	
	Abaca	Cacao	Coconut	Coffee	Rubber	S'cane	Tobacco	Comm'l	Marine	Inland	Aquac	Carabao	Cattle	Goat	Swine	Chicken	Duck
NCR								14.43%	0.50%		0.11%						
CAR		0.21%	0.01%	3.79%			1.62%			0.84%	0.20%	3.42%	2.51%	1.22%	2.35%	0.64%	1.80%
Ilocos		0.80%	0.16%	0.04%			74.19%	0.26%	2.59%	0.61%	3.17%	7.93%	13.46%	12.77%	4.87%	4.57%	4.00%
Cagayan		1.67%	0.37%	1.81%	0.01%	0.86%	16.10%	1.46%	1.70%	3.65%	0.41%	10.52%	5.90%	3.24%	5.52%	3.76%	10.41%
C Luzon		0.06%	0.04%	3.58%		6.82%	0.91%	1.44%	1.19%	2.13%	12.66%	3.75%	7.38%	8.65%	16.09%	29.42%	23.51%
S Tagalog	0.06%	1.57%	15.24%	12.24%		10.19%	3.85%	13.15%	18.51%	64.27%	20.45%	10.66%	10.97%	5.11%	15.53%	24.04%	7.31%
Bicol	25.28%	0.34%	9.33%	0.63%		1.01%	0.02%	3.34%	10.37%	0.78%	2.50%	8.29%	5.60%	2.19%	5.42%	2.33%	3.33%
W Visayas	0.61%	1.66%	3.28%	4.63%		57.13%	0.28%	12.51%	16.11%	1.23%	8.16%	8.45%	7.84%	11.39%	7.83%	8.06%	11.41%
C Visayas	0.29%	1.21%	2.41%	0.09%		10.16%	0.46%	6.28%	5.36%	0.06%	7.00%	4.39%	12.69%	14.10%	7.69%	6.61%	2.11%
E Visayas	41.40%	1.95%	10.93%	0.18%		2.83%	0.04%	3.70%	5.00%	0.46%	1.06%	6.04%	1.19%	2.62%	6.52%	3.06%	4.12%
W Mindanao	0.21%	2.55%	9.79%	4.65%	59.32%		0.03%	17.43%	15.49%	0.26%	10.28%	6.33%	6.06%	6.11%	5.54%	2.05%	2.41%
N Mindanao	1.99%	6.63%	7.37%	15.13%	3.37%	7.81%	1.77%	2.59%	2.58%	0.14%	0.25%	3.28%	9.92%	5.12%	5.22%	3.55%	6.38%
S Mindanao	14.96%	72.76%	24.53%	34.11%	6.47%	2.39%	0.27%	15.50%	5.87%	0.77%	1.65%	10.41%	8.04%	14.06%	10.49%	8.39%	9.60%
C Mindanao	0.16%	1.63%	4.06%	7.27%	22.97%	0.80%	0.05%	1.16%	0.89%	9.49%	1.86%	8.09%	3.90%	5.42%	3.27%	1.64%	7.44%
ARMM	6.02%	5.82%	7.09%	9.40%	0.04%		0.35%	6.25%	6.04%	13.01%	28.59%	5.52%	4.00%	5.74%	0.28%	0.71%	3.66%
Caraga	9.02%	1.14%	5.39%	2.46%	7.82%		0.06%	0.49%	7.79%	2.28%	1.67%	2.91%	0.55%	2.26%	3.37%	1.16%	2.50%
Philippines	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5d. Central Luzon Volume of Production (MT), Industrial Agri, Fisheries, by Province, 2001

Province	Industrial/Non-Food							Fisheries			
	Abaca	Cacao	Coconut	Coffee	Rubber	S'cane	Tobacco	Comm'l	Marine	Inland	Aquac
Bataan			**32.14%**	7.15%				**46.49%**	**59.74%**	0.14%	8.18%
Bulacan		**100.00%**	31.20%	**92.85%**		0.10%		15.29%	8.36%	17.13%	41.98%
N Ecija			11.68%			0.00%				13.03%	4.30%
Pampanga			2.23%			10.36%			12.77%	**61.51%**	42.08%
Tarlac			4.06%			89.54%	100.00%			5.58%	1.44%
Zambales			18.69%					38.22%	19.13%	2.62%	2.02%
C Luzon		100.00%	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

2. Consultation and Project Ideas

Consultation workshops were conducted to identify project ideas as inputs to the formulation of an investment priority program for Central Luzon. The workshops involved various sectoral and subsectoral groups, identified by the Presidential Commission for the Central Luzon Growth Corridor (PC-CLGC) and DTI-Region III, which represented stakeholders in the investment priority areas of industry, tourism, and agriculture. The following discussion was taken from: Component 2, Consultation Workshops, Central Luzon Investment Program Priority Projects, Republic of the Philippines, Presidential Commission Central Luzon Growth Corridor, September 2002.

The primary objectives of the consultations workshops were: (1) to identify and assess sectoral (investment priority area) objectives, and (2) to identify and prioritize projects for each sector. Sectoral objectives and prioritized projects were the two major outputs of each workshop. A total of seven workshops involving nine sectors/subsectors were conducted over a period of three months. The sectors/subsectors, dates, and number of participants in each workshop were as follows:

Table 6. Workshop Schedule and Participants

Sector/Subsector	Date	# of Participants
LGUs/Investment Promotion Units (industry, tourism, agriculture)	December 12, 2001	14
Food	December 13, 2001	9
Leathergoods Jewelry Garments	January 29, 2002	4 16 7
Tourism	January 31, 2002	7
Ecozones/Ind'l Estate Locators	February 1, 2002	15
Construction/Marble Pyrotechnics	February 7, 2002	4 12
Regional Directors	February 21, 2002	25

A total of 155 projects were identified in the workshops. These are summarized in Table 7 and in Figures 5, 6 and 7. As mentioned earlier, four types or phases, derived with the intent of appreciating the relevance of the proposed projects to the value chains of their respective industries, were used to classify the projects:

- External/Policy: This refers to projects that deal with external or policy issues such government regulations, legislation, peace and order, red tape, standardization, etc.
- Pre-Production/Pre-Operation: This refers to projects that concern issues before or in support of the actual production activity, such as sourcing of raw materials, infrastructure support, research and development, etc.

- Production/Operation: This refers to projects that deal directly with production activities such as production equipment and technology, labor, environmental impacts during production, and production facilities.
- Post-Production/Post-Operation: This refers to projects that involve activities after commodities have been produced such as marketing, promotions, pricing, and distribution.

Summary characteristics of the way the workshop projects are distributed by type/phase are as follows (refer to Table 7, Figures 5, 6, 7):

Table 7. Distribution of Projects by Sector and Type

Sector	External/ Policy		Pre-Production		Production		Post-Production		Total
	Number	%	Number	%	Number	%	Number	%	
IE/Industry	7	26.9%	16	23.2%	6	16.2%	2	8.7%	31
Tourism	5	19.2%	8	11.6%	8	21.6%	2	8.7%	23
Agriculture	1	3.8%	9	13.0%	8	21.6%	8	34.8%	26
Food	2	7.7%	9	13.0%	6	16.2%	1	4.3%	18
Leather	1	3.8%	3	4.3%	2	5.4%	1	4.3%	7
Jewelry	4	15.4%	21	30.4%	3	8.1%	8	34.8%	36
Marble	2	7.7%	2	2.9%	1	2.7%	1	4.3%	6
Garments	1	3.8%	0	0.0%	2	5.4%	0	0.0%	3
Pyrotechnics	3	11.5%	1	1.4%	1	2.7%	0	0.0%	5
Total	26	100.0%	69	100.0%	37	100.0%	23	100.0%	155
Total %	16.8%		44.5%		23.9%		14.8%		100.0%

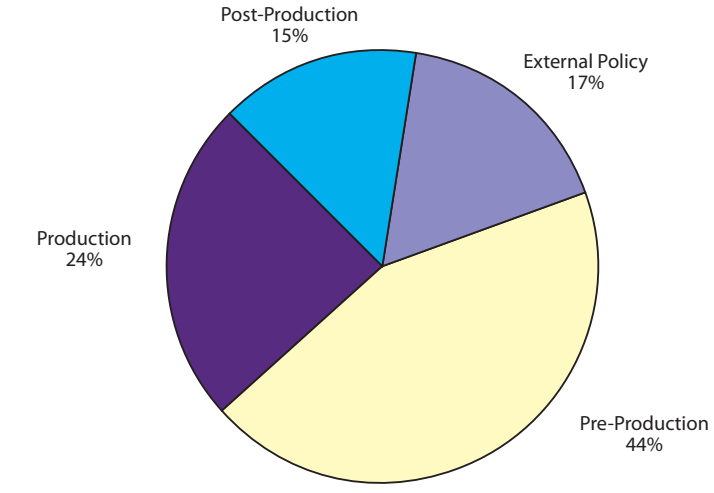


Figure 5. Distribution of Workshop Projects, by Type/ Phase

Figure 6. Distribution of Workshop Projects, by Sector

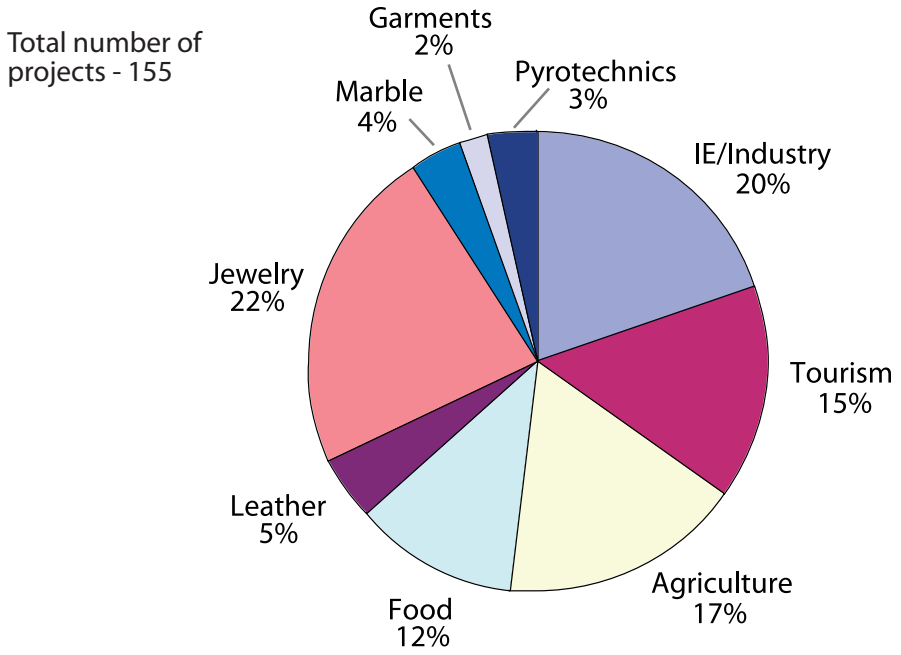
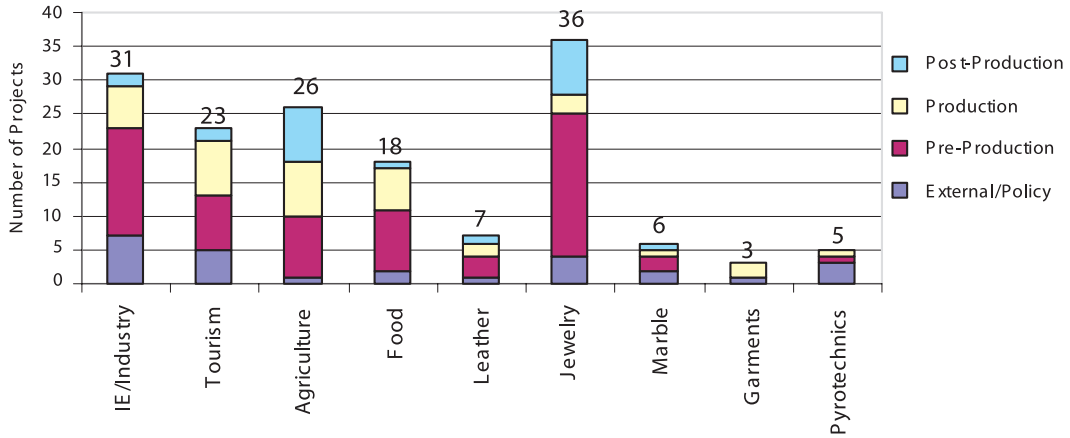


Figure 7 . Distribution of Workshop Projects, by Type and Sector



3. Investment Priority Projects

Project ideas for investment priority were identified based on the previous assessment of existing conditions and trends in the region and on the outputs of the consultation workshops. The following discussion and descriptions were taken from Central Luzon Project Ideas: Investment Priority Projects, Central Luzon Investment Program Priority Projects, Republic of the Philippines, Presidential Commission for the Central Luzon Growth Corridor, September 2002.

The following factors were considered in identifying project ideas:

- Comparative/competitive advantage, or the extent to which the region has an advantage over competitors (domestic or foreign);
- The extent to which the market for a commodity or industry is perceived to be increasing or decreasing;
- Business potential, or the extent to which investments in an industry will be profitable; and
- Consistency with regional development objectives.

The project ideas are structured according to a framework with three types of investment priorities: (a) projects that are consistent with the region's competitive advantages; (b) projects in sectors or industries that are already established in the region but for various reasons are not as competitive as in the past but still generate substantial employment and income benefits to the region; and (c) projects/activities that support the first two types. Table 8 shows how these three types of projects/investment priorities relate to the project ideas identified during the sectoral consultation workshops.

Table 8. Project Ideas by Investment Priorities

A Project ideas in industries consistent with competitive advantages of area	B Project ideas in industries that continue to generate substantial income/ employment but need to improve competitiveness	C Project ideas (in industries) that support A and B.
Electronics, other industrial manufactures		
IT services activities		
Marble		
Jewelry		
Pyrotechnics		
Leather goods		
	Garments	
	Furniture	
	Tourism	
	Agriculture/Food	
		Transportation
		Telecommunication
		Housing
		Retail

4. PROJECT IDEAS: PROJECTS CONSISTENT WITH THE REGION'S COMPETITIVE ADVANTAGES

4.1. Electronics and other industrial manufactures

Electronics and other industrial manufactures are major contributors to regional production, comprising 58% and 15%, respectively, of the value of regional exports.[5] Globally, electronics and other industrial manufactures industries of the country face increasing competition from other countries (China, Vietnam, etc.) that have increased market shares due to lower production costs. At the national level, Central Luzon is a major producer of electronic goods, next to its competitors from Metro Manila and Calabarzon.[6]

The appeal of Central Luzon as a location for industrial activities has diminished because of congestion along the North Luzon Expressway and the overall inadequacies of the regional transportation system (because regional locators still rely significantly on Metro Manila for direct and indirect requirements); stability in the supply of power; security threats (e.g., hijacking); flooding and other environmental constraints; problems in the labor-management relations of some firms that have given the impression of a lack of industrial peace (especially in comparison to Calabarzon and foreign competition); and local/national red tape and perceived limitations on the part of the Subic and Clark to provide services comparable to Calabarzon and other industrial estates (IEs).

Key requirements

- More efficient transportation and communication infrastructure, especially road and rail facilities to Metro Manila and between Clark and Subic
- Stable power and water supply and other basic manufacturing inputs
- Increased and better services to IE/Ecozone locators; more customer-oriented management
- Reduced bureaucratic red tape, especially in the approval and issuance of permits, licenses, etc. related to industrial activities
- Improved security (internal and external to an IE/ecozone, including transport routes to ports of entry/exit outside the region)
- Amenities for investors (e.g., leisure, entertainment, housing, educational facilities for families of foreign manager-locators)
- Constructive and non-disruptive labor-management relations

Proposed investment priority projects. The region remains a competitive site for the production and assembly of electronics and other industrial manufactures primarily because of its proximity to Metro Manila and, relative to other regions of the country, the presence of Subic, Clark, and other infrastructure that cannot be found elsewhere in the country. However, key elements are required to maintain and enhance the position of Central Luzon

relative to Calabarzon and, more important, other Asian countries. This requires a concerted effort to attract investments in:

a. Transportation, communication, and other utility infrastructure to serve existing and proposed industrial estates/Ecozone sites. Because of their potential for immediate implementation and their widespread beneficial impacts, priority should be given to:

- North Luzon Expressway expansion and extension
- Subic-Clark-Tarlac Expressway
- Pan-Philippine Highway upgrading

b. Improving the physical environments of existing IEs, particularly with respect to basic utilities (water supply, power supply, drainage), and amenities (e.g., recreational and other services available to management as well as labor);

c. More efficient production technology and processes.

Support activities include combined local and national government measures to ensure security for the personnel and goods of IE locators and the drastic reduction of red tape, delays, and other obstructions in the approval and issuance of permits and licenses (using foreign competition as benchmarks).

Location: regional IEs/Ecozones, with focus on Clark, Subic, Tarlac and vicinities.

4.2. IT Services

Recent IT demand and servicing have been strong in the areas of software development, content development (animation, medical transcription, engineering/design services) and other core IT services (software development and website services). In software development, revenue estimates range from $115 million to $268 million in 2004. Overall, the country's total revenues from the IT industry is $349 million and has been targeted to reach $1,776 million by 2004 at an average annual growth rate of 70%. The highest annual growth rate is anticipated in medical transcription services (150%) followed by customer contact centers (50%).[7]

Metro Manila and Calabarzon are the strongest domestic competitors of Central Luzon in the IT service industry. Central Luzon can be competitive, however, only if it has the buildings and other physical facilities with the required IT infrastructure (that will allow the necessary linkages with customers/clients), skilled and properly-trained personnel, and considering the relatively fast turnover among call center personnel, sufficient basic services and amenities that will encourage the latter to stay in Central Luzon.

The primary objective is to develop and market the region as a feasible desirable location for investment projects

Key requirements

- Buildings and other facilities equipped with IT infrastructure (DSL, broadband etc. and other physical infrastructure requirements)
- Accredited training facilities
- Environments that can provide the residential, educational, and recreational requirements of IT practitioners
- Reliable and efficient transportation linkages with Metro Manila

Proposed investment priority projects

The primary objective is to develop and market the region as a feasible and desirable location for customer contact centers, software locators, and other IT service projects. This requires investments in:

a. Projects that will put in place the necessary IT hardware, infrastructure, and building facilities.
b. Institutional support facilities including IT/call center training and IT research and development facilities.

Support activities include enjoining LGUs to encourage IT service activities in their Comprehensive Development and Land Use Plans, and for concerned local and national government offices to provide incentives to developers of IT-equipped developments.

Location: where IT infrastructure is available, with focus on Clark and Subic and in other urban centers (where physical infrastructure and institutional support are available).

4.3. Marble

The potential of the Central Luzon marble industry stems from the large potential domestic (local construction industry) and foreign demand, and the underutilized marble resources of the country—for example, US demand is about US$150 billion with the Philippine share at only US$100,000, even as the gross capacity utilization of the domestic marble industry is only 40%. Historically (1998-1999), however, Central Luzon accounted for only 6%-16% of the country's total marble export value despite the availability of high quality marble in the area. Central Luzon, particularly Bulacan, is one of the two areas in the country--the other being Romblon--that has high quality mineable marble deposits.[8]

Key requirements

- More reliable and cheaper sources of marble (raw material)
- Improved production and service facilities that utilize more efficient technology and allow greater economies of scale
- Linkages with other related industries (particularly the cement industry)
- Standardized procedures and requirements of quarry permits
- Marketing and promotion activities

Proposed investment priority projects

a. New and upgraded quarries
b. Common service facilities (e.g., slab polishing)
c. Research and development particularly on final output/products based on international standards
d. Marketing and promotion of local marble as affordable and available building materials

Support activities include the review and formulation of local development and comprehensive land use plans (CLUPs) where marble quarries and other production facilities are located or are proposed to be located, in order to ensure compatibility with and the environmental integrity of surrounding areas; and the standardization of quarry development and operations standards and permit/approval processes.

Location: primarily in Bulacan, close to marble sources.

4.4. Jewelry

Traditionally oriented towards the local market, the country's share of the world demand for jewelry (US$50-60 billion in 1994-1997) has hovered at an insignificant 0.05%-0.07% (US$13-17 million). In 2000, the country's exports of fine jewelry constituted only 0.05% of total country exports, although there has been recent, significant growth in Philippine gold and silver jewelry exports (61% in 1997).

The country's jewelry industry is essentially a fragmented industry dominated by cottage industry type/family-owned firms in Metro Manila, Davao, Cebu, Benguet, the Caraga region, and Bulacan. Central Luzon's advantage is that Bulacan is the acknowledged jewelry center of the Philippines. This is the reason why the Philippine Jewelry Training Center, intended to upgrade the skills and productivity of workers in the industry, was established in Bulacan.

The major issues and concerns of the jewelry industry in Central Luzon are high production cost relative to foreign competition, in part because of the high cost of efficient technology and equipment; continuing lack of standardization and quality control (e.g., assaying, hallmarking, refining, etc.), marketing and promotions, and management/training.

Key requirements

- Intensive and sustained marketing/networking effort (promotion, exhibits, catalogues, trade fairs, etc.)
- Skills training, especially in design
- Development of new and local sources of raw materials that can serve as alternatives to imported materials
- Common processing/production facilities (assaying and hallmarking) for the use of individual and small jewelry manufacturers

Proposed investment priority projects

a. Establishment and operation of common service facilities, hallmarking and assaying facilities, water treatment facilities, and other similar common facilities
b. Development of new technology and equipment; adaptation of more efficient foreign technology and equipment for local use

Support activities include the promotion of jewelry design skills through the establishment of design centers and training institutions, scholarships, exchange programs, etc., and the formulation of coordinated and comprehensive marketing plans to promote the region's jewelry.

Location: region-wide, with focus in or at the vicinity of the Philippine Jewelry Center, Bulacan

4.5. Pyrotechnics

Central Luzon has the highest number of pyrotechnic manufacturers and dealers in the country, with about three times the number of manufacturers in second-ranked Metro Manila, about six times more than the Southern Tagalog region, which ranks third. Within Central Luzon, the pyrotechnics industry is concentrated in Bocaue, Bulacan and its neighboring municipalities.[9]

The local pyrotechnics industry is still primarily a low-technology, labor-intensive cottage industry, with many manufacturers operating informally, and heavily dependent on imported raw materials.[10] It is a hazardous industry, operating with considerable risk to the health and safety of its workers. Major issues and concerns include the absence of an administrative body/authority on the industry, decline in export sales despite increasing demand; safety risks during manufacture, storage, and distribution; smuggling; standardization of product qualities, manufacturing processes, and safety rules; licensing of manufacturers; high dependence on imported raw materials; and location and zoning issues.

Key Requirements

- Alternative sources of raw materials
- Regulation and standardization (including land use planning and zoning) to improve safety and environmental protection
- Licensing of manufacturers and prevention of illegal supply and production (child labor)
- More efficient technology and improved product quality
- Marketing and promotions

Proposed investment priority projects

Declining exports and the proliferation of imported (legally or smuggled) pyrotechnic products suggest that the local pyrotechnics industry is losing competitiveness and/or the presence of structural/legal/institutional obstacles that prevent local products from competing effectively even in the local market. Investment projects should consider:

a. The production of raw materials comparable to traditional imported materials;
b. New or upgraded production, storage, and distribution technologies and facilities.

Support activities include institutional and organizational reforms (enforcement of safety regulations; appropriate land use/zoning guidelines for LGU implementation; prevention of smuggling of foreign products; monitoring and enforcement of other relevant regulations; standardization of product types, quality, handling, and packaging; networking, etc.), and marketing and promotions of local products.

Location: primarily in Bulacan, where the industry is already clustered, subject to land use/zoning regulations and environmental considerations.

4.6.Leather/Leathergoods

The local leather industry is based in Meycauayan, Bulacan, which is the seat of the tanning industry in the country. The bulk (120) of the leathergoods companies are registered in Bulacan; a substantial number (60) are located in Marikina. Leather/leathergoods companies are mostly small family-owned, cottage industries, with a few large multinational companies.[11]

The major issues and concerns of the leather/leathergoods industry are increasing reliance on foreign inputs because of inadequate supply and poor quality of local rawhide; high cost of imported chemicals (due in part to high tariff rates) needed to treat rawhide; environmental pollution during leather production (tanneries) and the high cost of appropriate effluent/wastewater treatment.[12]

Key Requirements

- Improved quality of local hides and leather
- More efficient and environment-friendly production technology
- Improved and continuous product development and design
- Adaptation of international standards
- Joint venture and subcontracting opportunities, access to market information, marketing and promotions

Proposed investment priority projects

Based on the aforementioned key requirements and identified gaps and/or inefficiencies in the local production and distribution processes, investment projects should focus on the following:

a. Upgraded production facilities to improve efficiency and environmental protection;
b. Cattle breeding for rawhide supply. This is needed to reduce dependence on foreign raw materials. But it also requires synergy with the local livestock industry, and an upgrading of domestic leather production methods to improve quality to match foreign standards.

Support activities should also be undertaken to study the impacts of reducing importation taxes/tariffs for chemical based raw materials; conduct research and development of alternative raw materials and higher value/highly marketable leather products; and continuously develop new markets.

Location: production facilities in industrial zones, proximity to rawhide supply preferred; cattle breeding where there is available pasture area and other requirements

5. PROJECT IDEAS: PROJECTS IN SECTORS THAT GENERATE SUBSTANTIAL EMPLOYMENT AND INCOME BUT ARE DECLINING IN COMPETITIVENESS

5.1. Garments

Garments/textiles (G&T) remain a significant contributor to regional production (16%), employment and income, despite declining competitiveness (about 30% more expensive than leading competitors).[13] G&T's share of overall Philippine exports declined from 13.13 % to 8.34% during the 1996-2000 period.

In response to the garments industry's diminishing competitiveness, a Transformation Plan was drafted by key players in the industry with inputs from DTI. The plan identified

basic issues and problems of the industry: low productivity, lack of financing, bottlenecks in import/export procedures, slow turn around time, limited market/products, and limited value added services. As a whole, the 2002-2004 plan sought to make the garments industry more competitive towards a "sunrise" industry status by 2005.[14]

Key requirements (as identified in the Transformation Plan)
- Improved productivity (e.g., by shifting from daily wage labor to piecemeal rate)
- Availability of financing schemes
- Increased efficiency of import/export procedures
- Upgraded production technology
- Transforming the role of the GTEB towards a service organization
- Expanding the export market
- Support infrastructure and facilities, particularly transportation facilities that will allow efficient linkages between manufacturing plants and port/airports.

The availability of inputs (textiles) from local sources is also important to improve turnaround time and to catch up with other Asian neighbors (e.g., Indonesia, Pakistan) who have set up local textile mills that produce competitive fabrics for garments manufacturing. Faster turnaround time will increase the feasibility of producing higher value garments in the country as it allows a quicker response to international market trends and requirements.[15]

Proposed investment priority projects

a. More efficient production technology and facilities
b. Transportation infrastructure projects. This includes the expansion and extension of the North Luzon Expressway, and the Subic-Clark-Tarlac Highway (which will allow more efficient access to the port of Subic).
c. Establishment of training facilities, e.g., sewing schools with courses in design and all other phases of production.

Support activities include the identification and provision of financing for local producers and improving/rationalizing import/export procedures, adopting internationally accepted standards of rate setting such as GSD (General Sewing Data), and intensified marketing efforts.[16]

Location: region-wide but with focus on Clark and Subic as venues for garments manufacturing, and possibly for other production facilities

5.2. Furniture

There are three main production centers of furniture in the country: Metro Manila, Pampanga, and Cebu. There are about 15,000 furniture establishments, 90% of which are composed of small and medium enterprises (SMEs): about 9,750 cottage-small establishments, 3,750 medium establishments, and 1,500 large furniture establishments.
The furniture industry in the Philippines employs a total of approximately 500,000 direct workers, 300,000 indirect workers, and about 1,000,000 sub-contractors and suppliers. Central Luzon's hosts about 11% of the total number of producers in the country (ca. 1994). Most of the furniture manufacturers (about 43%) in the region are situated in Pampanga. In terms of number of persons employed, Central Luzon's furniture industry employed 4,196 in 1994 and 5,133 in 1998.

The industry is still highly dependent on subcontractors, which constitute about 20% of labor.

Key Requirements

- Alternative sources of raw materials, which are increasingly being imported (80%) and which contributes to higher production costs
- Greater integration among the furniture industry suppliers, producers, distributors, and marketing
- Continued skills improvement
- Lack of technical support for production equipment maintenance
- Regular information on market trends and competitors
- Simpler import-export procedures

Proposed Investment Priority Areas

a. New and upgraded equipment and other production technologies
b. Raw materials supply
c. Packaging/marketing

There are also investment opportunities with respect to the expansion of existing firms and joint venture agreements involving capital investment on fixed assets, hiring of workers, creating additional product lines, and developing/constructing of showrooms.

Support activities include the conduct of regular training/upgrading programs (e.g., wicker and rattan workers); technical/equipment maintenance training programs and services; developing regular market information sources.

Location: region-wide, with emphasis on Pampanga.

5.3. Tourism

In 1996-2000, visitor arrivals to Central Luzon averaged about 12.7% of total country arrivals, with a high of 16% and a low of 9%. Clark and Subic, which anchor the tourism and industrial cores of the W Corridor, continue to dominate as the region's premier attractions; Pampanga and Zambales accounted for 72% of Central Luzon arrivals in 2000. Bulacan ranked a distant third with 13.9%.[17] Tourist traffic started to decline in 1998 as a result of both domestic and global problems. Visitor arrivals to Central Luzon are low, especially when compared to other regions of the country; the number of regional visitors ranked third from the lowest, surpassing only the Eastern Visayas and Western Mindanao regions.[18]

The low number of visitor arrivals to Central Luzon, assuming the data is fairly accurate,[19] is disturbing because Central Luzon is adjacent to Metro Manila and because there are almost thrice the number of visitor arrivals in the Southern Tagalog region, which is the other region adjacent to Metro Manila.

Key Requirements

Recent consultations with government agencies and private sector groups involved in tourism in Central Luzon[20] identified issues and problems plaguing the tourism industry:

- Coherence in the development of tourist attractions (tourism circuits);
- Improved quality of service in the different tourism establishments;
- Well-designed and executed tourism promotion and development activities; funding and other resources to undertake tourism promotion and development activities,
- Tourism information infrastructure;
- Improved access to key attractions;
- Improved/increase number of facilities in tourism service centers/attractions;
- Increased coordination between LGUs, NGOs, and the private sector in the development of tourism facilities/attractions;
- Improved maintenance of tourism attractions.[21]

Proposed investment priority projects

a. Key infrastructure projects: regional (NLE expansion and extension, Subic-Clark Tollway, Northrail, and other transportation projects identified as part of the 16 priority projects) and local (local road construction and maintenance, transportation/traffic management plans);
b. Hotels and other accommodation facilities, convention/meetings facilities;
c. Rehabilitation and operation of existing potential tourism destinations (e.g., Expo and Paskuhan) for tourism, entertainment, shopping facilities, and/or other alternative tourism activities; rehabilitation and development of other eco-tourism destinations;
d. Marketing and promotions projects, including the use of IT.

Support activities include the creation of effective local government tourism development plans, coordinated with regional and national plans and policies; formation and strengthening of tourism councils/tourism associations, with the participation of police/security officials; elimination/reduction of red tape, cost, and efforts in securing and renewing required permits and licenses; establishment of a network of visitor information desks; improved tourism services through training, education, and monitoring programs.[22]

Location: Region-wide.

5.4. Agriculture/Food

The agricultural/fisheries/forestry sector accounted for 19% of Central Luzon's GRDP in 2000, next to services (48%) and manufacturing (24%). The region had the fourth largest contribution (9%) to the country's total agricultural/ fishery/forestry production, next to Southern Tagalog (19%), Southern Mindanao (12%) and Western Visayas (10%). Agriculture accounted for 25% of the employed work force (about 680,000 persons) in Central Luzon in 2000.[23]

The major agricultural crops and commodities in Central Luzon are rice/palay, mango, eggplant, onion, tomato, sugarcane, fish (aquaculture), livestock (swine, goat, cattle), and poultry (chicken and duck); 1999/2001 data confirm Nueva Ecija's leading role in the production of many cereal and vegetable products: palay, calamansi, mango, eggplant, garlic, onion and tomato. Other key products of each province are: corn, camote, mongo, peanut, sugarcane, and tobacco in Tarlac; cassava, inland fisheries and aquaculture in Pampanga; banana, mango, pineapple, cacao, coffee, and aquaculture in Bulacan; coconut, commercial fisheries, and marine fisheries in Bataan; and commercial fisheries in Zambales. Processed food exports, meanwhile, offer an expanding market, especially with the emerging global and regional emphasis on open trade, and considering the wide range of processed food products in the region.[24]

Key Requirements
The following requirements were identified during the aforementioned consultations:

- Infrastructure support (transportation, communication, irrigation)
- Development of post-harvest facilities, food processing facilities, and other forward linkages
- Rehabilitation of lahar-affected areas
- Improvement of production/processing technology through research and development and other sources
- Improvement in the quality and sources of inputs
- Increase in the availability of market information and the opening of new markets (local as well those that have been traditionally closed by tariffs)

- Increase in coordination and collaboration between agriculture production and food processing

Proposed investment priority projects

a. Regional transportation projects as mentioned in the Electronics and Industrial Manufactures in Section 3 of this report; farm-market roads (existing and proposed access to potential agricultural expansion areas) as identified in local development plans
b. Bulacan North Food Terminal
c. Establishment of provincial trading posts (market outlets for local marketing organizations); including the establishment of commodity exchange network and auction centers
d. Farm mechanization and use of more efficient production technology and cropping systems, especially in lahar-affected areas
e. Establishment of cold storage facilities
f. Establishment of slaughterhouses to serve Central Luzon and external markets
g. Rehabilitation/development of irrigation facilities, development of new water sources
h. Establishment of food processing facilities for various agro-industrial products[25]

Support activities include research and development into alternative irrigation techniques, alternative packaging and handling schemes for key products; implementation of FMD eradication program; decentralization of the seed certification program; training on enterprise development and business planning for farmers organizations; farm enterprise financing schemes; advocacy for the reduction or elimination of export barriers (foreign tariffs).[26]

Location: region-wide, with emphasis on Nueva Ecija for research and development and training, post-harvest and storage facilities, as per the location of key production areas.

6. PROJECT IDEAS: PROJECTS THAT SUPPORT THE FIRST TWO TYPES

6.1. Transportation

The implementation of the transportation projects included in the list of 16 priority infrastructure projects will be crucial to the further development of the region, including its ability to attract investments and generate employment.[27] Among these projects, topmost priority should be given to the following:

Subic-Clark-Tarlac Expressway. This project will help unleash the synergy of Subic and Clark, combining the two anchor industrial and tourism cores of the region, increasing the economies and efficiency of each area, and opening up the port of Subic to a larger market.

North Luzon Tollways. The immediate implementation of this project, especially Phase I (rehabilitation and expansion of the existing expressway) and Phase II (C5-NLE circumferential road) will significantly increase the attraction of Central Luzon to potential investors.

Pan-Philippine Highway. This project is the eastern counterpart of the Subic-Clark-Tarlac Expressway project. The development of the agri-industry sector in the Munoz area of Nueva Ecija will also be a key beneficiary of this project.

6.2. Telecommunication

The competitive environment of the deregulated telecom industry should continue to put pressure towards the expansion of services in Central Luzon. This industry, however, is one of the most important components of the strategy to build up investments in the IT sector. Broadly, the order of priority should be providing high quality, low-cost bandwidth and redundant international connectivity to Clark, Subic, and other designated IT zones; next will be the rest of the W Corridor, and then the rest of the region.

6.3. Housing

As an industry, the potential investments in housing are substantial because of the magnitude of demand. For the period 2001-2004, for example, the total housing need (backlog plus new household requirements) in Central Luzon is estimated to reach about 344,000 units.[28] Even if we assume that only 50% of affected households can afford such socialized housing (the national government estimate of the percentage of the population that do not have access to formal housing schemes is 40%), the resulting amount (PhP35 billion) is still significant.

Some of the housing-related projects that may be pursued include (a) residential developments by the private sector, and (b) transportation infrastructure (including regional transportation previously mentioned) that provide access to housing and urban expansion sites. Support activities include streamlining of local and national government application procedures and processes involving housing development (using the DTI-Region 3 pilot projects as reference and basis and as per Executive Order No. 45); formulation of CLUPs for all local government units; and identification of financing and guarantee mechanisms for mass housing.

6.4. Retail

The service sector was not included in the list of sectors to be considered as investment priority areas. However, the service sector dominates the Central Luzon economy, accounting for 48% of GRDP, followed by manufacturing (24%), agriculture (19%), and construction and utilities (each with 4%). With the trend towards urbanization and the decreasing share of the

Endnotes

[1] Central Luzon Investment Program Priority Projects, Republic of the Philippines, Presidential Commission Central Luzon Growth Corridor, Components 1, 2, and Project Ideas, September 2002.
[2] Central Luzon Facts and Figures, September 2001, p. 15.
[3] Central Luzon Facts and Figures, p.1.
[4] 2001 Philippine Yearbook, Ch.9.
[5] "Central Luzon, The Philippines W Growth Corridor, Facts and Figures," September 2001, DTI-III/Central Luzon Investment Promotion Center, p. 15-16.
[6] Electronics Industry Sectoral Plan prepared for DTI Region 3, by the Development Academy of the Philippines (DAP), p. 8.
[7] Summary Business Plan for IT Enabled Services, DTI-IT Team, December 2001, pp. 1-11.
[8] Marble Industry Sector Plan, Prepared for the DTI Region 3, by DAP, p. 11, and DTI Investment Promotion Workshop, Marble Sector.
[9] Pyrotechnics Sector Plan, Prepared for the DTI Region 3, by DAP, Center for Governance.
[10] Ibid., pp. 12, 17.
[11] Leather and Leathergoods Sector Plan, Prepared for the DTI Region 3, by DAP, Center for Governance.
[12] Leather and Leathergoods Sector Plan, Prepared for the DTI Region 3, by DAP, Center for Governance; Investment Program for Central Luzon Growth Corridor, Prepared for PC-CLGC/DTI Region III, Consultation Workshops, Leather and Leathergoods Group.
[13] Garments and Textiles Sector Plan, Prepared for the DTI Region 3, by DAP, Center for Governance; Garments Export Industry Transformation Plan, Garments Export Industry Transformation Team, February 2002.
[14] Garments Export Industry Transformation Plan, Garments Export Industry Transformation Team, February 2002, p.2.
[15] Garments and Textiles Sector Plan, Prepared for the DTI Region 3, by DAP, Center for Governance.
[16] Garments Export Industry Transformation Plan, February 2002.
[17] Ibid.
[18] Department of Tourism, DOT Region III, RDP Tourism Update.

[19] There is an ongoing discussion on the appropriate type and source of tourism data, with part of the low number of visitor arrivals being attributed to the low number of registered tourism establishments in the region.

[20] Regional Summit Task Force on Tourism conducted by NEDA-III, and workshop consultations conducted by the PC-CLGC/DTI-III, 2002.

[21] Lito Supangco, "Think Tourism, Discussion Paper on the State of Tourism in Region III and Proposed Action Agenda," NEDA III (Economic Summit), August 2002, pp. 11–14.

[22] Ibid, pp. 14-17.

[23] 2001 Philippine Statistical Yearbook, p.11-14.

[24] www.philexport.ph/food.html, Philippine Exporters Confederation, Inc., Areas of Investment, Bureau of Export Trade Promotion, 1998

[25] www.philexport.ph/food.html, Philippine Exporters Confederation, Inc., Areas of Investment, Bureau of Export Trade Promotion, 1998.

[26] Angelo Ramon A. Tanchoco, "Think paper on the Agriculture Sector, Development Strategies for Central Luzon,"; PC-CLGC-DTI-Region III workshop consultations.

[27] http://www.wcorridor.com, and the Presidential Commission for the Central Luzon Growth Corridor (PC-CLGC).

[28] Housing and Urban Development Coordinating Council (HUDCC). In the Medium-Term Philippine Development Plan, the housing need for Central Luzon is estimated at about 300,000 for the 1999-2004 plan period. The Medium-Term Philippine Development Plan, 2001-2004, p.213.