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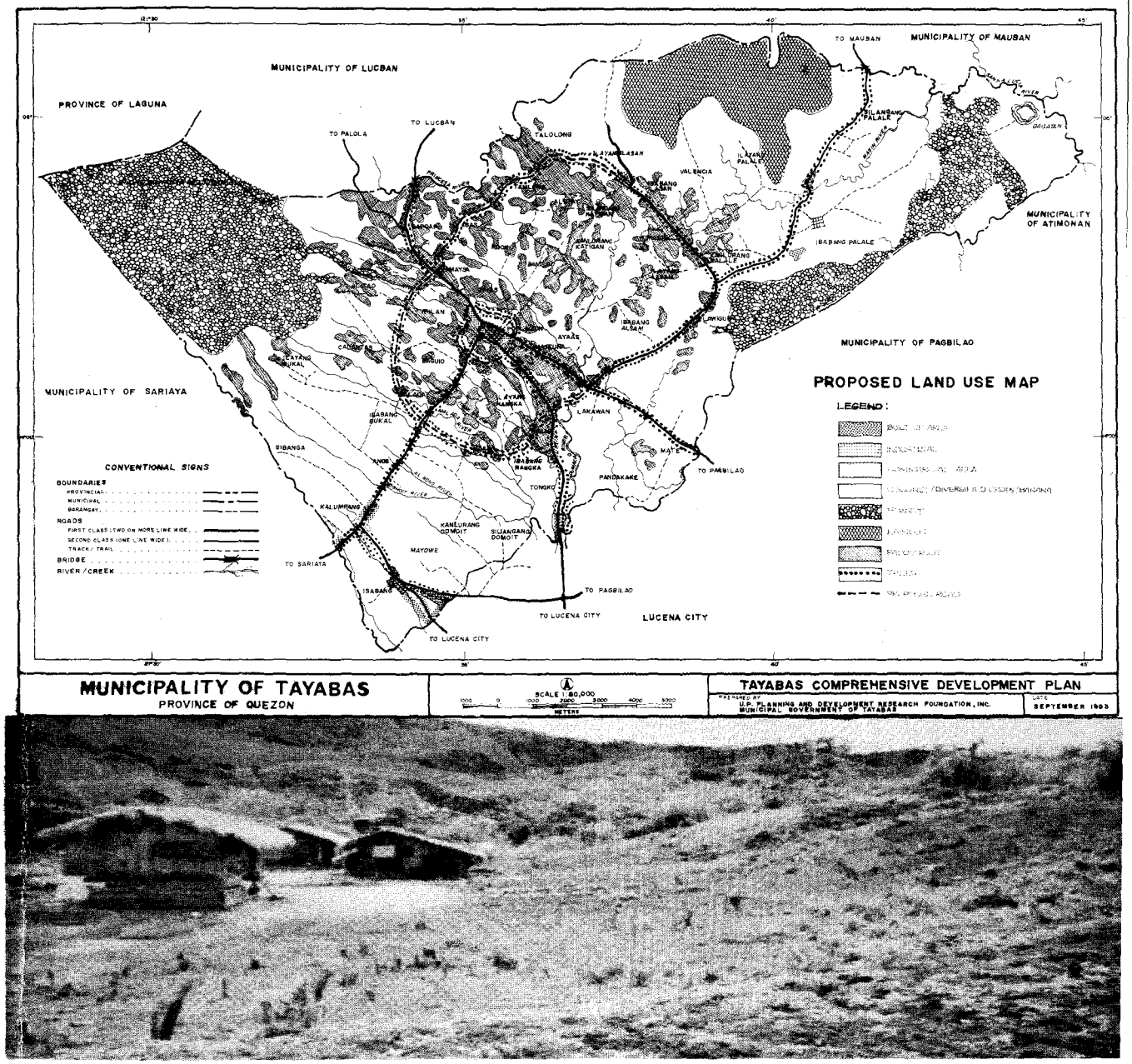

Local Land Use Planning in the Philippines

PHILIPPINE PLANNING JOURNAL

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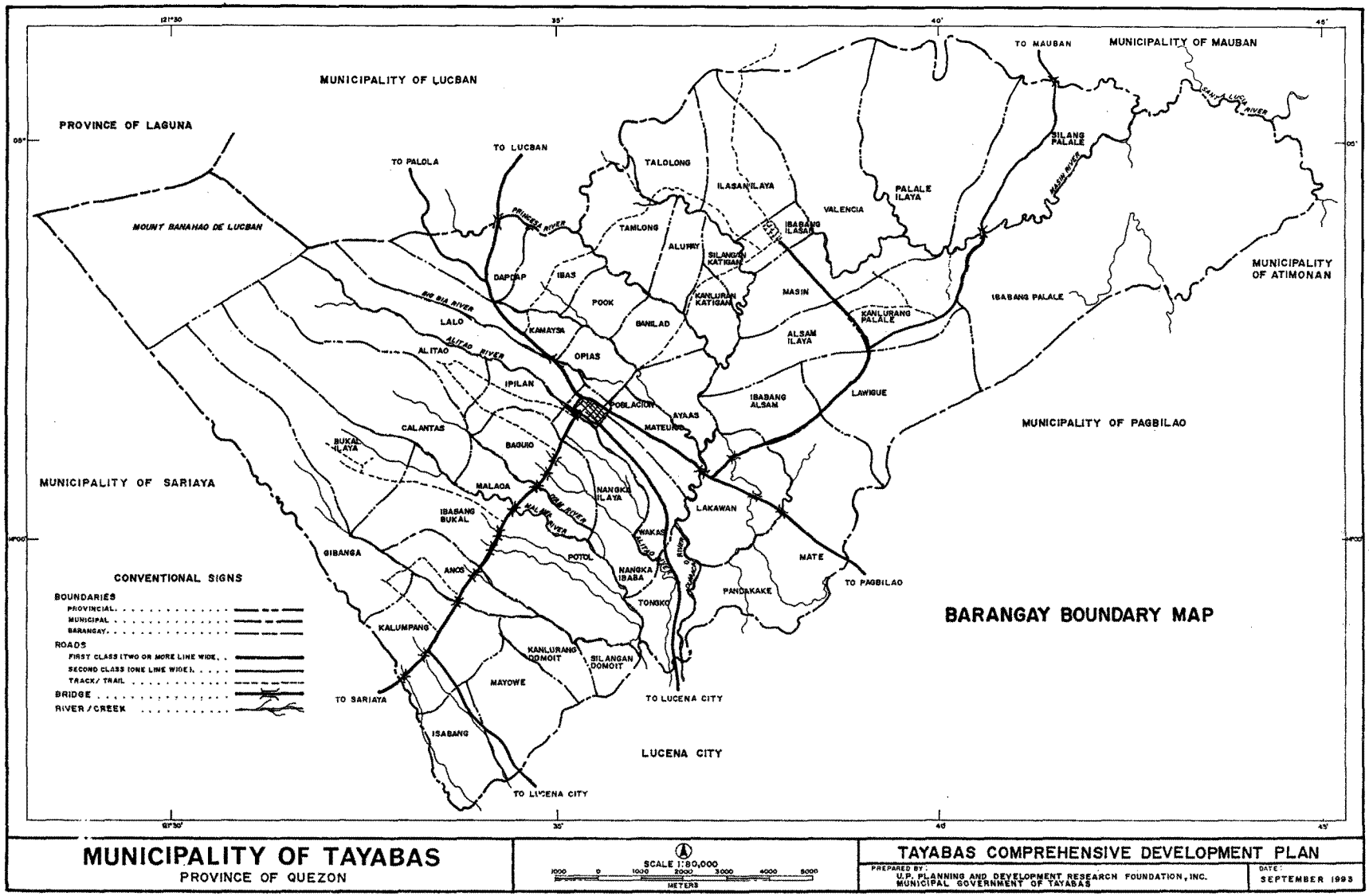


CONVENTIONAL SIGNS

BOUNDARIES
- PROVINCIAL
- MUNICIPAL
- BARANGAY

ROADS
- FIRST CLASS (TWO OR MORE LINE WIDE)
- SECOND CLASS (ONE LINE WIDE)
- TRACK/ TRAIL

BRIDGE

RIVER / CREEK

BARANGAY BOUNDARY MAP

MUNICIPALITY OF TAYABAS
PROVINCE OF QUEZON

SCALE 1:80,000

1000 0 1000 2000 3000 4000 5000
METERS

TAYABAS COMPREHENSIVE DEVELOPMENT PLAN

PREPARED BY:
U.P. PLANNING AND DEVELOPMENT RESEARCH FOUNDATION, INC.
MUNICIPAL GOVERNMENT OF TAYABAS

DATE:
SEPTEMBER 1993

COMPREHENSIVE DEVELOPMENT AND LAND USE PLAN MUNICIPALITY OF TAYABAS, QUEZON

UP PLANADES PLANNING TEAM

INTRODUCTION

Background and Rationale

The development agenda of the country over the years continues help when to address the same concerns: economic development, productivity and growth; equitable distribution of opportunities, income and wealth to include means of production and poverty alleviation. Towards this end, development strategies should be employment oriented and rural based. Rural development is a strategy to realize this development agenda and is being pursued through the provision of physical infrastructure, and enhance of social services delivery and strengthening the administrative capability of the local government units (LGUs) to deliver the basic services most critical to them.

The Municipal Government of Tayabas, Quezon commissioned the UP Planning and Development Research Foundation, Inc. (UP PLANADES), a foundation associated with the School of Urban and Regional Planning of the University of the Philippines, to undertake the Comprehensive Land Use Planning Project to fast track the development of Tayabas, specifying general land uses, socio-economic opportunities and the needed infrastructure. The Project also hopes to formulate alternative development schemes and strategies to guide the future growth of the municipality up to year 2000 and beyond.

Objectives of the Study

The ultimate objective of the study is the preparation of a Comprehensive Development and Land Use Plan that would guide the short, medium, and long-term physical and socio-economic development of the municipality.

The study includes the inventory of human and natural resources of the municipality, sectoral profiling, situational analysis, delineation of planning and functional areas, proposal of a development strategy and implementation mechanisms the would guide the execution and implementation of the Plan.

METHODOLOGY

The initial task relates to data and information gathering. After which an analysis of the database was done to provide basis for the formulation of a comprehensive land use plan.

In general, the methodology is classified under five headings: Survey and Data Gathering; Physical and Socio-Economic Profiling; Development Visioning and Framework Formulation; Plan Selection and Development; and Plan Implementation.

Survey and Data Gathering

This activity involved (a) field surveys and mapping to develop large-scale base map, and thematic maps; and (b) collection of all available documents relevant to the planning area.

The information gathered from primary and secondary surveys particularly with respect to the issues, problems and opportunities were validated through community consultations, direct observations and professional judgement.

The results of data gathering activities also provided the major planning parameters adopted by the Planning Team.

Physical and Socio-Economic Profiling

Profiling provided a situationer from which this planning project started. It involved a description of the current conditions. This includes, among others, an assessment of the development needs of the area; status and the types, quality and amount of resources that it must mobilize (in order to improve its existing condition). In essence, it provides the relevant baseline information for the formulation of the development and sectoral plans of Tayabas.

Development Visioning and Framework Formulation

A clear focus of the framework for development was necessary to situate the development of Tayabas in its proper context.

When the proposed development framework for Tayabas was identified and fully described, the Planning Team then proceeded to the translation of the proposed development framework in spatial terms. Activities included the formulation of various spatial development scenarios with the view of achieving the goal and objectives set forth for the municipality.

Plan Selection and Development

The Goal Achievement Matrix (GAM) approach was used in evaluating the proposed spatial development schemes. With the assistance of the local officials and members of the community, a scenario or spatial scheme was then selected based on certain sets of criteria identified beforehand. The selected scheme / alternative then served as the basis for the detailed formulation of the land use and sectoral plans.

Plan Implementation

The Planning Team, based from the learnings acquired from experiences, identified two considerations in the formulation of an effective and efficient plan implementation scheme: the foremost consideration is a competent organization.

SECTORAL PROFILE

The Physical Environment

Situationer

The physical profile of Tayabas sets the platform on which all development efforts must be carried out. It allows the identification of issues and problems, development constraints and potentials of the study area.

Tayabas is situated at the southeastern foothills of one of the more famous volcanoes in the country: Mt. Banahaw. It is encircled by several municipalities of Quezon Province: Lucban, Mauban and Sampaloc to the north; Atimonan and Pagbilao to the southeast; Lucena City to the south; and Sariaya to the west.

The municipality is a historically significant locality being the former capital of the old province of Tayabas (now Quezon), and home to one of the colorful local characters (Hermano Puli) during the Spanish regime. It lies some 150 km southeast of Manila and only about 10km from the provincial capital, Lucena City.

Tayabas has a total land area of 31,830 hectares divided among its 66 barangays, 19 of which are within the Poblacion.

Tayabas exhibits a generally hilly to mountainous terrain. The significantly elevated areas are concentrated along the northeastern and northwestern portions.

Five basic types of soils which underline Tayabas include: Mountain Soil, Ibaan Loam, Bolinao Clay, Macolod Clay Loam, and Luisiana Clay Loam. Of the five soil typologies, the Macolod Clay Loam is the most extensive, covering close to 50 percent of the municipal area.

Tayabas climatic conditions are typical of montaine regions which are characterized by heavy precipitation. The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) classifies the climatic regime of Tayabas as Type II.

The municipality of Tayabas sits on a subduction zone that is closely associated with the east Luzon trench and, therefore, a seismically active region.

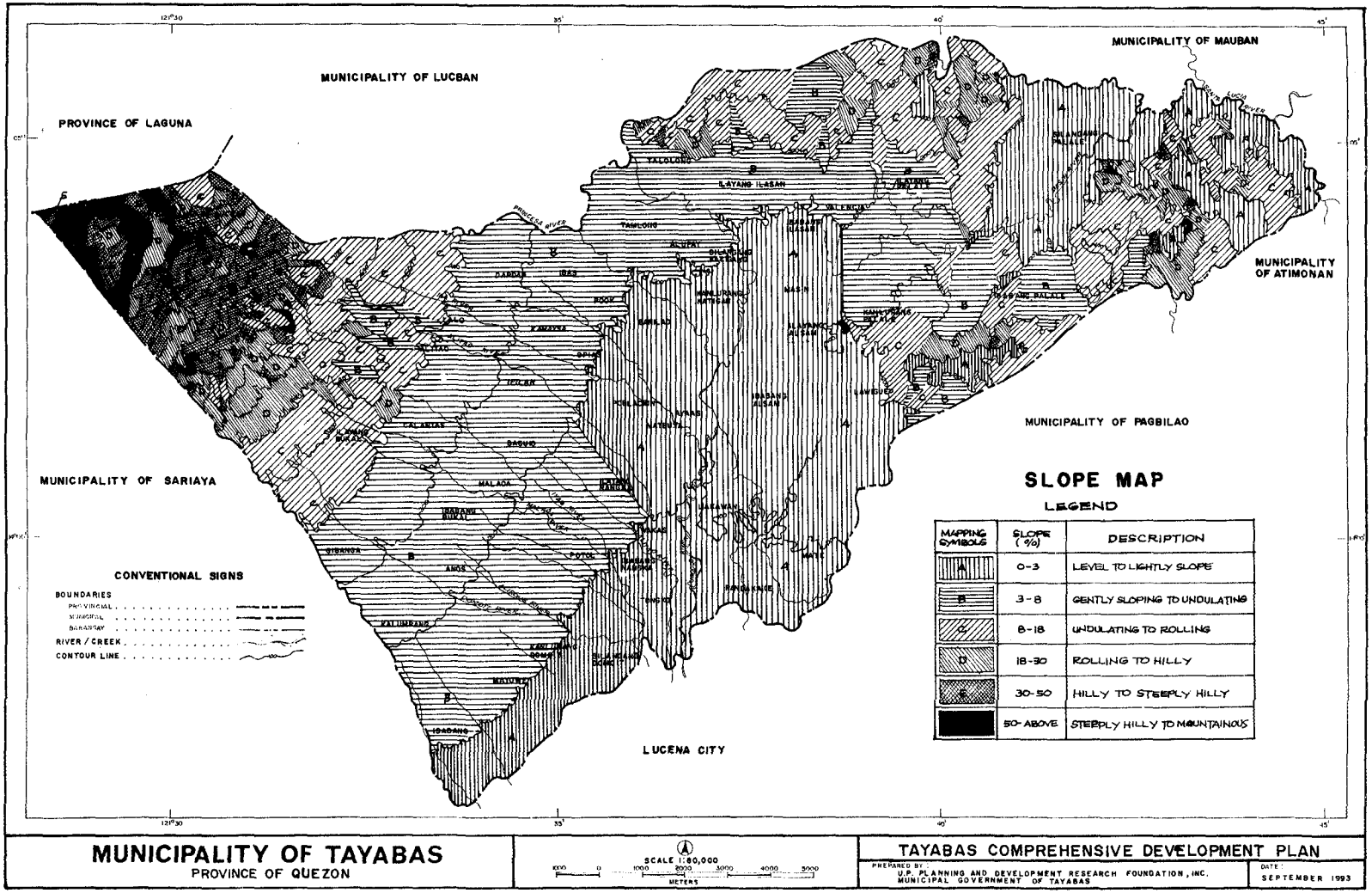
It is important to take account of the municipality's proximity to Mt. Banahaw as well as its location along an active seismic zone. Although Mt. Banahaw offers aesthetic and recreational potentials, the possible dangers associated with volcanism and consequential mass wasting process like mud and lahar flows remain real and undiminished.

One of the natural resources of which Tayabas is well endowed is the extensive network of streams that drain the area. A complex system of canals, creeks and rivers abound and are augmented by numerous springs which still exhibit natural artesian conditions. These extensive natural drainage networks, including the probably abundant groundwater reserve in the municipality have important development potentials.

Land Use Pattern

Areas devoted to agricultural cultivation account for 60 percent or 20,000 hectares of the municipal land area. Coconut, rice, and banana as the dominant crops characterize these areas.

The built-up sections of the municipality are concentrated in the Poblacion. An approximate total of 200 hectares may be classified as built-up which is composed


MUNICIPALITY OF LUCBAN
MUNICIPALITY OF MAUBAN
PROVINCE OF LAGUNA
MUNICIPALITY OF ATIMONAN
MUNICIPALITY OF PAGBILAO
MUNICIPALITY OF SARIAYA
LUCENA CITY
SLOPE MAP
LEGEND
MAPPING SYMBOLS | SLOPE (%) | DESCRIPTION
A | 0-3 | LEVEL TO LIGHTLY SLOPE
B | 3-8 | GENTLY SLOPING TO UNDULATING
C | 8-18 | UNDULATING TO ROLLING
D | 18-30 | ROLLING TO HILLY
E | 30-50 | HILLY TO STEEPLY HILLY
50- ABOVE | STEEPLY HILLY TO MOUNTAINOUS
CONVENTIONAL SIGNS
BOUNDARIES
PROVINCIAL
MUNICIPAL
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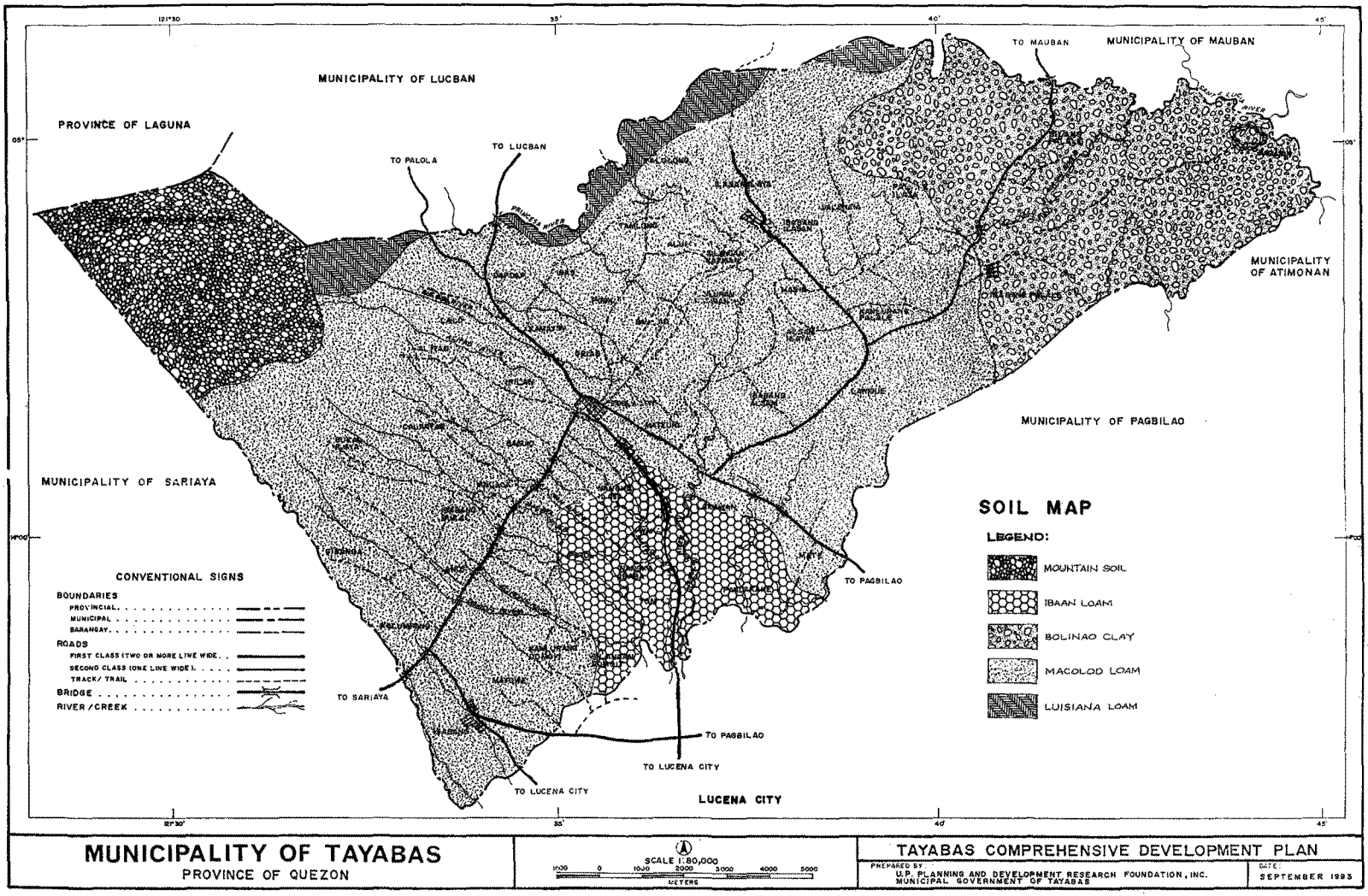
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MUNICIPALITY OF PAGBILAO
MUNICIPALITY OF SARIAYA
TO PAGBILAO
TO SARIAYA
TO PAGBILAO
TO LUCENA CITY
TO LUCENA CITY
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SOIL MAP
LEGEND:
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MACOLOD LOAM
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primarily of residential, commercial and institutional uses. Those allocated for industrial and circulation (i.e. roads) uses are minimal in terms of area coverage.

Demographic Characteristics

Population Size and Distribution

Based on the 1990 Census on Population and Housing, Tayabas registered a total population of 54,355 persons equivalent to almost 4 percent of the provincial total (1,372,455). Household population, on the other hand, accounts for 53,985 persons, which in turn comprise 11,163 households.

Almost a third of the town's total population can be found in its 19 poblacion barangays. Other barangays with more than two thousand persons each include Barangays Mateuna, Ibabang Palale, Wakas, and Opias.

Meanwhile, the least populated barangays with less than two hundred population each include Barangays Pook, Silangan Domoit, Banilad, Talolong, Ayaas, Tamlong, and Kanlurang Domoit.

Population Density

Gross population density for the entire municipality was placed at 1.71 persons per hectare. Densely populated areas are found in Barangays Angeles, San Isidro, Angustias, San Diego, San Roque, and Lita.

Age-Sex Distribution

Tayabas is fortunate to have 59 percent of its population falling within the productive age group, 15 to 64 years of age.

As regards to sex distribution, records show that as of 1990, the town's population is evenly distributed between males and females, with males slightly outnumbering the females.

Urban and Rural Population

The rural population still make up the majority of the town's population accounting for 68 percent slightly exceeding the provincial average of 67 percent.

Productive Age and Dependency

Of the total 33,502 household population 15 years old and above, 57 percent or 19,039 persons are regarded as part of the labor force.

Two prominent types of occupations are in the fields of agriculture and manufacturing sector. They constitute 64.4 percent of the total labor force.

Because of its relatively young population of which more than 50 percent are part of the labor force, Tayabas enjoys low dependency ratios, both for the young and old groups.

Literacy

Tayabas populace enjoys a high literacy rate, with almost 99 percent of its 39,320 household population literate.

Mother Tongue

Tayabas residents are predominantly Tagalog-speaking people having merely one percent of its total population able to speak Bicol, Waray, other minor Filipino dialects including Maguindanao and Chavacano, plus a few more who can speak Chinese.

Religious Affiliation

Tayabas is described as a Christian community with some 51,637 Roman Catholics representing the dominant religion in the area. Other major religious groups which have gained membership in the area include the following: Iglesia Ni Cristo, United Church of Christ in the Philippines, and Seventh Day Adventist.

Population Projection

Tayabas population is projected to reach 70,114 and 90,445 by the year 2000 and 2010, respectively. Average density for the whole of Tayabas, automatically increases to 2.2 and 2.8 persons per hectare in years 2000 and 2010.

Social Services

Health

Indicators are used to measure the existing health conditions of the population of Tayabas. These indices are birth and death rates, morbidity indices as well as the nutritional status of the children below seven years old.

As per 1993 Municipal Health Office Report, Malaria and Pulmonary Tuberculosis has a long history of being the health culprit in Tayabas. Infant mortality rate is recorded at 17.3 deaths for the years 1988 and 1992. Infant morbidity is also primarily due to acute respiratory infection, coryza, and pneumonia, among others.

Health care in Tayabas is mainly provided by Tayabas Community Hospital located in Barangay Wakas and by eight health centers

located in different parts of the
Only the main health center has
nurse who regularly visit other
rs at least twice a month. Private
of varying fields of specialization
roviding the needed health care.

ems of the sector are as follows:

le implications of high morbidity
ortality rates and their identified
s to the overall health condition of
enses;
care facilities and services are
ssible to many residents of far-
arangays;
are basically undermanned;
es and medicines are not
ent enough to cater to the overall
needs of the constituents; and,
ation campaigns of health and
tion have not been extensively
tensively implemented.

is generally made up of 99
rate population. The data is
high educational level attained
ority of its constituents. Tayabas
2,128 college graduates.

and public schools serve the
of Tayabas. There are 32 public
(4) private schools offering
primary, elementary, and
lucation.

e no college education facilities
ayabas. Undergraduate, graduate
st-secondary education are taken
City, Lucban and Metro Manila.

l, the teaching work force and
of the present schools has met
standard of one teacher for forty
nilarly, classroom ratio to student
e standard.

wing are the major problems and
educational sector:

for repair and rehabilitation of
orating school buildings.
for additional workshop areas /
for practical arts / activities.
d space of school sites.

nly one household per hectare in
ughly, the municipality has a ratio
hold per one housing unit with an
five (5) members. Tayabas, in
ld only require a small number of
additional housing units if the standard is completely achieved.

The following are the problems / needs of the housing sector:

1) Need to provide for a relocation site for a low-cost housing project;
2) Need to identify expansion site for residential / settlements purposes; and,
3) Need to re-educate the squatters.

Social Welfare

Generally, social services in the municipality are provided by the Municipal Social Welfare and Development Office (MSWDO).

The following are the problems / needs in the social welfare sector:

1) Lack of funds to sustainably implement social welfare programs; and,
2) Lack of work force to monitor project development and implementation.

Protective Services

Hand in hand with fast economic development often come high rates of crime incidence. However, in Tayabas, a predominantly rural area, it has not been much of a problem except for a few instances. While Katarungang Pambarangay has slowly been getting unpopular in some fast developing areas, it has been perfectly working in this generally peaceful town. Minor thefts and other petty squabbling among neighbors and relatives are usually settled amicably within the barangay level.

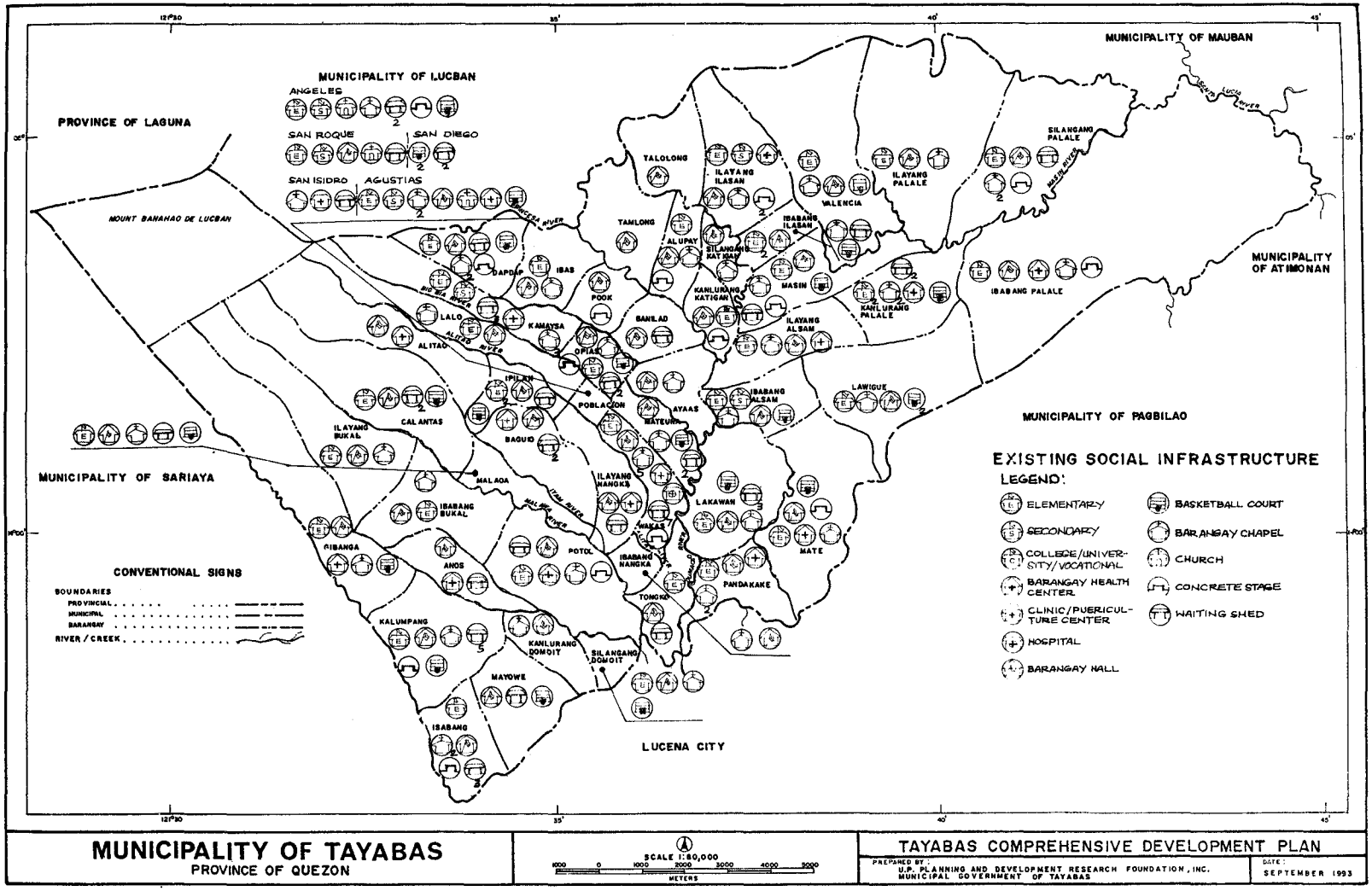
Fire protection is not considered by the municipal government as a major concern. They could easily get assistance from Lucban and Lucena City Fire Departments in cases of emergency.

The problems / needs of protective services in Tayabas are as follows:

1) There seems to exist a "demoralization" on the part of the constituents as regards to the assignment of non-Tayabenses police personnel which could hinder a smooth civil-police relations; and,
2) Lack of funds to shoulder basic, up-to-date protective service facilities.

Sports and Recreation

Tayabas is equipped with facilities which at present requires face lift. Though not properly maintained or updated, it maintained and even increased its clientele for reasons that, at



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present, there are no other alternative venues that could offer the same services.

The following are problems / needs of the sector:

1) Deteriorating sport facilities at the municipal playground.
2) Lack of new books and other reference materials at the library.
3) Need to upgrade library facilities to make it more attractive to its clientele.

Economic Sector

Agriculture

Tayabas is predominantly an agricultural town with cocoland as the most dominant agricultural use. It is followed by ricelands of which 84 percent is irrigated. It is observed that the municipality is rice sufficient.

The municipality has various agricultural crops and coco-based products such as handicrafts, copra, and wine are produced in commercial quantities.

Livestock and poultry production is basically backyard scale. There is a sole hog and chicken farm which produces 64.8 percent of the total number of hogs and 15.2 percent of the total chicken produced.

The following are the summary of problems / needs of the municipality:

1) Poor farm-to-market roads.
2) Insufficient post-harvest facilities.
3) Failure to effectively market agricultural products.
4) Danger on increased rate of withdrawal from the surface water bodies resulting to reduced water for irrigation for Barangays Tamlong, Talolong, and Alupay.
5) Unpredictable price of copra.
6) Inadequate knowledge of advertising design and packaging techniques of food preserves and other food processes.
7) Unregulated cutting of coconut trees.

Trade and Industry

Commercial establishments are concentrated in the Poblacion area (54.6 %) while the rest is distributed outside Poblacion (45.4 %).

Convenience (Sari-sari) stores dominate (76.6 %) the commercial sector. Rice retailers and dry goods & appliance outlets came in second and third (9 and 7.8 %), respectively.

There are two (2) large scale coco-based manufacturers in Tayabas. Coco wine industry is also on a commercial scale. Other manufacturing industries in the municipality are mostly small-scale cottage industries which are mostly distributed in the rural barangays (home-based processing).

Two limestone plants process the abundantly available mineral in the municipality.

The identified problems and needs of the sector are as follows:

1) Limited range and type or trade and commercial, and industrial activities.
2) Heavy concentration of commercial activities in the Poblacion area.
3) Limited technical skills for agro and agri based industries.
4) Scarcity of capital.
5) Physical support infrastructure is limited.

Natural Resources

Minerals

Two private companies are mining the lime deposit of the municipality.

Forests

Three barangays to some extend are covered by Quezon National Park and the Mt. Banahaw-San Cristobal National Park. Reforestation project is currently being undertaken in the covered areas.

The primary and major sectoral problem identified is the lack and limited information or data on the available mineral deposit and forest resources of the municipality. This in turn has a major impact on the environmental management of the LGU.

Tourism

Tayabas, unknown to many, has several existing and potential tourist attractions. Despite of these sites, Tayabas does not have any commercial lodging houses, hotels or inns where visitors can stay for the duration of their visit. Practically, there are no related establishments in the municipality.

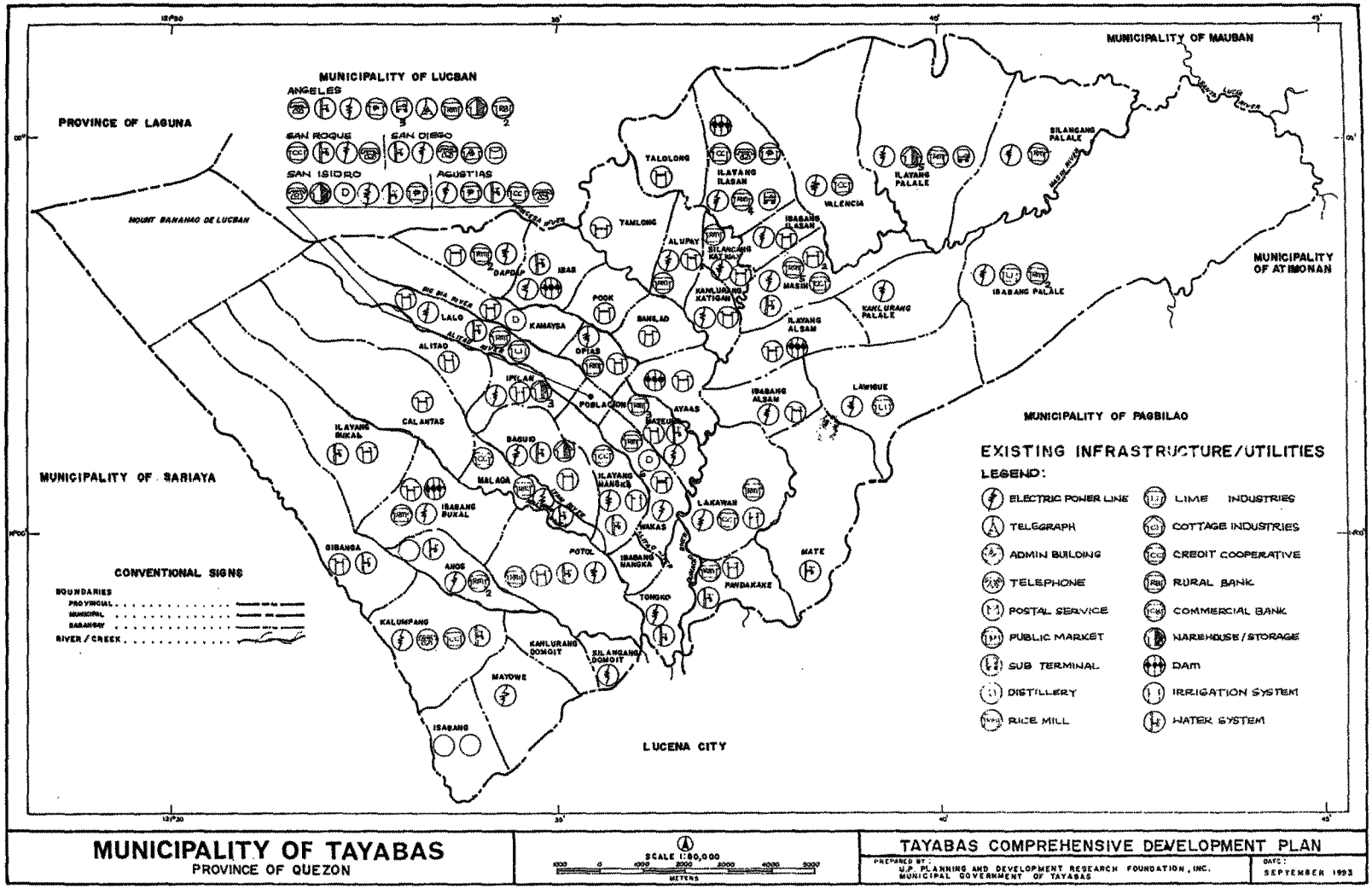
Several problems were identified regarding tourism, such as:

1) Lack of lodging facilities.
2) Inaccessibility of tourist spots.
3) Lack of physical support infrastructure.
4) Lack of local tourism policy.

Infrastructure and Utilities

Water

Most of Tayabas' water supply are sourced from groundwater and rainwater. Community



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water systems serve 71 percent of the municipality.

Though the municipality has numerous springs, wells having adequate water supply, not enough water reservoirs have been constructed, and distribution pipes have not been fully laid out to serve the whole municipality. The issue in servicing Lucena City and its neighboring towns is that Tayabas has not fully served its own constituency.

Power

Only about 63.54 percent of the total households are being served by electricity. Much is hoped of the Hopewell Power Plant.

There is a need for MERALCO to step-up its distribution networking as the power plant is near its operation. However, only those who can pay can avail of electrical services even if it is eventually available.

Transportation

The municipality solely relies on road-based transportation for the movement of its people and goods. Roads are generally concentrated in the Poblacion. Bus, jeeps, and tricycles are used in inter-municipality services. Tricycles are most used inside the municipality.

Lack of roads (including bridges) and poor conditions of existing roads impede mobility. Primarily, lack of planning is the identified reason.

Communication

As of 1993, Tayabas is being served by only one postal office equipped with six mail carriers. Fortunately, the town has two (2) telegraph stations and a telephone station.

Drainage and Sewerage Systems

The existing drainage system of the municipality is dominated by a network of open canals, some of which date back to Spanish period.

Portions of the Poblacion experience floods due to lack of and poorly maintained drainage lines. Many open canals and waterways have become receptacles for sewerage wastes.

Solid Waste Management

The municipality's solid waste collection service only serves 23 percent of the total number of households.

The present dumpsite is not acceptable. There is also a need to expand the collection services.

THE GENERAL DEVELOPMENT FRAMEWORK AND SPATIAL STRATEGY

The Development Environment / Context

National Goals and Policies

Philippines 2000 is founded on an agro-industrial strategy that seeks to attain economic advancement / growth through the Philippine Medium Term Development Plan. The ultimate goal of NIChood is premised on such objectives as poverty alleviation, employment generation, attainment of sustained development, and promotion of equity, among others.

Regional Development Thrusts

With the industrialization-oriented policies of the national government, Region IV has received quite a significant support for attaining the development goals of Philippines 2000. CALABARZON Project, an ambitious regional development program is being implemented in the five Tagalog provinces of Cavite, Laguna, Batangas, Rizal and Quezon.

While development is presently concentrated in Cavite and Laguna, the identification of growth centers in other areas, like Lucena City in Quezon, points to a bright future for the adjacent municipalities due to the expected spillover of development.

Provincial Priorities

Quezon province will remain an agricultural zone interrupted only by spotty developments of industrial activities / urban expansion areas, notably in the Lucena area. The province needs to aggressively pursue its role of being the food basket not only for the Tagalog provinces but for Metro Manila as well.

The Fundamental Issues and Planning Considerations

Population Projections

Although the spillover effects of Lucena growth center is an eventuality that cannot be dismissed, the relative vastness of Tayabas and the modernization in the population dynamics of the municipality means that the projected 70,114 or so population even by the year 2000 is still manageable from the point of view of land requirements. This is in view of the dwindling supply of prime agricultural areas in the country as population pressure on land resources continues to be a problematic issue.

Development Constraints and Potentials

It is essential that the present road system be expanded and improved to abate the worsening urban sprawl and traffic congestion in the Greater Poblacion Area and the expected urban blight and depreciation of real estate values.

The relative rapid expansion of the poblacion's area may have also resulted I the early development of areas which have not yet been laid out with the necessary drainage lines.

Illegal structures for residential use have encroached on easements. These structures contribute to many physical and socio-economic problems especially in the poblacion area.

Urban Growth

The urban sprawl of Lucena City is moving north through the Lucena-Tayabas Road and crossing the boundary into Barangay Tongko in Tayabas. It is expected that much land along this growth corridor will be converted from agricultural to residential in the next few years.

The Concept of Imageability

The paths, districts, edges, nodes, and landmarks of Tayabas are distinctive and all contribute to a rich total image.

The major paths of Tayabas are the provincial roads while the minor paths include the narrower streets and footpaths.

The poblacion is a district of political administration as well as commercial and business activities. It is the premier district of the municipality which exhibits a character that is memorable to any observer.

The direction of the developments in poblacion could easily expand towards the north, east, and south where there are no edges to restrain its growth.

The public market is the node of commercial and social activity where traders and merchants often spillover to the surrounding streets.

The municipality has memorable man-made and natural landmarks. Historic structures mark the municipality's colorful history. The natural view of Mt. Banahaw is a constant clue to a person's orientation in the municipality. There is also a need to improve the visual prominence of the municipal hall as the seat of power and symbol of urbanizing locality.

Planning Goals and Objectives

Based on the expressed need by officials and other local residents of the municipality, and tempered with the objective assessment of the strengths / opportunities and threats / weaknesses of the study area, a set of goals and objectives were formulated. Among these are:

1) to develop the area into a socially stable, economically progressive municipality;
2) to enhance agricultural production and develop forward linkages with the industrial requirements of the CALABARZON area;
3) to improve production levels and contribute to improving income levels of farmers
4) to preserve and protect the agricultural areas of the municipality;
5) to provide infrastructure support facilities and equipment to the agricultural sector;
6) to promote and ensure equity in access to basic services;
7) to improve the delivery of the basic services to the majority;
8) to promote closer private-public sector interaction and encourage citizen involvement in development efforts;
9) to promote manpower development and skills upgrading;
10) to improve physical mobility within the municipal area of jurisdiction;
11) to delineate functional areas and rationalize land resource allocation; and
12) to guide the long term growth directions of the municipality.

THE MUNICIPAL LAND USE PLAN

Existing Patterns and Emerging Trends

Agricultural Land Use

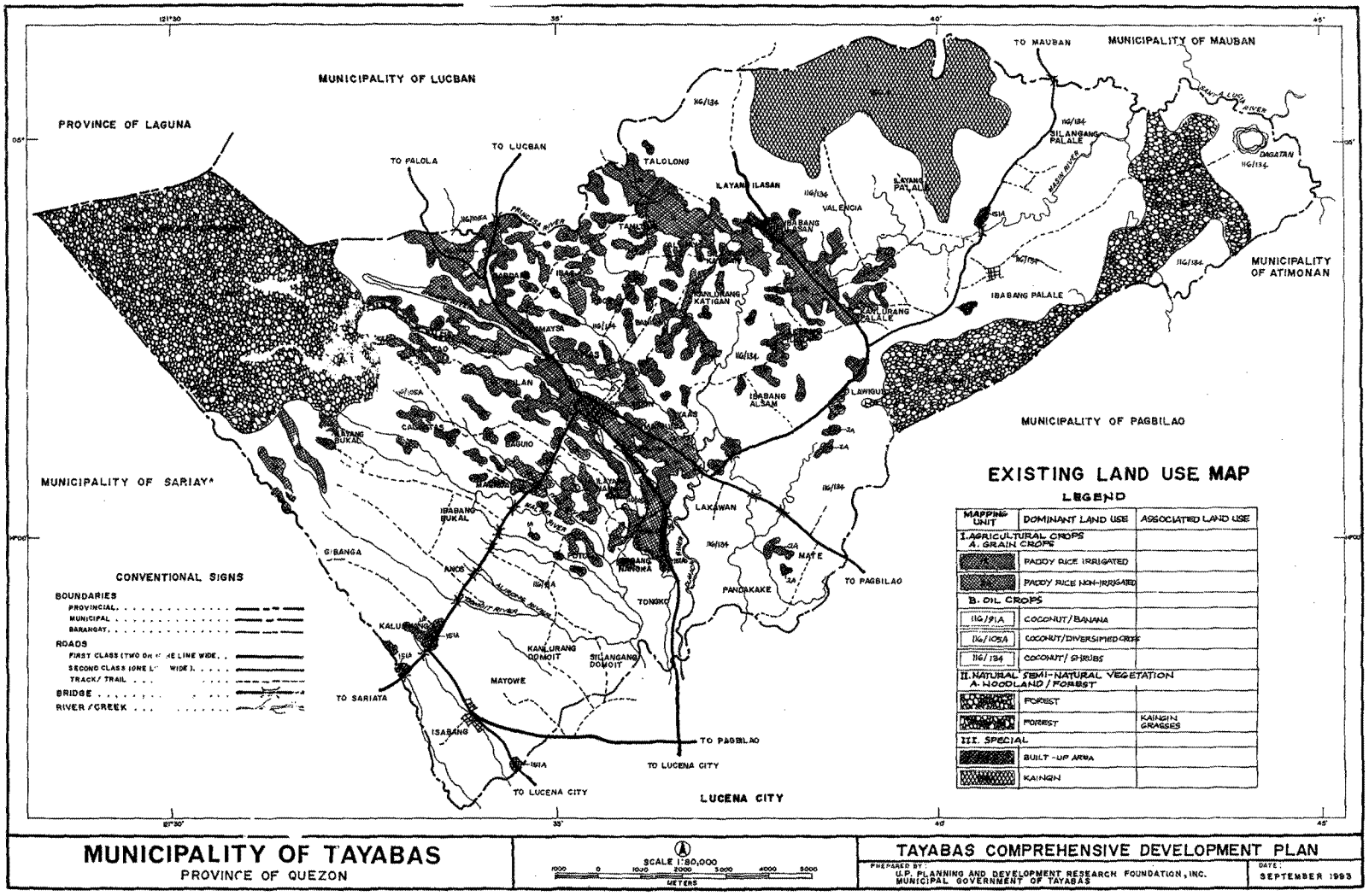
Areas devoted to agricultural cultivation account for 60 percent of the municipal land area.

Forest Areas

Tayabas has about 20 percent of the total land area classified as forests. However, some areas of forestland have been cleared by slash and burn methods to make way for agriculture.

Built-Up Areas

The build-up area in the Study Area is about 192 hectares which is concentrated in the Poblacion and in Barangay Ilasan. There are also relatively small built-up areas in other barangays. The land uses in the built-up areas



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include residential, commercial, industrial, institutional, parks and open spaces.

Most of the residential developments are located in the Poblacion and Barangay Ilasan. With the expected conversion of some of the residential areas in the urban core into commercial use combined with the future demand for housing brought about by population growth, new areas for residential development should be identified.

The conversion of many residences in the poblacion into some form of commercial use is an indication of the municipality's growing economy and need for commercial areas.

Most of the few industries (small scale) that are found in the municipality are located along major roads. Many cottage industries are located within the poblacion.

Most of the institutional structures are concentrated in the poblacion area.

The poblacion has few green areas considering that it has the highest population density in the municipality. Easements along rivers are excellent sites for riverside parks. The barangays outside of the poblacion have many open spaces but there are only very few that has parks with facilities and landscaping.

Land Use Issues and Problems

All of the land use problems experienced by the municipality can be attributed to the non existence of a land use plan and zoning ordinances to implement such a land use plan. The land use problems include:

1) the incompatibility of land uses of some adjacent areas;
2) the indiscriminate cutting or burning of trees in forest areas;
3) the inadequate parks and open spaces in the urban areas; and,
4) the illegal occupancy of private and public land which has become prevalent in the poblacion.

Land Use Potentials

The municipality of Tayabas has such a big land area that most of its land use needs can be met. Identified areas of agricultural productivity show a sustainable future for food supply. Certain regions of the municipality can adapt a clever strategy of development that would help the local economy. Identified are junctions and road shoulders and its adjacent land as growth catchment areas.

General Land Use Policies

The assigning of land uses should consider the micro-climate, land classification, slope, soil, hydrogeology, infrastructure, and utilities in the prospective areas. The location of land uses should analyze the compatibility or non-compatibility of the different land uses, and the suitability of the land itself to the proposed land uses.

Agricultural Land Use

The lands in the municipality which are found to have fertile soil, relatively flat terrain (below 8 percent slope) irrigated or irrigable will be set aside for agriculture. Conversion in these areas will be prohibited. Fertile areas which have greater slopes will be terraced and riprapped. Agro-forestry and orchard plantation are some alternatives to hilly areas.

Forest Areas

The municipality benefits greatly from its forestlands. It is for this that the national park and other forest areas should be maintained and where clearing has occurred, should be recovered by stepping-up reforestation.

Built-Up Areas

Land (having 0 to 15 percent slope) appropriate for residential development should not cover areas considered as ecologically sensitive such as areas susceptible to floods or forest areas.

Large-scale commercial spaces or commercial districts should follow a linear or compact pattern.

Based on the economic development programs formulated for Tayabas, only agriculture-based and non-pollutive industries will be allowed to set up. Moreover, to achi proper climate for investment and industrial growth, a contiguous area where all prospective industries may locate must be identified.

Religion-related buildings may locate wherever their followers are located. Educational institutions will be located in places that are very conducive to physical and mental development. Enough space should be provided for outdoor activities and future expansion of the school. Medical or health institutions should be situated away from sources of nuisance such as air, water, and noise pollution.

The existing parks and plazas and other identified areas will be developed as breathing spaces for their catchment areas. Buffer zones

of trees and landscaping shall be established between conflicting land uses.

THE PROPOSED LAND USE PLAN

The land use plan translates the municipality's set goals, objectives, and development concepts into a desired physical pattern. It is a valuable planning instrument that pinpoints the major directions of growth since it details the types, densities, and intensities of land uses (whether residential, commercial, agricultural, etc.) of specific areas.

SPATIAL STRATEGIES FOR DEVELOPMENT

Several spatial strategies for development have been formulated to attain the goals of the social and economic programs.

Expansion at the Fringes of the Poblacion

The poblacion's thriving commercial and business activity will be allowed to continue and even strengthened by a rationalized land use plan for the poblacion. Many existing residential blocks will be converted to commercial land use and expansion areas will be identified at the fringes of the built-up poblacion and along the Sariaya-Tayabas road.

Growth Corridor

Properties along the Lucena-Tayabas Road will be set aside for residential land use. The urban sprawl of Lucena City will meet the urban sprawl of Tayabas Poblacion on the Lucena-Tayabas road.

Satellite Development

Agriculture-based and non-pollutive industries will be encouraged to locate at the designated industrial zone in an idle area in Barangay Isabang. About 24 hectares will be developed in four phases or sectors of about 6 hectares each. Areas for commercial development have also been identified near the industrial zone. Incentives may be offered to attract investors and developers to locate in the satellite development. Areas for residential development will also be set aside since there will be a demand for housing near the industrial sites.

THE PROPOSED GENERAL LAND USE PLAN

Agricultural Land Use

Although agricultural land use had the most lands converted to other land uses, it remains the most dominant land use. Tayabas intends to remain a major producer of agricultural products as it was observed that it has not even harnessed the full potential of its agricultural lands. Lands used for fishponds will be preserved.

Forest Areas

The plan protects the existing 6,400 hectares of forests. In addition, areas where trees have been cleared will be reforested.

Built-Up Areas

Residential Land Use

The residential land use had the biggest increase in area among the different land uses in the proposed general land use plan. The increase is attributed to new reclassification of land along the fringe of poblacion, a follow through with current trends in housing developments in some areas of the municipality, and relocation of squatters in designated sites.

Commercial Land Use

The increase in commercial land use is due to the increasing need to support the requirements of the growing population. Generally, the commercial growth areas are located adjacent to population growth areas.

Industrial Land Use

The proposed site for the industrial zone has the best potentials for success for such a development.

Institutional Land Use

More lands are needed for schools, religious structures, and government offices.

Parks, Open Spaces, and Buffer Zones

The plan introduces more parks and open spaces to enhance the environment and appearance of the municipality. The easements of rivers will be preserved and planted with trees. Trees will also be planted along the major roads to create greenbelts along these paths of movements.

Parks and open spaces for recreation or just as breathing spaces shall be provided in all barangays preferably near the barangay hall and health center.

Schematic Layout for Major Structures in the Rural Barangay

The rural barangays of the municipality are expected to have the major structures at the barangay level. The basic structures include the chapel, the barangay hall, the barangay elementary school, the barangay health center, and the plaza or park.

The Proposed Poblacion / Urban Land Use Plan

The Poblacion Land Use Plan converts much of the surrounding agricultural lands into buildable land uses such as residential, commercial, and institutional land uses. As a matter of priority, vacant lands in the Poblacion will be put into optimum use before outward expansion of the built-up area will be allowed.

Its Physical Components

The Proposed Road Network

The Road Network Plan prepared for Tayabas consists of existing routes, realigned roads, upgraded routes, and entirely new roads. A road hierarchy based on each road's classification, importance, role, and level of traffic was established to systematize the movement of people and goods. The proposed Road Network Plan considers the proposed land uses and was formulated in the context of the barangay, municipality, and even the province. The improved road system will improve circulation, distribute development to the other barangays, and accommodate the expected increase in vehicular movement in the coming years.

The Proposed Image of Tayabas

The colorful history and the natural environment of the Study Area will be highlighted by developing the five basic elements (paths, districts, edges, nodes, and landmarks) into clear, visible and unified urban forms. Appropriate landscaping will be introduced to enhance the five basic elements.

The Utility Systems

The following areas of concern will be the focus of improvement and upgrading: water, power, solid waste management, and drainage.

SECTORAL PRIORITIES, ACTION PLANS AND PROGRAMS

Social Services Sector

Health Sector

The objectives of the health sector are:

1) To reduce morbidity and mortality rates;
2) To provide adequate and accessible health services to barangay residents; and,
3) To improve good health awareness among the general population.

The strategies to reduce morbidity and mortality rates are:

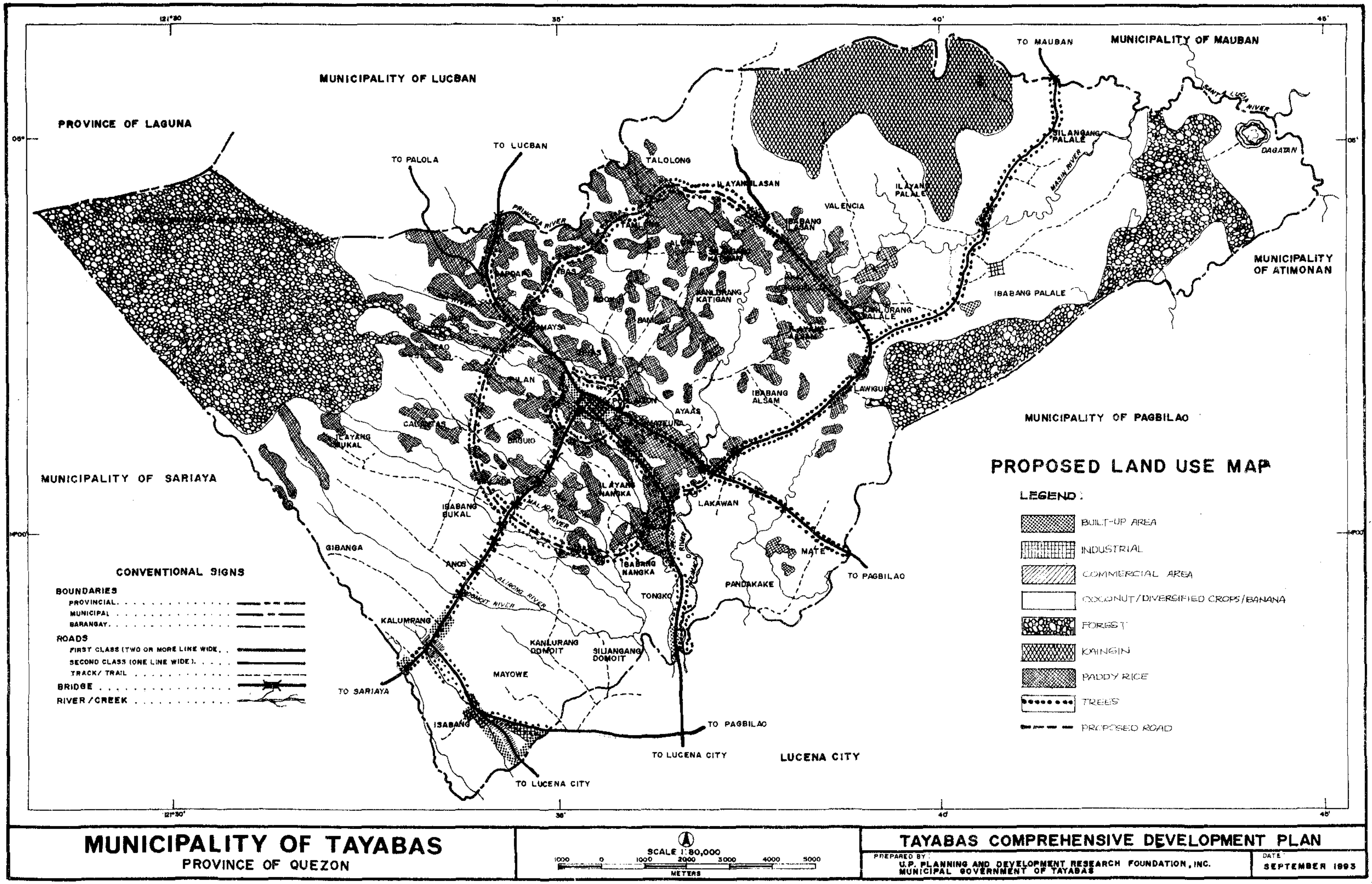
1) Undertaking extensive research on major causes of adult, maternal, and infant morbidity and mortality incidences in order to come up with appropriate and complementary health and sanitation projects.
2) Identifying malaria-infested areas and provide measures for treatment and eradication.

The strategies to provide adequate and accessible health services to as many barangay residents as possible are:

1) Increase and upgrade manpower of the health sector especially in the rural health centers.
2) Assign at least two midwives to every barangay health center.
3) With the cooperation of civic-oriented groups in the field of medical and dental health, free clinic / consultation should be regularly conducted in every RHU.
4) Encourage the use of traditional herbal medicine through extensive information campaigns.
5) Provide primary health care to all residents.

The strategies to instill good health awareness among the general population are:

1) In cooperation with concerned government and non-government organizations, conduct regular information and education campaign promoting sound health, hygiene and sanitation, and proper nutrition, among others.
2) With the cooperation of DOH, DECS, DWSD, DA and other concerned government and non-government organizations, implement special program for pre-school, elementary, secondary and out-of-school youths on health and environmental sanitation.


MUNICIPALITY OF LUCBAN
PROVINCE OF LAGUNA
TO PALOLA
TO LUCBAN
TO MAUBAN
MUNICIPALITY OF MAUBAN
MUNICIPALITY OF ATIMONAN
MUNICIPALITY OF PAGBILAO
MUNICIPALITY OF SARIAYA
TALOLONG
VALENCIA
ILAYANG PALALE
IBABANG PALALE
KANLURANG KATIGAN
IBABANG ALSAM
AYAAS
LAWIGUE
LAKAWAN
MATE
TO PAGBILAO
PANDAKAKE
TONGKO
IBABANG NANGKA
ILAYANG NANGKA
IBABANG BUKAL
ILAYANG BUKAL
GIBANGA
ANOS
KALUMPANG
KANLURANG DOMOIT
SILANGANG DOMOIT
MAYOWE
ISABANG
TO SARIAYA
TO LUCENA CITY
LUCENA CITY
PROPOSED LAND USE MAP
LEGEND:
BUILT-UP AREA
INDUSTRIAL
COMMERCIAL AREA
COCONUT/DIVERSIFIED CROPS/BANANA
FOREST
KAINGIN
PADDY RICE
TREES
PROPOSED ROAD
CONVENTIONAL SIGNS
BOUNDARIES
PROVINCIAL
MUNICIPAL
BARANGAY
ROADS
FIRST CLASS (TWO OR MORE LINE WIDE)
SECOND CLASS (ONE LINE WIDE)
TRACK/ TRAIL
BRIDGE
RIVER / CREEK
MUNICIPALITY OF TAYABAS
PROVINCE OF QUEZON
SCALE 1:80,000
METERS
TAYABAS COMPREHENSIVE DEVELOPMENT PLAN
PREPARED BY:
U.P. PLANNING AND DEVELOPMENT RESEARCH FOUNDATION, INC.
MUNICIPAL GOVERNMENT OF TAYABAS
DATE
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3) Encourage parents and adults, in general, to organize themselves into mini-cooperatives / associations to deal on health / sanitation-oriented projects that may have to be implemented in their respective areas.

Education

The four objectives of the educational sector are:

1) To improve the quality of education at all levels;
2) To improve the physical condition of school buildings and other school facilities;
3) To revive good Filipino values and practices to promote Filipino culture;
4) To inculcate environmental concern among students.

To improve the quality of education at all levels:

1) Provide adequate instructional materials and facilities;
2) Upgrade general informal type of books and other reference materials at the municipal library; and,
3) Provide effective visual aid facilities.

To improve the physical condition of school buildings and other facilities:

1) Repair and rehabilitation

To revive good Filipino values and practices to promote Filipino culture:

1) Values-information education;
2) Conduct school and community activities depicting Filipino culture;
3) Integration in classroom instruction of the importance of appreciating and patronizing Filipino products.

To inculcate environmental awareness among students:

1) Integration in school curriculum of environmental education;
2) In association with NGOs / POs and other concerned government agencies, encourage pupils / students to act as role models to their fellow community residents;
3) Involve the youth in planning, implementation, and monitoring of health, hygiene and environmental sanitation-related programs / projects in the community.

Housing

The objectives of the housing sector are:

1) Intensify Local Government involvement in low-cost housing programs.
2) To minimize the growing squatting problems.
3) To provide and improve infrastructure and other support facilities.
4) To encourage the construction and use of sanitary toilet facilities.
5) To come up with appropriate and acceptable standards in housing development.

The strategies of the housing sector in intensifying Local Government involvement in low-cost housing program are:

1) The LGU should enter a joint venture with the National Agencies implementing housing programs.
2) Encourage private developers.
3) Appropriate budget to acquire sites for low-cost housing.

To minimize, if not to put a stop the growing squatting:

1) Provision of relocation sites.
2) Coordination with NGOs / POs as to the needed community organizing and capability-building programs.
3) Involve the beneficiaries in the maintenance of utilities to enhance better harmony among neighbors.

To provide and improve infrastructure and other support facilities in all residential areas:

1) Encourage participation of residents in maintenance of all infrastructure and support facilities in the area.
2) Facilitate construction and maintenance of utilities.
3) Come up with proper solid waste management program.

Social Welfare

The objectives of the social welfare / services are:

1) To provide an integrated welfare package to its constituents based on their needs and coordinate the service facilities required.
2) To care for, protect and rehabilitate the physically and mentally and the socially handicapped constituents for effective social functioning.
3) Advocate policies and resources addressing social welfare concerns.

The strategies for the sector to provide an integrated welfare package to its constituents based on their needs and coordinate the service facilities required are:

1) Organize community - based organizations to facilitate prompt delivery of social welfare development services and to counter social problems existing in the locality.
2) Tap and coordinate with the private sector and NGOs in the implementation and provision of necessary services and service facilities required.
3) Coordinate with other government agencies for the provision of integrated welfare and development programs and projects.

The strategies to care for, protect and rehabilitate the physically and mentally and the socially handicapped constituents for effective social functioning are:

1) Appropriate funds to sustain welfare services and assistance to the handicapped and the disabled.
2) Organize community-based volunteers for the Social Welfare and Development Services.

The strategy to advocate policies and resources addressing social welfare concerns are:

1) Introduce programs and policies to hasten development and benefits of the disadvantaged residents.
2) Introduce ordinances and resolutions concerning the promotion of social welfare development.

Protective Services

The objectives of the sector are:

1) To encourage and promote citizens' participation in the maintenance of a peaceful and orderly community.
2) To establish and strengthen civilian-police relations and coordination.
3) To improve the delivery of protective services and enforcement of law and order.

The strategies to encourage and promote citizens' participation in the maintenance of a peaceful and orderly community are:

1) Organize an intelligence network for effective detection and apprehension of criminals.
2) Coordinate with NGOs and other civic organizations in the planning and implementation of effective protective service programs.

The strategies to establish and strengthen civilian-police relations and coordination are:

1) Conduct regular barangay sessions.
2) Involve police personnel in civil-oriented programs.
3) Maintain a wholesome disposition among their ranks.

The strategies to improve the delivery of protective services and enforcement of law and order are:

1) Encourage and coordinate with NGOs and the private sector for support programs concerning protective services.
2) To conduct regular training / workshop on fire prevention, emergencies and other similar incidences.
3) To organize a multi-sectoral group of volunteers for protective services as support personnel in times of emergencies.

Sports and Recreation

The objectives of Sports and Recreation sector are:

1) To encourage close coordination between the local government and private sector regarding sports programs.
2) To provide facilities conducive to sports and recreation development.
3) To integrate sports and recreational programs in the local government thrust.

The strategies to encourage close coordination between the local government and private sector regarding sports programs are:

1) The government must involve itself and coordinate with the private sector in planning and implementing sports programs.
2) Encourage the private sector participation in various sports and recreation activities.

The strategies to provide facilities conducive to sports and recreation development are:

1) Appropriate funds to acquire and / or improve publicly-owned open spaces for sports and recreational purposes.
2) Construct and / or improve facilities for sports development.

3) Enforce the value requiring open spaces / parks in private residential subdivisions.

The strategies to integrate sports and recreational programs in the local government thrust, sports development must be provided with adequate budgeting support by including its programs in the annual budget appropriations.

Economic Sector

Agriculture

Given the numerous problems and needs of the agricultural sector, the municipal government aims to achieve the following:

Its general objective are:

1) To further increase self-sufficiency in food production; and,
2) To augment the income level of the population by creating employment opportunities.

Its specific objectives are:

1) To improve accessibility of rural agricultural barangays;
2) To identify infrastructure projects supportive of agricultural development;
3) To increase productivity particularly coconut and rice farmlands as well as secondary crop areas;
4) To establish an effective and efficient agri-trading center at the heart of the municipality; and,
5) To encourage cooperativism within the sector.

Agriculture will continue to be the lead sector in Tayabas. It will continuously supply raw materials needed for processing, and creating demand for agro-related industries.

Some of the strategies to attain the above objectives are:

1) Intensify campaign for increased production of various crops on upland farms;
2) Application of crop diversification / rotation program;
3) Increased access to support facilities like nurseries, demonstration farms nd training centers, and post harvest facilities such as driers, threshers, rice mills, storage or warehouses;
4) Immersion of agricultural extension workers in the rural barangays with appropriate technology transfer;
5) Implement crop zonification at the barangay level; and,
6) Improvement of physical infrastructure facilities such as farm to market roads to encourage farmers to increase production.

The following programs and projects are some recommendations to address the prevailing needs and problems of the agriculture sector:

1) Crop rotation and diversification program.
2) Provision of postharvest facilities in some barangays.
3) Water impounding project or dam in any of the identified barangays.
4) Capability. Building Program for local agricultural extension workers.
5) Backyard Farming Program to include cattle, hog and goat.
6) Cattle Fattening Program.
7) Livestock Dispersal Program.

Trade and Industry

To boost local trade / commerce and industrial activities of the municipality, the local government aims to achieve the following general objectives:

1) To create a local environment conducive to greater commercial and agro-industrial development; and,
2) To augment the income level of the local population through assistance in technical and marketing schemes.

Specifically:

1) To promote labor-intensive industries;
2) To promote coconut based industries;
3) To create opportunities for the rural population to be engaged in livelihood activities;
4) To identify needed skills for agri-based industries; and,
5) To identify another commercial and trade center in the municipality.

To meet the above objectives, the following strategies are being recommended:

1) Promote small and medium scale cottage industries;
2) Skills and capability building in the area of handicraft making;
3) Provision of support or assistance in the marketing of locally made products;
4) Identification of participants to the skills and training projects;
5) Identify and develop an alternative commercial or trading area/s; and,
6) Identification of an agro or agri-industrial site/zone.

The following programs and projects are recommended to address the needs and problems of the trade and industry sectors:

1) Food and Fruit Processing and Preservation Project such as:
   - Nata de Coco
   - Santol preserves
   - Meat processing
   - etc.
2) *Intensified Handicraft-making Program.*
3) Training and skills development program in the areas of product design and packaging.
4) Skills Development and Training *Program for unemployed mothers, out-of-school youth, and other unemployed adults.*
5) Establishment of a cooperative specifically for marketing of locally made handicraft products.
6) Establishment of an agro/agri-industrial information system/program.

Natural Resources

In view of the problems and needs of the natural resources' sector previously cited, the local government of Tayabas aims to achieve the following:

To enhance the environmental awareness and knowledge of the local officials and the constituents of Tayabas.

Specifically:

1) To protect the mineral resources of the municipality;
2) To promote the proper utilization of forest and natural resources;
3) To encourage community participation in protecting the natural resources of Tayabas; and,
4) To increase the capability of the local government unit in monitoring its environment and natural resources.

The strategies are recommended to accomplish the above objectives:

1) Organize community organization/s to assist in monitoring the natural resources of Tayabas;
2) To establish linkages with non-governmental organizations to sponsor or assist in an environmental training for local government and barangay officials;
3) To tap students or out-of-school youths as young guardians of natural resources; and,
4) To establish data base on the municipality's mineral deposits and natural resources.

The following are recommended programs for implementation:

1) Capability Building Program on Natural Resources' Management.
2) Data Base on Mineral Deposits Project.
3) Creation of a "Bantay Kalikasan" Task Force (a multi-sectoral group).

Tourism

The following are the objectives of the sector:

1) To develop tourism in Tayabas; and,
2) To strike a balance between tourism and local economic development.

Specifically:

1) To optimize the economic benefits of tourism development;
2) To ensure environmental protection and preservation in tourism development;
3) To increase the income of local government and the Tayabasens through tourism development; and,
4) To develop strong Tayabas identity through culture, history and tradition.

The following strategies are recommended to accomplish the above objectives:

1) Identify and plan potential tourist development sites;
2) Develop and improve physical infrastructure;
3) Promote local shows or festivals;
4) Conduct strong marketing tourism campaign;
5) Support and encourage eco-tourism;
6) Training of out-of-school youths as manpower support for tourism activities;
7) Promote environmental protection awareness in schools;
8) Strengthen youth participation in eco-tourism; and,
9) Strengthen linkages of tourism with agri based industries.

In line with the strengthening of local tourism in Tayabas, the following are the recommended programs and projects:

1) Preparation of a Tayabas Tourism Program;
2) Creation of a Local Tourism Council with members coming from NGOs, POs, and local government.
3) Development or construction of a display center for locally produced handicrafts.
4) Launch an Eco-tourism campaign program with the youth as its target participants.

5) Launch a Cultural Tourism Program.
6) Prepare tourism information dossier.
7) Joint tourism drive by local government, Tayabas Mountaineers, and the Tayabas Historical Society.
8) Establishment of a museum on the cultural history of Tayabas.
9) Renovation and preservation of old or vintage houses as showcase of the town's past.

Infrastructure and Utilities

Water

The objective of the sector is to:

1) Provide adequate potable water supply.
2) To improve water distribution system.

The strategies to improve adequate water supply are:

1) Construction of deep wells and shallow well pumps.
2) Minimize water wastage by repairing leaks in pipes.
3) Development of springs.
4) Construction of water storage facilities.

The strategy to improve the water distribution system is by expanding service connections.

Power

The objectives of the sector are:

1) To provide adequate power to all residents.
2) To energize the unserved barangays of Tayabas.
3) To discourage illegal household connections.

The strategy to provide adequate power to all residents is to install additional power facilities.

The strategy to energize the unserved barangays of Tayabas is to install powerlines to unserved areas.

The strategy to discourage illegal household connections is to conduct a thorough study on the actual number of power connections.

Transportation

The objectives of the sector are:

1) To construct and / or maintain farm-to-market roads.
2) To construct new bridges and rehabilitate the existing ones.
3) To minimize traffic congestion at heavy traffic areas and crossroads.

Communication

The objective of the sector is to encourage publication of local newspapers / newsprint. To do this, local potentials in publication of local newspapers will be developed.

Drainage and Sewerage Systems

The objectives of the sector are:

1) To prevent the occurrence of flood.
2) To provide outlet for sewerage and stagnant water.
3) To prevent if not reduce human and material damage due to flood occurrence.
4) To promote health and sanitation.

The strategy to prevent the occurrence of flood is to construct adequate drainage canals.

The strategy to provide outlet for sewerage and stagnant water is to repair / declog existing canals.

The strategy to prevent if not reduce human and material damage due to flood occurrence is to encourage residents to help maintain the cleanliness of the drainage fronting their houses, and declog drainage lines.

Health and sanitation will also be promoted as a strategy.

Solid Waste Management

The objectives of the sector are:

1) To promote a healthy and sanitary environment.
2) To maintain an efficient flow of drainage / sewerage.

The strategies to promote a healthy and sanitary environment are:

1) Provision of an adequate number of garbage trucks, facilities, and equipment.
2) Identification of an acceptable location of the dumping site.

The residents will be encouraged to put their solid wastes on garbage cans as part of the strategy to maintain an efficient flow of drainage / sewerage.

ADMINISTRATIVE AND FINANCIAL ASPECTS

Administrative / Institutional Sector

Existing Administrative Situation

The devolution mandated by the Local Government Code of 1991 entails the transfer of basic and other services from national government agencies (NGAs) to the local government units (LGUs). Thus, this implies additional duties and responsibilities on the part of the municipal government. The structure should adjust to this change in municipal functioning. Furthermore, the municipal government is presently committed to various programs and projects with priorities on physical infrastructure, basic services provision and LGU capability building in the delivery of other services.

Carrying Out the Development Plan

There are manifold administrative, legal and financial tools for their implementation at the disposal of the Municipality of Tayabas, especially with the presence of the said Code. The following are tools for implementing the land use plan:

1) Police Power
2) Eminent Domain
3) Taxation
4) Local Development Investment Program (LDIP)

Financial Aspect (Government Income and Expenditure)

Income

An analysis of the municipality's income from all sources shows that a major portion of it came from Tax Revenue having an average of 82.55 percent. The remaining portion came from real estate and business taxes and licenses.

Expenditure

The expenditure of the municipality did run over its income. This indicative that with the surplus coupled with intensive tax collection campaign, the municipal government will be able to undertake some development projects and services.

COMPREHENSIVE LAND USE PLAN
MUNICIPALITY OF QUEZON, ISABELA

RURBAN Planners, Inc.

The preparation of this COMPREHENSIVE DEVELOPMENT AND LAND USE PLAN comes in two volumes. The first volume is entitled Physical and Socio-Economic Profile of Quezon. The other volume is entitled the Comprehensive Land Use Plan of Quezon.

VOLUME 1: PHYSICAL AND SOCIO-ECONOMIC PROFILE

INTRODUCTION

Overview

The realization of local autonomy, the perceived stability in the political arena and the positive economic performance of the country in the past three years have generated enthusiasm and active participation towards the achievement of growth and development at the local level. Majority of local officials have finally come to realize that now is the time to relentlessly pursue the twin goals of attaining self-sufficiency and sustainable development through rational use of its natural and human resources. In the light of this development, municipal and provincial governments have initiated the formulation of their respective structure plans as explicitly provided in the 1991 Local Government Code and Executive Order No. 72.

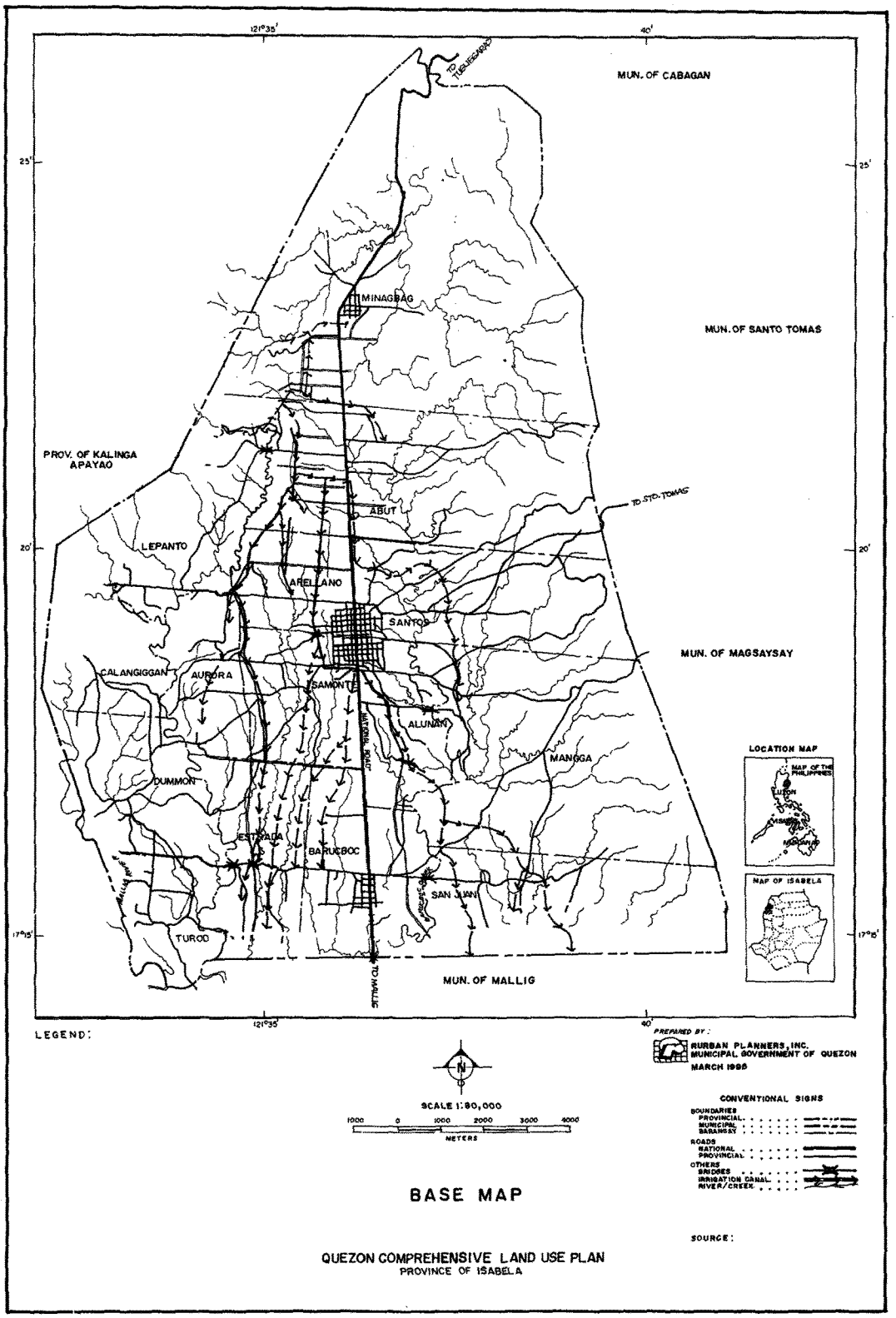
One among the many local government units which saw the need for and importance of a comprehensive land use plan is the municipal government of Quezon, Isabela. The anticipated investments into the local economy and the rush in the implementation of development programs and projects both by the national and provincial governments, have prodded the able leadership of Mayor Gavino P. Gascon in partnership with the local development council and the Sangguniang Bayan to revise and update its local land use plan in response to these new developments. The decision to revise its local development plan was in response to two crucial issues, namely, revitalization of its local economy through agro-industrial development strategy and the need to address the perennial problem of conversion of agricultural lands to non-agricultural uses.

The Physical and Socio-Economic Profile of Quezon forms an important basis for the formulation of the comprehensive land use plan. It contains a detailed and comprehensive description and assessment of the current situation which includes an examination of the area's physical environment, socio-cultural characteristics, economic features, development needs, the types, quality and amount of resources that it must mobilize in order to improve its existing condition. From the profile of the municipality, issues, problems, constraints and development potential will be identified. These in turn will be the basis for the formulation of the land use and socio-economic development plan.

Format of the Report

The introductory chapter was complemented at the end by a brief discourse on the historical background and the geophysical characteristics of the planning area. Aside from its geographic location and territorial coverage, this chapter also looks into the climatic regime, topographic and physiographic features, soils system, geology, groundwater, and land use pattern of the municipality. The historical account of the municipality has likewise been included in the chapter.

Chapter III presents the Infrastructure and Utilities System which describes the existing road networks, transportation system, communications, water supply, drainage and sanitation and waste disposal system. After the physical aspect, the profile proceeds with the socio-economic description of the area which covers Chapters IV to VI. Topics include demography, agriculture, distribution of establishments by types of sub-industry and



BASE MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

employment size, housing, health and sanitation, education, protective and social welfare services and recreation facilities.

Finally, Chapter VII highlights the current institutional and fiscal administration and operations set up in the municipality.

THE GEOPHYSICAL ENVIRONMENT

Historical Background

Unlike some parts of Isabela like Santiago, Echague and Alicia, the history of the municipality of Quezon is relatively recent. The former municipalities have long been seats of rich and colorful historical events that influenced the lives of the people of Isabela since its creation in 1856 through a Royal Decree issued by the King of Spain. It was in these very places where the Spanish authorities made decisions that ultimately governed the lives of the local people.

Prior to its creation in 1959, Quezon was once part of a vast track of agricultural land called the Mallig Region. At that time, the area that is presently under the political jurisdiction of the municipality was sparsely populated. Historians believe that the precursors of the present inhabitants of Quezon are the Igorots and the Kalingas of the Cordilleras. Although the Igorots and the Kalingas are primarily upland dwellers, historians have observed that these natives come down from the highlands from time to time to hunt in the lowlands especially during the Cañao celebration.

When Manuel L. Quezon was elected as the President of the Philippine Commonwealth, one of the administration's main program was to promote development in other areas in the country aside from Manila. In order to achieve this objective, President Quezon opened up vast uninhabited areas for settlement hoping that these would be developed by those who will decide to settle in those areas. Aside from Mindanao, other parts of Luzon were similarly offered for settlement and development including the province of Isabela, particularly the northwestern portion of the province which was later called the Mallig Region.

Seeing the potential of the area for settlement and agricultural development, President Quezon declared the entire region as project site for his program on rural development. In support of this declaration, he created the Office of National Land Settlement Administration (NLSA) which was re-named to Land Settlement Development Corporation (LASEDECO). Subsequently, this corporation was re-organized and its name changed to Board of Liquidators (BL). At that time, the primary objective of the NLSA or LASEDECO was basically to oversee and facilitate the distribution of lands to qualified settlers. With the development of this opportunity for rural and agricultural development and with the completion of the Balete Pass Road in the 1920s that runs through the hinterlands of the Caraballo Mountains, hundreds of inhabitants from Ilocos and Central Luzon regions opted to settle and avail of the program of the government in the Mallig Region.

A few years after the declaration of the area as a site for settlement and agricultural development, World War II broke out and the region was later placed under the Japanese control. Although the extent of destruction on properties and the number of lives lost during the war was nothing compared to other areas in the country, early settlers of the region had difficulties rebuilding their lives after the war for they were not spared from the wrath inflicted by the members of the Kalinga tribes from the north. As previously stated, pioneers in the region were constantly harassed by members of the Kalinga tribes for years especially during "Cañao" festival. One of those who fiercely and bravely fought the onslaught of the Kalingas was the late Jesus Estrada for whom a barangay was later named after. It was only after the government and leaders of the tribes negotiated and agreed to end hostilities that the threat to the lives of the early settlers of the region was eventually dispelled.

With the attainment of peace and security in the region, the exodus of settlers to the area increased. But the continued influx of new settlers into the area resulted to a greater need to provide for the basic requirements of the local residents. Officials of Isabela, particularly Representative Delfin Albano of the lone district of Isabela saw the urgency and the need to create a new municipality out of Mallig. He authored House Bill No. 736 which was later approved by the Senate and President Carlos P. Garcia in 1959 through Republic Act No. 2418 (An Act Creating the Municipality of Quezon in the Province of Isabela). The name of the municipality was in honor of the late President Manuel L. Quezon who was instrumental in the development of the municipalities of Mallig and Quezon.

Hildegrando Pecson was appointed as the first mayor of the newly created municipality from 1960 until 1967 when Hermogenes Padilla defeated him. Padilla's term as mayor lasted until 1971 when the people popularly elected a new mayor in the person of Gavino Gascon, the incumbent mayor of the municipality. After his term in 1976, Mayor Gascon was succeeded by William Corpuz who was in turn replaced by Oniate Tabancura, a former officer in the military.

When former President Marcos was overthrown in 1986, President Aquino appointed former Mayor Corpuz as the local chief executive. When the local elections was held in 1987, former Mayor Gascon was re-elected as mayor of Quezon, a mandate which he enjoys up to the present.

Geographic Location and Land Area

The municipality of Quezon is one of the 37 towns comprising the province of Isabela. Situated in the northwestern portion of the province, it is bounded on the north by the municipality of Sta. Maria, on the south by the municipality of Mallig, on the east by the municipality of Delfin Albano, all within the province of Isabela; and on the west by the province of Kalinga. A land-locked municipality, its absolute location is between 121°32' to 121°41' longitude East and 17°14' to 17°26' latitude north.

Its main access is a national highway that traverses in a general north-south direction virtually slicing the municipality lengthwise and then connecting it with other municipalities in Isabela (i.e., Sta. Maria in the north, Mallig in the south). Towards the west is a provincial road which links Quezon to Sto. Tomas, Tuguegarao.

Its planned upgrading augurs well for the development of Quezon as the municipality can become a major transport node. A provincial artery links it with the province of Kalinga to the west. The arterial link is approximately 56 kilometers (linear road distance) from Ilagan, the capital town of Isabela; about 150 kilometers from Tuguegarao, the regional center; about 20 kilometers from Tabuk, the provincial capital of Kalinga; and about 410 kilometers from Metro Manila with an average travel time of 8-9 hours by land.

As in the case with most local government units (LGUs), determination of the extent of local municipal jurisdiction is an issue generating conflict between Quezon and some of its neighboring municipalities. Based on the 1994 Local Government Report, the municipal government uses a figure of 18,990 hectares, representing only about 1.8 percent of the total land area of the entire province of Isabela which is placed at 1,066,440 hectares. The province as evidenced in the draft ISABELA PPFP presently uses the same figure. The office of the Municipal Assessor seems to be the source of this figure based on the municipal cadastre.

However, data from the office of the Municipal Planning and Development Coordinator (MPDC) reveal a larger land area of 26,853 hectares. Where or how this was generated is unclear although such a figure may be found in the old town plan of Quezon which was prepared with the assistance of the Housing and Land Use Regulatory Board (HLURB). Based on 1:25,000 scale maps prepared jointly by RURBAN and the MPDC, a figure of 22,503 hectares is calculated using a manual dot-grid system and validated by a digital planimeter. For this report, the 18,990 value shall be used based on the latest municipal documents.

With regards to the need to seek authoritative ruling on the issue of political boundaries and municipal land area, RURBAN made representations with relevant government agencies. As can be inferred from the official communications, appears that the "official" data will have to be provided by the DENR-Regional Office. However, figures in the records from the Survey Division of DENR Regional Office and from the official municipal map do not reconcile. In the process, RURBAN noted some errors in the map (e.g. coordinates, places, names, etc.) which casts doubts on its veracity.

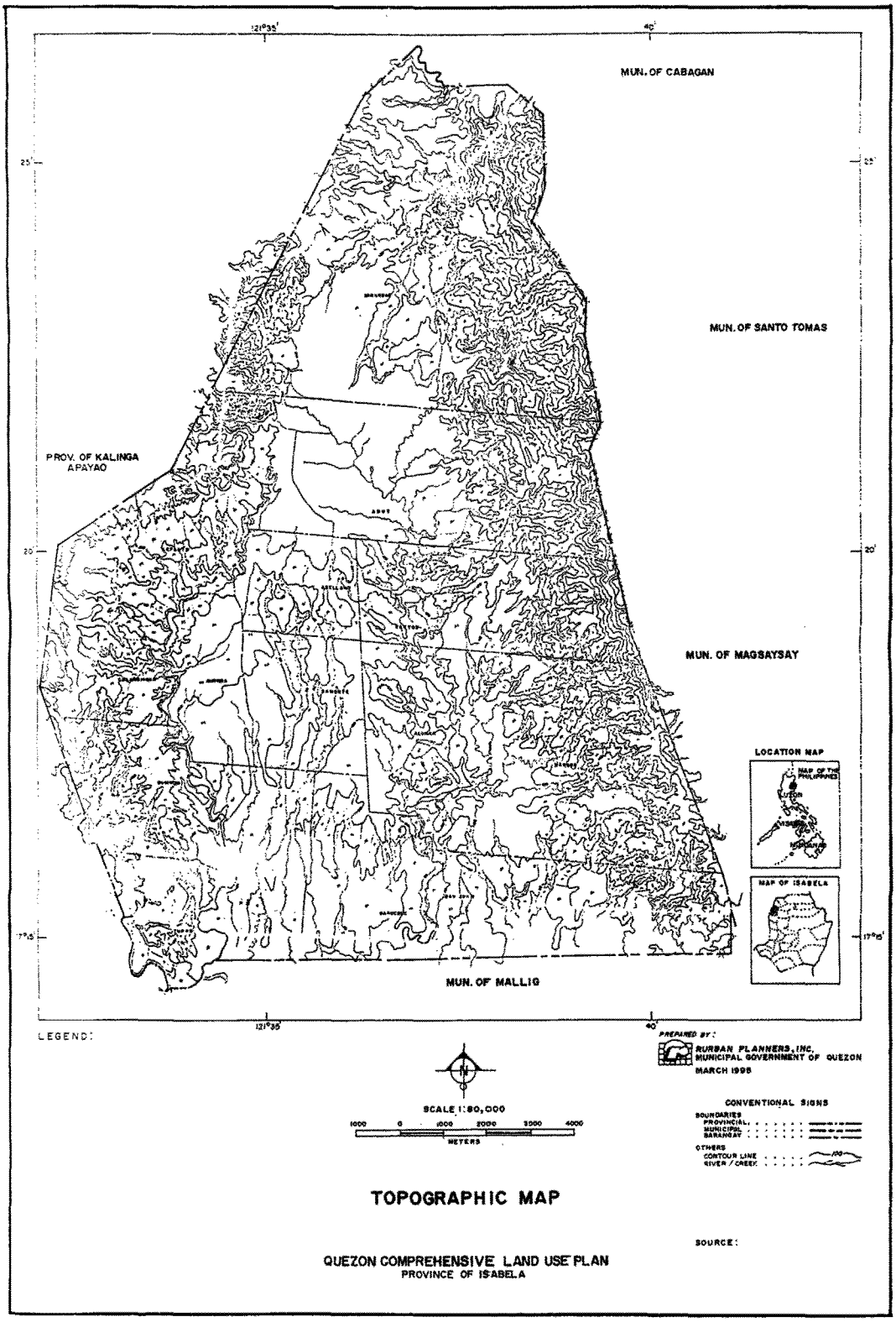
RURBAN calculated an area of approximately 22,500 hectares (with about 19,000 hectares referring only to the A&D lands), while data of the Surveys Division of the DENR Regional Office show a total land area of 18,990 hectares for Quezon (i.e., 17,303 ha. A&D lands; 1,688 ha. forestland).

For this paper, the 18,900-hectare figure is adopted. The boundaries as depicted was adopted in consultation with the local counterparts, taking into consideration historical events and legal documents. It may be added that while the actual measurement of municipal land area is a technical task, boundary disputes are essentially a political (but potentially legal) matter. The LGC has proposed ways of settling such controversy.

There are at present 15 barangays in the municipality with moves on the possibility of creating two additional barangays in the near future. Four are considered urban and the rest are rural.

The Climatic Regime

Using the corona classification scheme, the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) has classified the climatic type of Quezon under Type III category. Type III climate is characterized by two seasons which are not very pronounced; a relatively dry season which lasts for an average of four months from December to April, and a wet season from May to November with maximum



TOPOGRAPHIC MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

rain periods towards the last quarter (September to November). This classification system is based on precipitation levels rather than on temperature ranges due to the fact that the tropical location of the Philippines prevents any significant fluctuation in temperature readings.

Although the Sierra Madre flanks the eastern boundaries of Quezon, the predominance of relatively flat to moderately sloped areas and the absence of imposing peaks prevent orographic precipitation. Quezon, however, is exposed to the monsoonal wind systems and that periodic typhoons are a permanent feature.

Rainfall

The Agro-Meteorological station located in Minanga, Iguig, Cagayan recorded an annual rainfall of 1,572.4 mm, 92.3 percent of which was recorded from May to November (1983-1987). Maximum rainfall of 309.2 mm occurred in October, while minimum rainfall of 3.4 mm occurred in February.

Temperature

As mentioned, diurnal variations in temperature readings are minimal with an annual average of 26.9°C. The hottest month of the year is April with an average of 29.9°C while the coolest month falls on January with an average of 21.6°C. Temperature extremes, however, may dip to as low as 13.6°C in January, and may climb to as high as 38.4°C in April.

Relative Humidity

The constantly high temperature promotes evaporation in the area which in turn results in humid conditions. Sparingly does the humidity level drop below 69.4 percent which is the minimum level during the month of October, even as it peaks to 94.3 percent during the month of December. The annual average is a high 85.9 percent.

Topographic and Physiographic Features

Topography and Geomorphology

The municipal landscape of Quezon is characterized by a mixture of relatively flatlands punctuated at certain points by undulating and rolling terrain, with mountain ranges flanking its eastern and western sides. The low lying hills and surrounding mountains ranges are slightly dissected by intermittent creeks and waterways, which act as natural drainage avenues of accumulated run off water coming from the uplands. The physiography of the municipality falls in two basic categories: an alluvial plain and a mountainous terrain. The central plain, where the Poblacion is located, has an elevation of about 100 meters above mean sea level, and is predominantly characterized by low relief and moderately sloping areas. Three-fourths of the town is covered by these flatlands which may be considered as a broad alluvial plain with recent depositions and residual soils. These areas are found sandwiched between the eastern and western uplands as well as on the other side of the Sierra Madre foothills.

The southwestern portion is characterized by the low lying hills with undulating and rolling terrain, having elevations ranging from 90-120 meters above mean sea level. These are basically shale and sandstone materials which dominate the Isabela-Kalinga-Apayao boundary.

The eastern edge, meanwhile, forms part of the foothills of the major mountain range in the area and dominates the eastern flank of Quezon. This high relief area has peak elevations of up to 200 meters above mean sea level and is composed primarily of volcanic rocks.

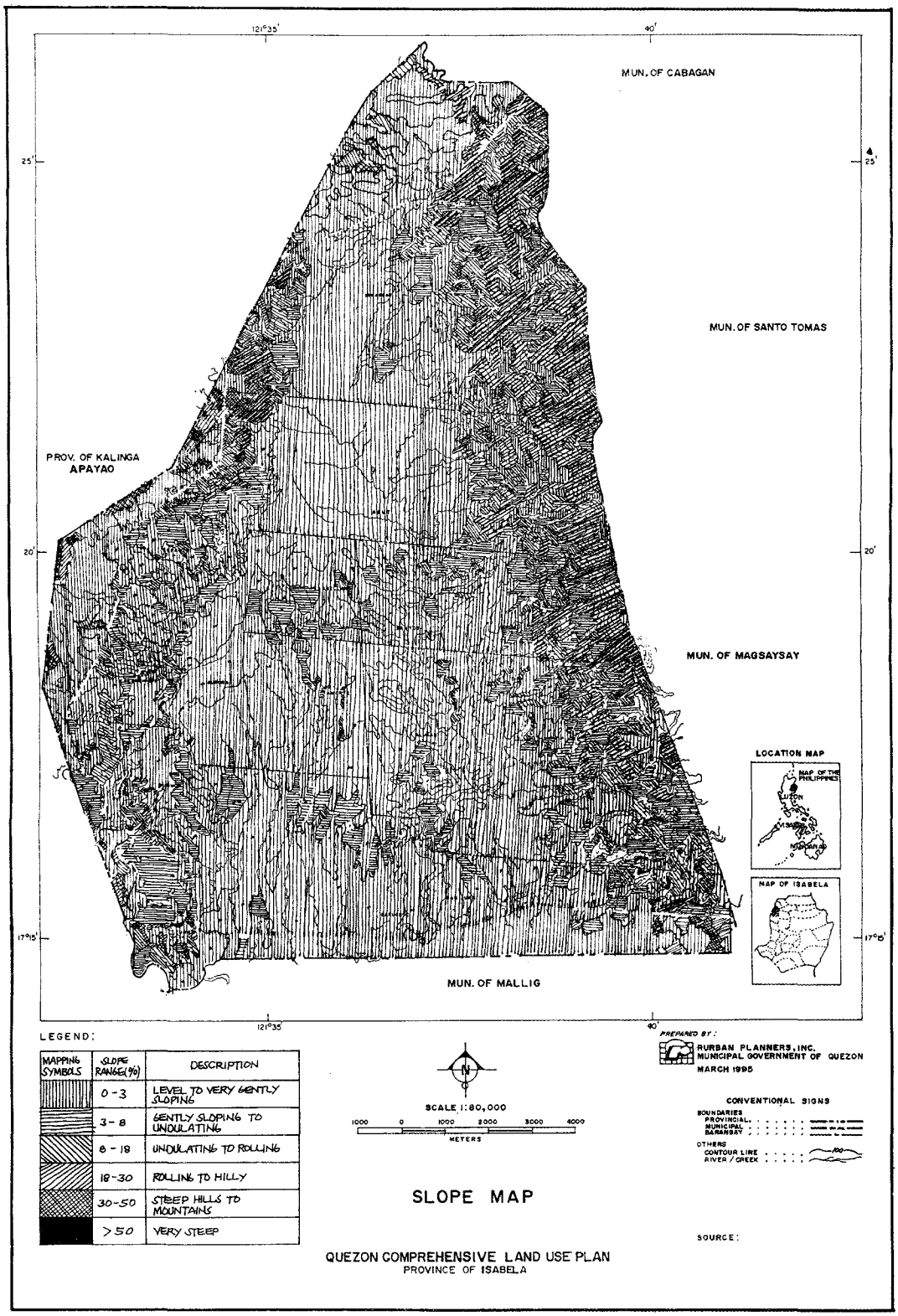
Slope Categories and Erosion Potential

In general, the terrain in the municipality favors land development efforts. The 0-3 percent slope which is characterized as level to nearly level lands comprises 11,232 hectares representing 59.1 percent of the entire municipality.

Areas with gently sloping to undulating terrain cover about 2,891 hectares sporadically distributed in the eastern and western fringes of the municipality, as well as in its central and southern ends. This represents 15.2 percent of the entire municipality.

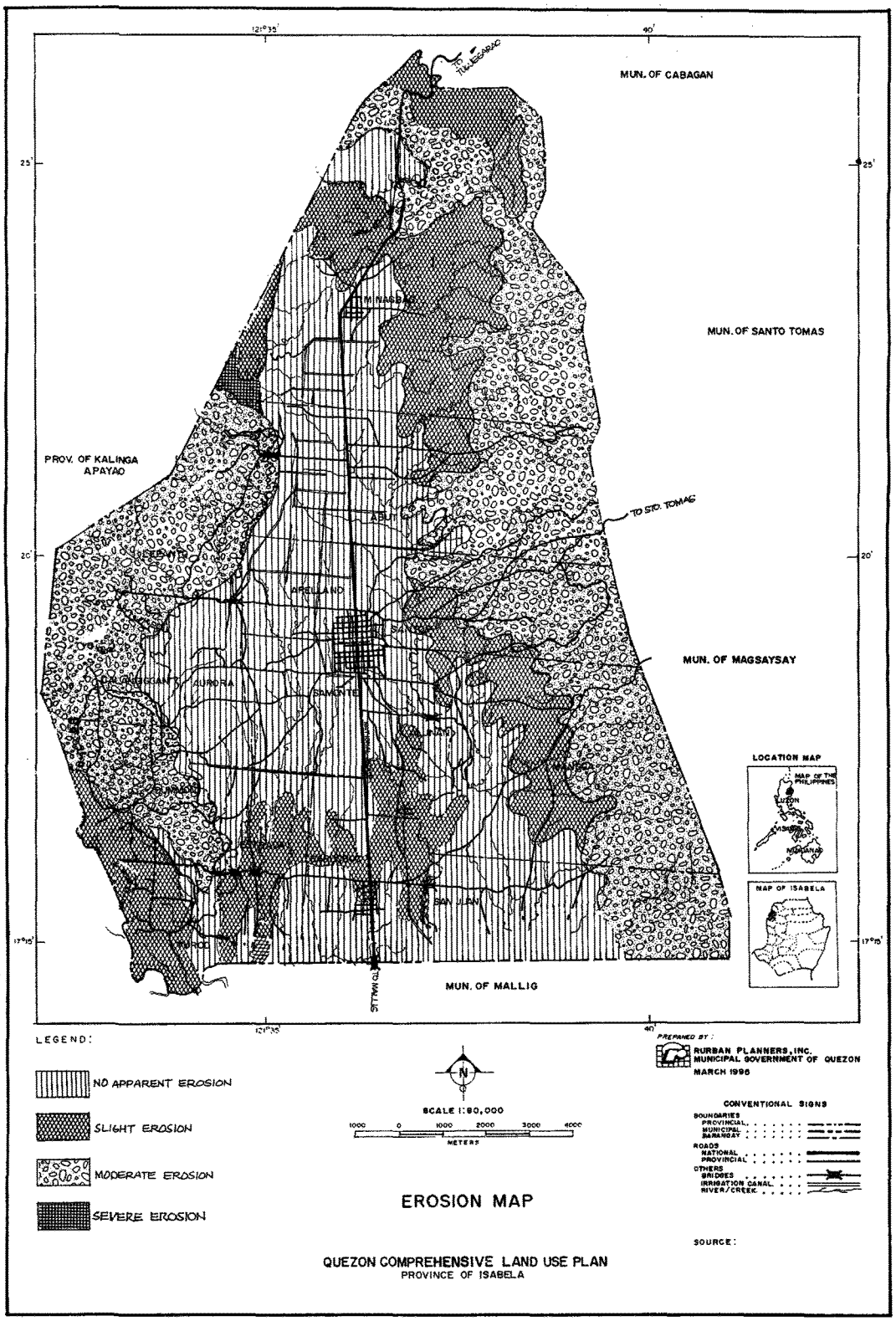
The 8-18 percent slope category which is described as undulating to rolling terrain are scattered in the eastern half, mainly at the footslopes of the Sierra Madre Mountain ranges. They cover about 1,354 hectares representing about 7.2 percent of the municipality. The next category 18-30 percent, described as rolling to hilly, covers about 3,007 hectares representing 15.8 percent. These are concentrated on the eastern portion of the municipality, particularly in the slopes of Sierra Madre.

Slope categories in the 30-50 percent range, described as steep hills and mountains, and those greater than 50 percent, have limited area coverage of 478 hectares and 28



SLOPE MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA



EROSION MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

hectares respectively, representing only 2.5 percent and 0.2 percent of the entire municipality. These areas are found sporadically at the Sierra Madre slopes and at the footslopes of the Cordilleras.

The predominance of level to nearly level areas resulted in manageable erosion problems for Quezon. Of the total municipal area, 7,862 hectares or 41.1 percent has been classified as with no apparent erosion, 4,078 hectares or 21.8 percent of the total area has slight erosion, while 7,050 hectares or 37.1 percent of the total area has moderate erosion. Areas with moderate erosion are concentrated in the vicinity of the hilly and mountainous portions of Quezon, caused primarily by minimal if not absence of vegetative and forest cover in these areas.

The Soil System

Pedologic surveys conducted by the Bureau of Soils and Water Management (BSWM) have identified two major soil series/categories in Quezon. These broad categories are the Bago Sandy Clay Loam and the San Juan Clay. The San Juan Clay is extensively distributed covering about 11,394 hectares or about 60 percent of the municipality. It offers good potential for such agricultural land use like orchards, commercial forest/woodland and pasture/grazing lands. The Bago Sandy Clay Loam on the other hand, covers about 7,596 hectares or about 40 percent of the municipality. This particular type of soil is presently devoted to lowland rice farming.

The assessment of the ground water resources by the National Water Resources Council (NWRC) in the entire province of Isabela was based on existing data on geologic formations, topography, ground surface elevations, precipitation and groundwater levels, all of which are available from the files of various agencies.

Based on the study, Quezon is classified into two categories namely: deep and shallow well areas. Shallow well areas generally consists of recent formations with slopes ranging from 0-3 percent. Most of these areas are located at elevations within 50 meters above mean sea level, like alluvial and coastal plains and river valleys. Shallow wells may also have deep water aquifer and are less susceptible to salt water intrusion. Although shallow wells can easily be made safe from bacteriological pollution, they may not be resistant to the effects of fertilizer and pesticides, particularly those that are constructed near ricefields. Deep well areas generally consist of sedimentary formation, 90 percent of which are water carriers. These are usually located in slopes reaching up to 10 percent, usually at elevations of more than 50 meters above mean sea level. The waters from deepwells are in general, of good quality.

Almost all of the entire portion of Quezon is classified as deep well area with a small portion of barangay Barucboc, having the lowest point of elevation in the entire municipality, belonging to the shallow well area.

Apparently, the waterholding capacity of the rock formations that underlie Quezon is poor. Quezon is underlain with sedimentary rock formations, the dominant being recent depositions of alluvium. This covers much of the municipality except in the Barucboc-Estrada area which is underlain with sandstone. The unconsolidated nature of the sandstone layers in these areas could account for the relatively shallow depth to the water table since, in general, sandstone's permeability allow good infiltration of water.

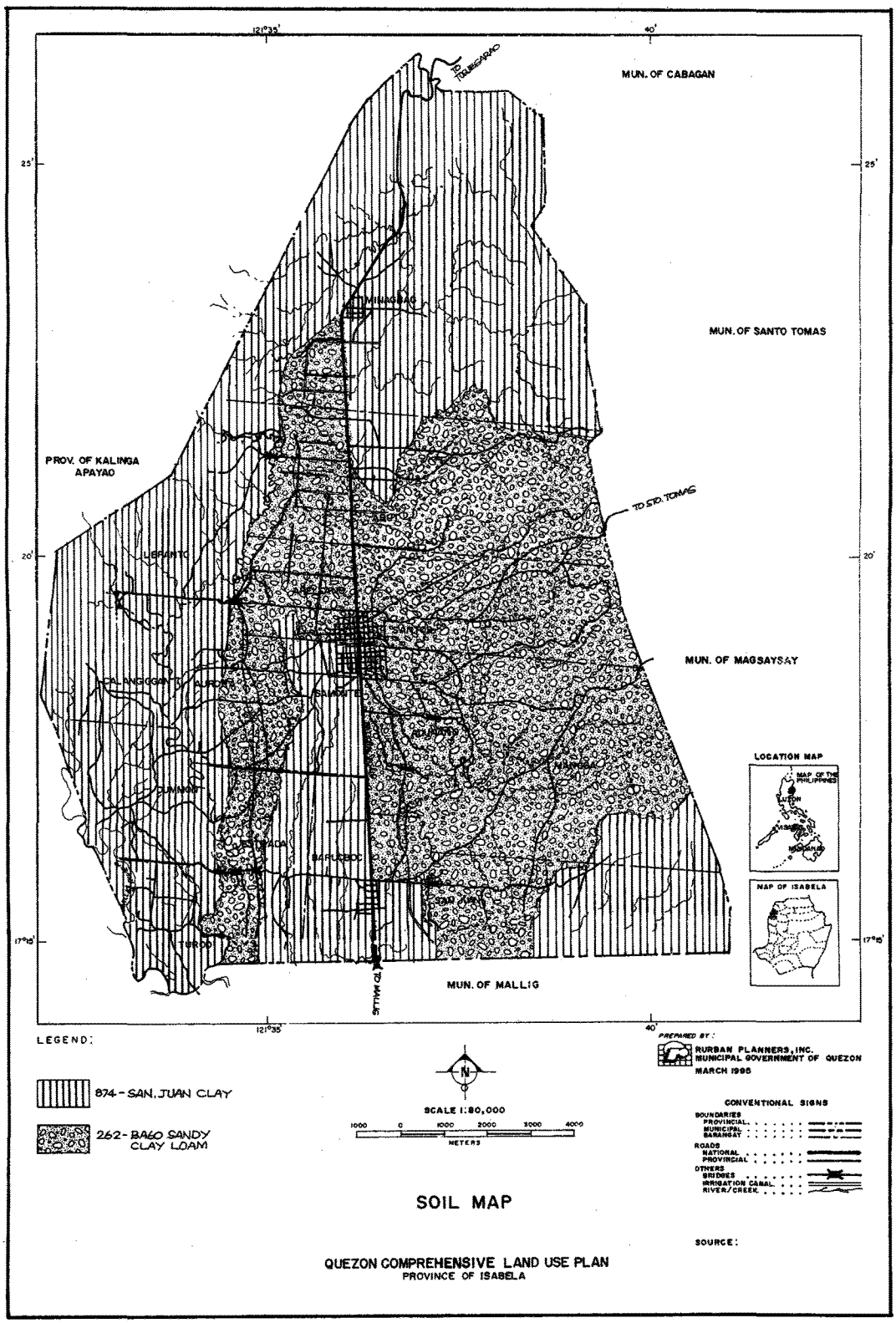
Existing General Land Use Pattern

Clustered development in a grid-iron pattern of road network characterizes the existing land use pattern. Built up areas (which include the residential, commercial, institutional areas), parks and open spaces are sporadically located in the 15 barangays. The major concentration is situated in a contiguous area of four barangays, namely Arellano, Samonte, Santos and Alunan, which comprise the town proper or the Poblacion. The total built up areas has an aggregate area of 879 hectares or five percent of the total land area of the municipality.

Agricultural lands cover approximately 8,400 hectares or 44 percent of the total land area. Included are ricelands, corn/tobacco land, lands devoted to vegetables, peanuts, fruit trees and other crops.

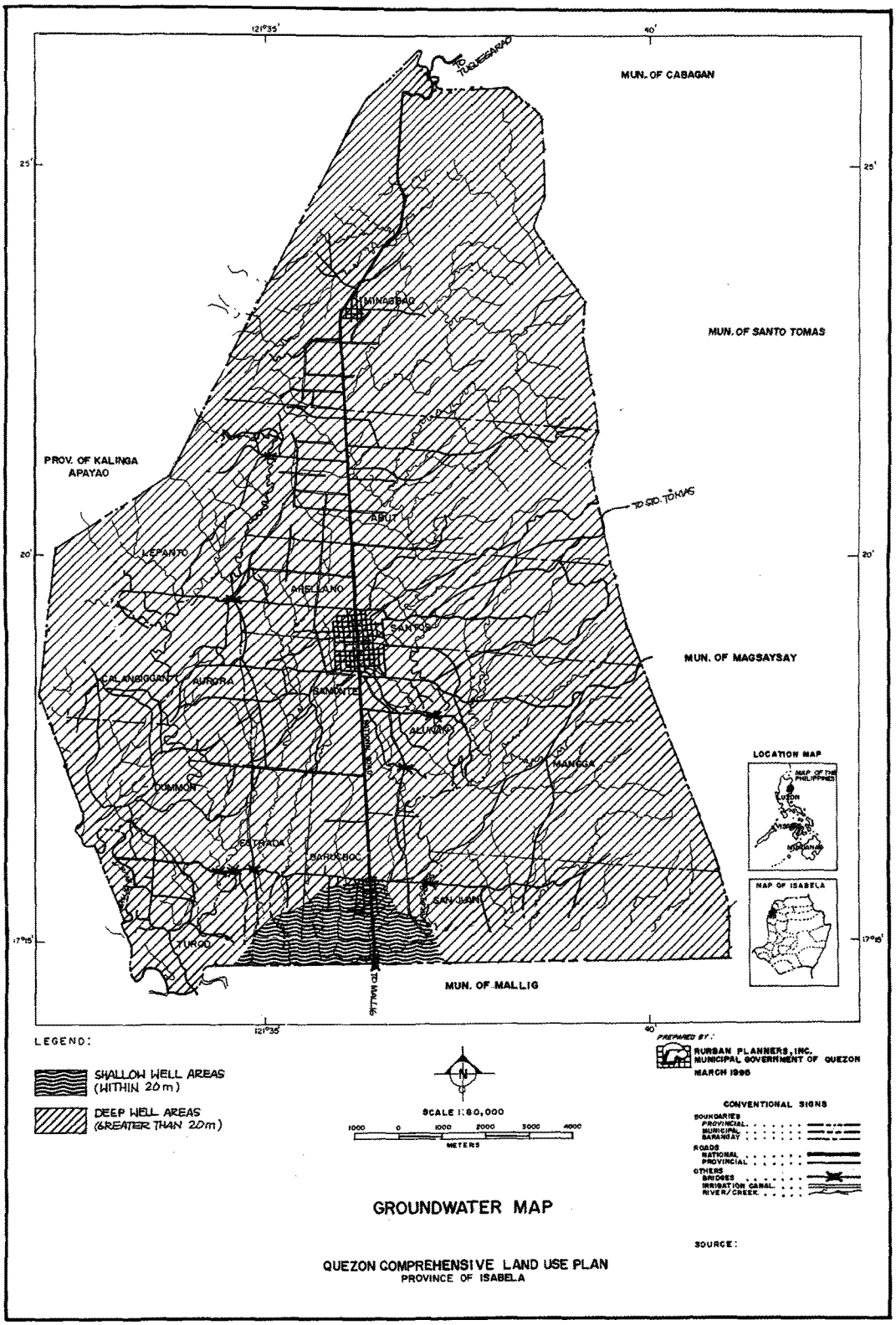
Open grasslands cover approximately 7,226 hectares or 38 percent of the total; however, only a small portion of these are actually being utilized as grazing/pasture lands while a major portion is left idle.

Forestlands cover approximately 2,305 hectares or 12 percent of the total area and these are located on the eastern portion of the municipality. However, due to denudation caused by kaingin, these numbers are dwindling considerably. While the land classification map indicates a vast timberland areas, these do not appear to be based on actual land use but rather, on tenurial status. That is, public lands are generally termed timberland areas. Water bodies like rivers and creeks occupy an aggregate area of



SOIL MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA



GROUNDWATER MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

approximately 180 hectares or about one percent of the total land area of the municipality.

Everything considered, land resources in Quezon could be described as somewhat underutilized given its vast potential for agro-industrial development.

THE INFRASTRUCTURE AND UTILITIES SYSTEM

Infrastructure development in the municipality which may be viewed as a manifestation and an indicator of the level of development is poor.

Road Network and Transportation System

Road Networks

The base map of Quezon indicates the major thoroughfares / arteries which provide circulation and access within and outside the municipality. These thoroughfares, considered critical to the progress and development of any municipality, could well be described as the "life blood" of Quezon.

Presently, Quezon is traversed by a total of 123.45 kilometers of road network, broken down accordingly by administrative classification as follows: national road (25 kilometers), 20.26 percent of the total; municipal roads (32.4 kilometers), 26.25 percent; and barangay roads (66.05 kilometers), 53.50 percent.

Statistics reveal the poor state and condition of the road network practically in all areas of the municipality. The inventory of existing roads classified by type of pavement shows that of the total 123.45 kilometers of road, only about a kilometers is made of concrete, another one kilometer is asphalt, 64.9 kilometers (52.57 percent) is gravel, and the remaining 56.587 kilometers or 45.84 percent is made of earth / dirt filled materials.

The main artery, which is the north-south trending national road, traverses through the center of Quezon and bisects the town. The southern end connects Quezon with the adjacent municipality of Mallig while the northern extension provides the link to the province of Kalinga Apayao and Cagayan. All access roads to all the 15 barangays in Quezon connects to this national highway making it a most vital component in the development of Quezon. This main artery is predominantly made of gravel / earth material and that upgrading (widening and concreting) is presently being undertaken with an estimated completion time of three years.

As earlier stated, all access roads to the municipality's 15 barangays are interconnected via the national road, and practically all of these roads are made of gravel/earth material making travel within Quezon quite difficult. During the rainy season, areas prone to flooding make it inaccessible. The eventual upgrading of these access roads plus the opening up of alternative access roads are deemed necessary components for the comprehensive development of the whole of Quezon.

Bridges

An inventory of existing bridges reveals that all of the nine bridges are of concrete. However, with the eventual widening of the national road, those bridges that fall within this stretch would become bottlenecks unless similar widening is eventually undertaken.

Transportation Terminals and Parking Lots

Presently, there is a peculiar absence of permanent terminals for passenger vehicles in the municipality, where upon the roads consequently serve as poor substitutes. This creates traffic congestion especially within the downtown market area which becomes a beehive of commercial activity during market days. It is foreseen that with the eventual upgrading of the national road, a dramatic increase in the number of passenger / cargo vehicles plying through Quezon will occur. The eventual designation of permanent terminals for loading and unloading to ensure a smooth and orderly flow of traffic along such thoroughfares would be imperative. Likewise, on street parking should be discouraged. Owners of commercial establishments must be required to provide adequate parking area for their customers.

Transportation Facilities

The dominant modes of transportation plying the roads of Quezon are the modified version of the farmers hand tractor, more popularly known as the "kuliglig", and jeepneys plying routes to and from the different barangays. Presently, there are only two or three minibuses plying the route from Roxas to Tuguegarao (and vice versa), traversing through Quezon at a frequency of once a day. The bigger bus companies like PANTRANCO which plies the route from Tabuk to Manila and DANGWA from Tabuk to Baguio (and vice-versa) traverse Quezon with the same frequency. Other bus lines include Green Land Bus, Emmanuel, SST, Rovil Trans, and Nelbusco Lines. The acute lack of public transportation is further compounded by the lack of scheduled jeepney trips. Bus companies, on the other hand, follows a

schedule. There must be regulation on this matter for the welfare of the riding public.

Power and Energy Sources

The power supply demand for the municipality of Quezon is at present partially being served by the Isabela Electric Cooperative, Incorporated (ISELCO) II, with its generating units located in Ilagan.

Only eight of the 15 barangays in Quezon are being serviced by ISELCO, namely: Barucboc, Alunan, Samonte, Santos, Arellano, Abut, Mangga and Minagbag, due to their accessible location along the national road. However, records reveal that of the total connections in these eight barangays, only 48 percent of the households are actually serviced with electricity.

The predominant use of electricity in the municipality is for lighting, electric appliances and the like for residential, commercial and institutional establishments. Agro / Industrial establishments which require heavy power loads partially subscribe to ISELCO, but this is supplemented by their own power generating units (generators) specially during summer months when power outages are common.

Main reasons cited for the lack of effective power supply coverage for the whole of Quezon are the inadequacy of installation facilities and equipment like posts, transformers, wires, etc. The sporadic / dispersed location of residential clusters also make distribution of the utility difficult. Summarily, it can be gleaned from these reasons that at the moment, there are doubts as to the financial viability and feasibility of extending power supply coverage to the remaining unserviced areas.

But in any process of development, a fundamental element and a key indicator of its progress is the capability to provide the most effective coverage of power supply at any area within its confines. Therefore, evaluation of such a vital element to progress has to be seen not only in the light of quantifiable factors such as financial viability alone, but also with regard to such factors like the social benefits/costs it brings, which in itself has great economic impact.

Water Supply

Domestic Use

The existing water supply facilities in Quezon is a crude mix of deep wells, shallow wells (both public and private) with some areas having developed spring catchment reservoirs complemented by a piped water system.

The water table or depth of groundwater in Quezon ranges from 80-120 feet for most barangays. Except barangay Barucboc, the water table sits at 40-60 feet. Three barangays, namely Abut, Callanguigan and Lepanto benefit from the development of natural spring catchment reservoir near the boundary of the Kalinga Apayao mountains. Two more proposals are pipelined for spring catchment reservoir development for barangays Minagbag and Mangga, but this has been put on hold due to the unavailability of funds.

These spring water reservoirs are not sufficient to cater to the needs of the people, hence, there is a need for installation of shallow wells and deepwells. These wells are the main sources of potable water for most of the barangays and in certain areas which are complemented by pumps and piped water systems.

The existing mix of water supply system is evidently insufficient to meet the present potable water demands of the whole municipality, and more so in the future. Water, being a basic need is critical to the survival and development of any community / habitat. Therefore, it is urgent that the problem of water supply be addressed expeditiously.

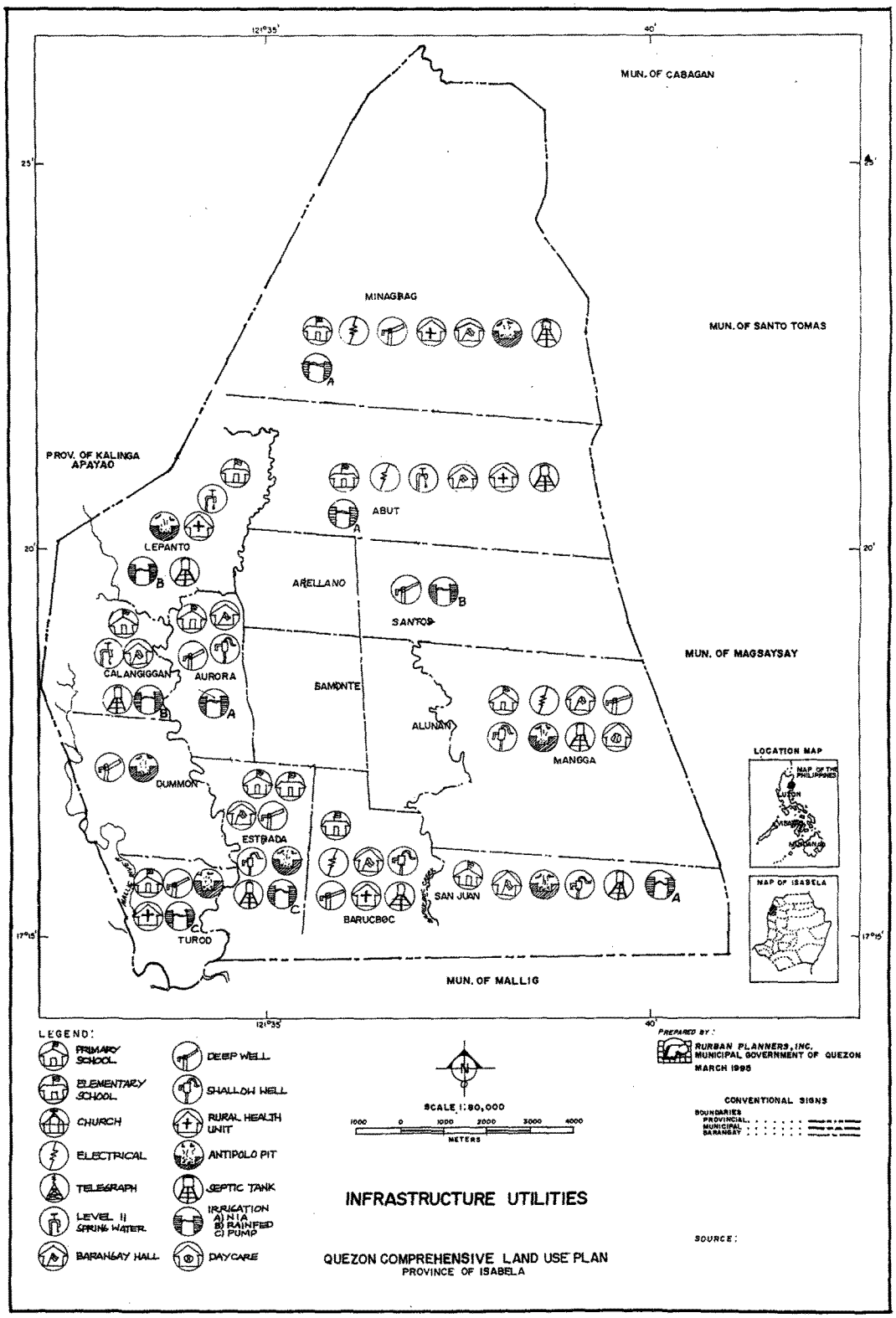
Agricultural Use

The farmlands of Quezon are dependent on the Chico River Irrigation System (CRIS-NIA) managed by the National Irrigation Administration (NIA). Of the total coverage, only 4,234 hectares are irrigated during the dry season. This expands to a wider coverage of about 6,530 hectares as the wet season approaches. The unirrigated areas depend on rain water and pumped wells for its water supply. Again, it is evident that the coverage of the existing CRIS-NIA is insufficient to meet the present demand.

If productivity is to increase which could be the key to the economic development of Quezon, alternative sources of irrigation have to be established to augment the already limited coverage of the CRIS-NIA.

Drainage and Sewerage System

There is an apparent absence of an adequate man-made sewerage system in the municipality. The natural drainage system is composed of rivers, streams and various tributaries which act as catchment for run-off water. Flash floods are already occurring in the low lying populated areas in the


121°35'
40'
25'
20'
17°15'
MUN. OF CABAGAN
MINAGBAG
MUN. OF SANTO TOMAS
PROV. OF KALINGA APAYAO
ABUT
LEPANTO
ARELLANO
SANTOS
MUN. OF MAGSAYSAY
CALANGIGGAN
AURORA
BAMONTE
ALUNAN
MANGGA
DUMMON
ESTRADA
SAN JUAN
BARUCBOC
TUROD
MUN. OF MALLIG
LOCATION MAP
MAP OF THE PHILIPPINES
LUZON
ISABELA
MAGUINDANAO
MAP OF ISABELA
LEGEND:
PRIMARY SCHOOL
ELEMENTARY SCHOOL
CHURCH
ELECTRICAL
TELEGRAPH
LEVEL II SPRING WATER
BARANGAY HALL
DEEP WELL
SHALLOW WELL
RURAL HEALTH UNIT
ANTIPOLO PIT
SEPTIC TANK
IRRIGATION A) NIA B) RAINFED C) PUMP
DAYCARE
SCALE 1:80,000
1000 0 1000 2000 3000 4000
METERS
PREPARED BY:
RURBAN PLANNERS, INC.
MUNICIPAL GOVERNMENT OF QUEZON
MARCH 1995
CONVENTIONAL SIGNS
BOUNDARIES
PROVINCIAL
MUNICIPAL
BARANGAY
INFRASTRUCTURE UTILITIES
SOURCE:
QUEZON COMPREHENSIVE LAND USE PLAN
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municipality, particularly in the Poblacion, as well as in settlement areas near river banks. A substantial portion of Quezon being flat would be prone to flooding especially as the increase in settlement areas occur as a natural consequence of growth and development. Unless the construction of adequate, well-planned sewerage / drainage systems are incorporated in the construction of various roads / thoroughfares throughout the municipality, the situation could worsen.

Waste Disposal System

Domestic / Farm Waste Disposal

The waste disposal system for domestic waste is either through the Antipolo pit system or septic vault. Common in the outlying and depressed areas where the availability of potable water is scarce is the Antipolo pit system. In areas where potable water sources are abundant, the septic tank is a common fixture.

Solid Waste Disposal

There is no municipal-wide solid waste disposal system. Individual compost / trash pits are the predominant mode of waste disposal in effect.

The absence of a municipal-wide waste disposal system is deemed to be a health hazard at present, especially during the wet season. With the increase in population, consumption of various produce increases and along with it refuse and waste products. The pressing need to address this problem must also be realized to ensure sanitation and proper hygiene for the populace of Quezon particularly in the Poblacion area where close to 35 percent of the population converge.

Communication Facilities

In this age of rapid advances in information technology, where physical barriers are overcome, virtual global villages are linked, quick decision-making for public or private benefit are made via modern telecommunication systems. The present system of communications in Quezon, could be considered inadequate, to say the least.

The entire communication systems of Quezon is comprised of a postal and a telegraph offices, both manned by a skeletal force, and are situated at the municipal hall in the Poblacion. Fortunately, a telephone system has recently been installed. Although there is only a single line (public) at the moment, more lines are to be added. Supplementing these are two-way radio communications equipment located in the Philippine National Police (PNP) headquarters for emergency purposes.

Inadequacy of telecommunication facilities weakens whatever linkages the municipality could establish with respect to the whole province and country, debilitating whatever gains it could derive from such linkages.

POPULATION DYNAMICS AND SOCIO-DEMOGRAPHIC CHARACTERISTICS

It is recognized that the demographic aspect is an important consideration in any planning activity. After all, development plans are formulated with the ultimate goal of improving the living conditions of people. Development is not about growth, development is about people. It is with such a perspective that the plan for Quezon is formulated. Below is a discussion of the socio-demographic profile of the municipality.

Total Population and Number of Households

Based on the 1994 census of population undertaken by the local population office, Quezon registered a total of 18,954 persons. Household population on the other hand accounted for a total of 3,709 giving an average of about five persons per household.

Out of the total 18,954 people in the town, there are 8,192 registered voters. The vote rich areas include Barucboc, Arellano, Minagbag, Santos and Abut.

Population Growth and Distribution

Historical population data show that Quezon has grown tremendously. Its total population increased by 19.40 percent between 1975 and 1980, and 65.8 percent from 1980-1990. From an annual average of 3.9 percent from 1975 to 1980, its population grew by 6.6 percent annually from 1980-1990 which is three times the national average for the same period. Such an increase may be attributed to natural increase and the influx of migrants particularly the land seekers coming mostly from the provinces of former Kalinga Apayao (now divided into two provinces, that of Kalinga) and Mt. Province. Barangays which experienced continued increase in population during this period include those that are located in major strategic points such as Santos, Alunan, and Arellano in the Poblacion; Abut and Barucboc both located along the national highway and Lepanto and Estrada on the east. Expectedly, total number of households in the municipality correspondingly increased. From 1975-1980, number of

households increased by 29.5 percent from 1,361 to 1,763 for an average annual growth rate of 5.9 percent. In the ensuing censal year, number of households reached 3,029 which translates to an average annual growth rate of 7.2 percent from 1980-1990.

In the recent census on population conducted by the local population office from 1992-1994, municipal population increased by 2,119 individuals, from 16,835 to 18,954. Average population change for the entire municipality from 1975 to 1994 was placed at 130 percent for an annual average growth rate of 6.9 percent.

In most municipalities all over the country, the urban barangays which comprise the Poblacion are usually the major settlement areas. In the case of the municipality of Quezon, aside from the four urban barangays there are also other major settlement areas located outside the Poblacion namely, Abut, Minagbag, and Barucboc. Located on the southern most portion of the municipality, Barucboc has the biggest population in the entire municipality surprisingly relegating barangay Minagbag in second position.

Classified as a fifth class municipality, Quezon is predominantly rural. In 1994, the municipality's rural population registered a total of 12,147 persons, or 65.09 percent of its total population. Urban population on the other hand accounted for 6,807 (34.91 %) of the municipal total.

Population Projections, 1995-2005

The projection of the population of Quezon for the next 10 years, to coincide with the planning period, was premised on an estimated average annual growth rates calculated individually for each barangay using the base figures from 1975-1994. Initial results indicate that almost one-half of the 15 barangays have average annual growth rates of more than six to seven percent. Given the limited capacity of the municipality to provide its people with basic services, an average of six to seven percent increase in population annually will certainly pose a major problem for the municipal government. There is therefore a need for the calibration and readjustment of the individual average annual growth rates based on the proposed spatial strategy which provides a two-phased development scheme for the municipality and the implementation of the corresponding investment program within the planning period.

The population of Quezon is projected to reach 24,556 by year 2000 and 30,077 by year 2005, respectively. Barangays, which have traditionally been the major seat of residential development, will continue to do so at the end of the planning period.

Population Density

As of 1994, gross population density for the entire municipality was placed at 0.99 person / hectare with barangays Arellano (2.92) and Barucboc (2.12) topping the list while barangays Mangga (0.19), Aurora (0.30) and Dummon (0.31) registering the least. Nine barangays exhibited density values greater than the municipal average while one rural barangay has bigger density figure than the urban average of 1.79.

Age-Sex Distribution

Three major age groupings may be used to describe Quezon: young-age group (0-14 years old); working / productive age (15-64 years old) and 65 years old and over. As of 1994, Quezon had 54 percent or 10,212 persons belonging to the productive age group. While the NSO could only account for 132 employed persons in commercial establishments, the municipal government employs a total of 63 persons and the majority of the potential labor force are either in school or involved in farming activities. The number for the young age group was 7,572 or 40 percent of the total population as compared to 1,090 or about six percent belonging to the old age bracket.

Contrary to the usual trend, the male population of Quezon outnumbered their female counterpart by 566. The male population account for 52 percent (9,760) and the females number 9,194.

Assuming that the same trend will prevail in the next ten years, productive age group will have a total of 16,273 while the young and old age group categories can only muster a total of 12,066 and 1,738, respectively, by the year 2005.

GENERAL ECONOMIC CHARACTERISTICS

Agriculture

Agricultural Production

The municipality of Quezon continues to be principally an agricultural area. The office of the Municipal Agriculturist reveals that as of 1994, there was a total of 8,400 hectares classified as agricultural lands. Of these, only 6,551 hectares were actually cultivated while 1,849 hectares remain idle and unproductive.

Rice was planted in 5,945 hectares of land or about 71 percent of the total agricultural areas with 4,800 hectares being irrigated and

1,145 hectares relying on rainfall for its water requirements. Next to rice, corn and tobacco were the second extensively cultivated with a total coverage of 523 hectares. Fruits and vegetables were cultivated in 45 and 23 hectares, respectively, while coconut and peanuts combined for a total of 15 hectares. The irrigated and irrigable areas of Quezon are considered as prime agricultural zone.

With two croppings per year for the irrigated rice lands, total yield reached 384,000 cavans which gives an average of 80 cavans per hectare. This is relatively low compared with other irrigated ricefields and can be attributed to the inadequacy of water because of the limited coverage of the CRIS-NIA facilities. The rainfed rice average only 30 cavans per hectare.

Data reveal that rice farmers in six of the 15 barangays have obtained higher annual average income than their counterparts in the rest of the nine barangays. The six barangays where farmers have higher than 20,500 annual average income include Minagbag (₱ 24,000), Santos (₱ 22,500), Arellano (₱ 21,500), Barucboc (₱ 21,500), Mangga (₱ 21,000) and San Juan (₱ 20,500).

Tailing the higher earners are rice farmers in Turod (₱ 20,150). In Abut, Alunan, Aurora, Estrada and Samonte the farmers earned an annual average of ₱ 20,000 each. Finally, every rice farmer in the last three barangays; Lepanto, Dummon and Callanguigan earned during the same year an average of ₱ 19,500; ₱ 18,500; ₱ 18,000, respectively.

Assuming all crop cultural requirements were uniformly done in all the 15 barangays, the increase in efficiency rate of produce can be attributed to synergistic effects of labor-ricefields-irrigation water mix. Hence, optimum manpower use and increase in the present size of lands with effective irrigation facilities must be made available to improve further present crop yields. Nonetheless, other than inadequacy of irrigation water, there is a great need for regular services of knowledgeable rice farm technician to better assure improving rice production.

Fishery Production

Two to eight farmers in 12 of the 15 barangays are engaged in tilapia culture as their supplementary source of food and income. Fish harvests in 1994 in the first six barangays were more than the general average, values ranging from ₱ 2,188 to ₱ 3,500 for each farmer.

With the general average for all barangays at 2,122 per farmer per year, the second group of barangays with lower production are as follows: Minagbag (₱ 2,000), Mangga, San Juan (tie at ₱ 1,750), Santos (₱ 1,500), Callanguigan (₱ 1,400) and Arellano (₱ 1,167).

A good potential source of food protein and supplementary income, fish culture (not only tilapia species) must be encouraged. Fish can be grown together with palay on ricefields with sustained irrigation water through rice-fish culture schemes. Some species, such as mudfish and catfish, can be raised even without any input or feeding as long as there is adequate water.

Livestock and Poultry Raising

Livestock raised in 15 barangays of Quezon include cattle, carabao, hog, goat, and horse. Except for some cattle at Alunan and carabaos at Minagbag and Lepanto where some animals are raised for sale, these animals are used more as work animals in tilling the land for agricultural crops and hauling farm products. Some animals of burden are also a good source of fresh milk for families for local consumption. These big animals (1,336 heads of cattle and 2,190 heads of carabao) are grown/maintained more as farm-helps rather than for commercial purposes. The work animals play an important role in land preparation for planting crops as there are only a handful of tractors in the town.

One thousand nine hundred three heads of hogs and 633 heads of goats raised in the *barangays serve as part of the livelihood for* additional income and supplementary source of protein for local residents. It is seldom that hogs and goats are sold in commercial scale outside the municipality.

There are only four barangays keeping horses. A total of 33 of these animals are used for transporting farm produce and as means of transporting some residents. Most are in Lepanto with 26 heads; Callanguigan has three, Abut and Santos have two horses each.

Poultry, 16,236 birds in all and mostly of the white leghorn and native chicken species from 13 of the 15 barangays is too few to be considered in commercial quantity. The total production of poultry and poultry products are not even enough for local consumption. While a number of households sell some of the birds to their neighbors and the local town market to supplement family income, most are limited to family consumption.

Food Supply and Demand: Sufficiency Analysis

It has been firmly established in previous paragraphs that the municipality of Quezon is primarily an agricultural area where palay and corn are the major grain crops being produced. To determine whether the municipality has achieved some level of sufficiency in terms of food production vis-a-vis local demand, a food sufficiency analysis has been undertaken for purposes of establishing the capacity and the ability of Quezon's land and human resources to produce food for its local consumers. Based on present production level, Quezon's rice production is estimated at 10,459 metric tons, the highest among the four selected staple food. It is expected that by year 2005, production level will be about 13,039 metric tons. As a result of its landlocked location and limited space for inland fishery production, only an average of about 1.20 metric tons of fish mainly the tilapia variety has been produced in the past years. Ceteris paribus, fish production will only increase to 1.73 metric tons by year 2005.

With rice being a staple food requirement of every household, the demand for rice was expected to be the highest among the four selected food items at 2,150 metric tons only for this year. At the end of the planning period, the expected demand for rice may increase to 3,437 metric tons. Aside from rice, the other major staple food of the Ilocanos are vegetables. For 1995 alone, the demand for vegetables in general is placed at 1,065 metric tons, almost one-half of the demand for rice. Demand for vegetables will reach 1,703 metric tons by year 2005.

By subtracting the present and projected demand from the present and projected supply of selected agricultural products, one can establish the food sufficiency level for the municipality. The municipality has sufficient supply of rice and meat which includes beef, pork, and poultry. Assuming that strategic agricultural policies are adopted and properly implemented such as the following: (a) that irrigation facilities will be constructed on time, (b) that irrigation water will be provided when the need arises, (c) that conversion of agricultural lands will be minimized if not totally controlled, and (d) promote the development of livestock production.

Although the municipality's supply of rice and meat is more than sufficient, Quezon's local production of vegetables and fish are something to be desired. For this year alone, deficiency in the production of vegetables and fish were estimated at 1,045 metric tons and 610 metric tons, respectively. By year 2005, deficiency on these two major agricultural products will reach 1,673 metric tons of vegetables and 976 metric tons of fish.

Agricultural Equipment and Facilities

The predominance of agriculture activities in Quezon may be gleaned from the presence of agricultural support facilities. A total of 17 rice / cornmills, 22 warehouses, 26 buying stations, 198 hand tractors and 29 trucks are used to support farmers. Because most of these are privately-owned, they are concentrated in only about half of the barangays, except for the hand tractors.

Lands Under Agrarian Reform

The implementation of the comprehensive agrarian reform program of the national government, like in many areas of the country, has also been observed in Quezon. Out of the total area of 4,806 hectares of agricultural lands targeted for distribution among tenants and farm workers, about 83 percent or 4,023 hectares have been given to beneficiaries. Out of this total, lands distributed under Operation Land Transfer through the issuance of emancipation patents accounted for 30 percent, the highest among the various types or schemes of land distribution. Other types of land which greatly contributed to the success of the program include those that were acquired from LASEDECO and Government Financing Institutions.

In the brief report prepared by the Municipal Agrarian Reform Office (MARO), the remaining hectares of lands (i.e., about 783 hectares) is envisioned to be distributed among farmer-beneficiaries by 1998.

Aside from the acquisition and distribution aspects of CARP, farmers may also avail of DAR's program on leasehold agreement. Data from the local agrarian reform office indicate that there are about 17 lessors and 30 lessees from nine barangays who availed of leasehold agreements. These agreements amounted to only 72.4525 hectares out of more than 255 hectares programmed for such activity. The representative from MARO was quick to explain that the stark difference between the existing and targeted number of hectares to be placed under leasehold agreement may be attributed to a number of undocumented cases of lessor-lessee agreements made in the municipality. Fortunately, the Municipal Agriculture Office (MAO) has made an accounting of all lease agreements entered into between the lessors and tenants in 1994. In its latest report, there are 47 lessors distributed over 15 barangays who entered into a lease agreement with farmers. In all, 339 hectares of agricultural lands fall in this category with the largest areas found in Abut

(43 hectares), Samonte (40 hectares) and Barucboc (45 hectares).

Forestry Sub-Sector

Municipal records reveal that Quezon has a 2,305-hectare of forestlands. The forest zone is already denuded due to unscrupulous and unlawful logging. The exploitation of other forest products has also resulted to environmental degradation in the locality. While not visible, irreversible loss of many rare and indigenous natural biological resources is a certainty.

In response to these concerns on the state of forest lands in the municipality, the Department of Environment and Natural Resources (DENR) through the Community Environment and Natural Resource Office (CENRO) has taken the necessary steps in order to arrest the destruction of the last remaining local forestlands. CENRO has approved several reforestation projects which involve the introduction of various tree species in selected plantation areas. Towards the end of 1993, there were seven contractors which were tapped by the DENR to undertake reforestation activities in the municipality. Total area involved was estimated at 337 hectares of tree plantations. The largest was a contract made with the local government unit last February 1990 covering an area of 60 hectares. The locations of these reforestation projects are mainly concentrated in barangays Minagbag, Abut and Mangga.

In addition to reforestation activities, there are three integrated social forestry (ISF) projects that were implemented in the municipality. Covering an area of 718 hectares that were leased to some 387 household-beneficiaries, these projects are located in barangay Santos, Abut and Minagbag where there are a number of families living in the uplands. The primary aim of this particular program is to rehabilitate denuded forest areas without displacing households or upland communities which depend heavily on the cultivation of forest lands.

Aside from projects which involves the rejuvenation of the existing forestlands, Quezon is also hosts to a number of Pasture Lease Agreements. Records at the CENRO office would show that originally there were about seven PLAs entered into by CENRO with private individuals. In the latest inventory conducted by the same office, three PLAs in Mangga and one in Minagbag had been either canceled or abandoned due to various reasons. At present, only three PLAs are left operating in the entire municipality, two in barangay Minagbag, and one in barangay Santos all of which are being leased by former Senator Ramon Mitra.

A denuded or poor forest stand makes a poor watershed. Watershed serves as a natural water reservoir which is vital to agricultural production and for sustaining life in human settlements. Considering the size of the land, even if the whole forestland is fully developed into a commercial stand, its yield in terms of construction lumber will not be commensurate to the adverse effects it will generate for the growing population of the municipality.

It is good to remember that a forest is not merely for watershed and lumber products. It serves also as a gene pool of many plant and animal species for human food, medicines, and industrial materials. Forests are also the habitat of wildlife besides conditioning the environment and making it conducive to man's habitation. Hence, it is paramount that the 2,305 hectares of forestland be re-established, properly maintained, and protected to ensure a sustainable source of the miscellaneous needs of man.

Commerce and Trade

Commercial Establishments

Aside from agricultural activities, the other major indicator of the level of economic development (or underdevelopment) is the nature and characteristics of economic establishments in an area.

According to the records of the Office of the Mayor, there are about 168 business establishments currently operating in the municipality. Of this total, 111 or approximately 66 percent are sari-sari stores. The rest are small-scale *balut* factories, bakeshops, grocery stores, and other service-related business establishments.

The distribution of establishments confirms the initial impression that the municipality is basically a goods-consuming community wherein most of the business enterprises sell a variety of products for daily consumption of local residents. Practically all barangays have varying numbers of sari-sari stores with Barucboc, Abut, Lepanto, Alunan and Santos as having the most.

Aside from the ubiquity of sari-sari stores, Quezon is also known for its thriving balut industry. Out of 168 establishments, 15 are into balut-making. There are only two barangays where this particular activity is found and these are Minagbag in the north and Alunan in the south. Since the most dominant economic activity in the area is rice farming it would do

the farmers well if they could venture into this type of enterprise. There is a vinegar factory and a wood processing plant in barangay Santos as well as a rattan shop in Barucboc.

Another major observation that can be obtained from the distribution of business enterprises in the municipality is the presence of activities that either cater to the needs of the agricultural sector or the personal needs and requirements of residents. For instance, there are four business activities concentrated in barangay Arellano which supply agricultural equipment to the farmers in the municipality. Aside from these four establishments, farmers also get their farm supplies and equipment from nearby municipalities such as Mallig and Roxas. This condition is brought about by the fact that some farmers especially in barangays quite distant from the Poblacion such as Turod and Barucboc have accessibility problems. It was learned also that some business establishments in nearby municipalities provide financial assistance to these farmers which make farmers gravitate toward these other centers.

To cater to the personal needs of the local residents, there are a number of business activities which provide such services as photo supplies, parlors and video tape rentals.

Finally, based on the characterization of business enterprises and its distribution in the entire municipality, it would be extremely interesting to find which among the 15 barangays have the most number of establishments. As explicitly indicated in the previous table barangay Arellano has the greatest variety of economic activities as it is the only barangay which has practically all the types of establishments present in one area. This implies that barangay Arellano is apparently the center of economic activities in the municipality. As far as the commercial activities are concerned, providing access to other nearby barangays should form the main thrust of the municipality.

Distribution of Establishments and Employment

In the National Statistics Office (NSO) listing of establishments in Quezon, the municipality has 43 establishments which is less than one percent of the total establishments for the province. Of the 43 establishments, 17 (40 %) are classified as wholesale and retail trade; 12 (30 %) are manufacturing and 11 (26 %) are into community, social and personal services. Other establishments include two transportation, communication and storage and those in the category of financing, insurance, real estate and business services.

In terms of employment size, majorities of establishments have a small work force. Almost 98 percent are classified as small establishments with employment size ranging from one to nine employees. Only one establishment had a work force greater than ten.

The number of establishments in the municipality is insignificant compared to the province. A number of factors contributed to this situation one of which is the geographic location. Quezon is the northernmost town of the province and is approximately 56 kilometers from Ilagan, the capital town of Isabela. As a result, human settlements development is quite limited.

Comparing the distribution of establishments based on work force, both the municipality and the province have small scale establishments. The province, for instance, has about 95 percent of its total establishments having an employment size of one to nine employees and this is similar to the trend observed for the municipality.

In addition, an analysis of the distribution of establishments based on sub-industry classification indicates the same hierarchy of ubiquity of economic activities. At the provincial level, wholesale and retail trading rank first with community, social and personal services and manufacturing activities coming in distant second and third, respectively. The same level of hierarchy may also be observed at the municipal level wherein similar sub-industry categories have a similar ranking. Thus, in all respects, the municipality reflects the distribution and characteristics of industries and establishments at the provincial level.

In terms of level of employment opportunities, the NSO data reveal that the municipality generated only 132 jobs. Community, social and personal services had the most number of employed personnel with 48, most of whom belong to the small industry category. Personal and public services are closely followed by small scale wholesale and retail trade and manufacturing activities with total employment of 38 and 35, respectively. Finally banking and finance registered the lowest employment about 13 employees all of whom belong to small-scale establishments. Only one large establishment was monitored by the NSO with total employment of 17.

With an estimated total population of 19,497 in 1994 and a potential labor force of about 54 percent (which translates to 10,549 persons), a total employment of 132 warm bodies represents an unemployment rate of about 98 percent. The gap between the NSO

registered total employment and the actual municipal total employment level may be attributed to (i) the agricultural sector and (ii) the local government.

It has been noted in previous discussions that the agricultural sector is the most dominant economic activity in the municipality. Since agricultural employment is not included in the NSO's census of establishments, those who are engaged in various types of agricultural activities are not considered. As far as the local government unit is concerned, the municipal government is a major source of employment for the local residents. As of latest report, the municipal government had a total of 63 occupied plantilla positions excluding vacancies to be filled in the near future.

THE SOCIAL SERVICES SECTOR

Housing and Shelter

Housing Stock

In 1990, the total number of housing units in Quezon was placed at 3,103. Out of this total, 2,986 were occupied and 117 were considered vacant.

An analysis of NSO data on housing units reveals the increasing number of dwelling units in the past three decades. From 1,058 units in 1960, it slowly increased to 3,103 in 1990. There is also an increasing number of vacant dwelling units from a total of 33 in 1960 to 117 in 1990.

Structure Type

Of the 2,986 housing units, 2,934 or 94 percent are single houses generally located in the rural areas. The rest are duplexes and combination of commercial, industrial and agricultural uses. In 1990, there were 3,029 households who occupied 2,986 dwelling units of various types. There are certain housing units which allow more than one family to live in one structure. This observation holds true in the case of single housing units in both urban and rural areas. Duplex and other types of housing units (commercial, industrial, and agricultural) account for only 1.7 percent of the municipality's total.

Average Size and Floor Area

Around 52.54 percent or 1,569 occupied housing units have less than 19-square meter floor areas with an average of five occupants per dwelling unit. This includes 689 units with less than 10-square meter floor area.

A total of 1,354 units have six or more occupants, translates to an average of eight to 20-square meter space per person.

Tenure and Mode of Acquisition

A total of 2,963 or 98 percent of the total households either own or amortize the present housing units they occupy. Only about two percent of the total households occupy their houses free with the owner's consent and the rest may technically be considered as squatters since they are occupied without the owner's consent.

Education

Education Facilities / Establishments

As of 1994, there were 13 public and one private schools in Quezon. Public schools are composed of 12 primary and elementary schools and one high school. La Salette of Quezon located in the Poblacion is the only private school in the municipality.

There are no tertiary educational institutions available in Quezon. High school graduates either take their college and other post-secondary education in Tuguegarao, Baguio or Metro Manila. Interviews with some members of the community indicate that many students, for example, are sent to Baguio, Manila and other major urban centers for tertiary education.

Enrollment and Standard Ratios

For SY 1993-1994, enrollment in pre-school, primary and elementary schools reached a total of 3,589. Of this total, 64 percent were enrolled in primary schools. Intermediate schools accounted for only 23 percent while the rest were enrolled in pre-schools. A total of 1,055 students were enrolled in secondary schools.

From a total enrollment of 4,183 for all levels in SY 1993-1994, number of students is expected to increase to 4,899 by year 2000 and will continue to do so at the end of SY 2004-2005 to 5,880. Enrollment at the primary level will account for the largest number of pupils as more than 50 percent of the projected enrollment in 2005 will be composed of students from Grades I to IV. Students at the secondary or high school level will have a total enrollment of 1,496 or 25 percent of the total enrollment for that year.

The teaching manpower of primary schools (except for Day Care Centers) shows a slight deficiency (1:45) with regard to the national standard requirement of one teacher for every 40 students. Both pre-school and secondary

level are within the standard having 1:27 and 1:38 teacher-student ratios, respectively.

To quantify the current and projected requirement for teachers, for 1995, about 11 teachers is needed to be hired by the local school board for the primary and intermediate levels. Out of this eleven teachers, eight are required at the primary level and the remaining three at the intermediate level. As mentioned previously, there is a sufficient number of teachers at the secondary level. Assuming that teacher requirements will be met not only this year but also in the next four years, the additional requirement for teachers five years hence will only be three, i.e., one each for every level. But by year 2005, as a result of an impending increase in enrollment, an additional six teachers will have to be deployed one-half of which will be assigned at the primary level.

On the other hand, the classroom to student ratio at the secondary level is placed at 1:48; at elementary and pre-school at 1:45 and 1:27, respectively. Obviously, there appears to be a lack of classrooms both at the elementary and secondary levels. The required number of classrooms for this year alone is estimated at 19 for all levels. Out of this total, eight classrooms are required at the primary level and six at the intermediate level. Classroom requirement at the secondary level is only pegged at five. If the need for additional classrooms for this year and in the ensuing years will be properly addressed by the municipal government, only five additional classrooms will have to be constructed, three of which are to be allocated for the primary students.

Health and Sanitation

Morbidity and Mortality

One major indicator of the level of health condition in a particular locality pertains to the types and incidence of morbidity cases for a particular period. In 1993, data gathered by the local Rural Health Unit (RHU) indicates that there were 3,695 reported cases of illnesses in the municipality. Out of this total, 24 percent or 903 cases were mostly due to Acute Respiratory Infection (ARI). Aside from ARI, there was a high incidence of anemic cases registered in the municipality. Anemia is a type of blood related medical disorder characterized by lack of in-take of iron, a mineral which can be found in meat products, eggs, milk, and fish. In addition, there were also incidence of parasitism and diarrhea, both of which are highly related to personal hygiene.

Both 1993 and 1994 have registered the same top five leading causes of morbidity. The only observed difference is that there had been a two to four percentage points increase in the incidence between the two periods and the entry of PTB and Leprosy in the top ten leading causes of morbidity.

Aside from morbidity, types and incidence of mortality represents the second major indicator of the general health situation in a municipality. The two leading causes of death are pneumonia and cardiovascular diseases. These two diseases comprised more than one-half of the total number of mortality in 1993 but its share went down to just 45 percent in 1994. One additional but extremely important observation that can be extracted from the data presented in the table is the increasing incidence of death due to cancer-related diseases. In 1993, for instance, cancer accounted for 6.67 percent of the total deaths but in 1994, percent share of mortality cases due to cancer had practically doubled.

Facilities and Manpower

Recently, Quezon inaugurated its 10-bed Emergency Hospital (a district-level facility) which will take care of the hospitalization and medical needs of the populace. Currently, it employs two doctors, three nurses, and four paramedic personnel.

Quezon has one Rural Health Center (RHC) with a doctor, nurse, a midwife, medical technologist, and sanitary inspector. Five Barangay Health Stations (BHS) located in barangays Abut, Lepanto, Barucboc, Turod and Mangga provides health care service to the rest of the town.

Nutrition

Quezon has 77 severely malnourished children out of 2,693 children weighed during Operation Timbang. For second and first degree malnourishment, Quezon registered a high of 324 and 760 respectively. For children below 5 years of age, malnourishment incidence was posted at 1,161 out of 2,692 or 43 percent. Even if those not weighed within this age group are not malnourished, this still translates to a high 36 percent incidence.

Protective Services

At present, there are 12 Philippine National Police (PNP) personnel providing protective services in Quezon. This gives a policeman to population ratio of 1:1,297. Although the headquarters is in the Poblacion, there are barangay brigades in every barangay providing assistance to the police. To help in its peace

keeping duties, the police has one service jeep and one motorcycle.

At present, the municipality needs seven additional policemen. By year 2005, the local government unit must beef up its local police force by hiring 11 additional policemen.

The fire protection force, on the other hand, has six firemen which means that there is only one fireman for every 3,036 population. In order to correct the existing disparity on the required number of fire fighters in the municipality, the local government unit needs 13 additional firemen to strengthen its present line up. But with the expected increase in population within the next ten years, the municipality of Quezon need to increase its force by hiring 11 additional firemen by year 2005.

The fire department has one firetruck. Since 1990, seven fires of accidental origin have occurred in Quezon.

Social Welfare Services

Social welfare services are provided by the Municipal Social Welfare and Development Office (MSWDO). MSWDO operates 16 DCCs located in each barangays. Only Minagbag has two centers. At present, these centers benefit some 419 children from a potential clientele of 2,470 of children aged 1-4 years.

Sports and Recreation

Typical nationwide, basketball seems to be the most played game by the youth in the municipality. To date, Quezon has a total of 15 basketball courts. Only Estrada and Callanguigan do not have these facilities. The municipality also has four baseball/softball fields and three public parks for children and promenades. For the grown ups, there is a cockpit arena in barangay Arellano.

INSTITUTIONAL AND FISCAL ADMINISTRATION

This section of the report presents the structure of the municipal government focusing on the existing offices / municipal bodies charged with the planning, implementation, coordination and monitoring of development activities. Since the success of any planning initiative depends, to a large extent, on the availability of financial resources either for capital investments or for human resource development, an examination of the expenditures and income patterns of the LGU concerned is also presented. Data and results of the analysis of this chapter will play a crucial role in the identification of measures that would enhance the financial capability of the municipality to implement development programs and projects.

Local Organizational Structure

Pursuant to Republic Act 7160 (1991 Local Government Code) and other laws pertinent thereto, the municipal mayor provides the necessary guidance and administrative supervision over 12 local executive offices whose respective duties and responsibilities are necessary in the daily activities of the municipal government as well as in the delivery of basic services to the local residents. The local Sangguniang Bayan (SB), on the other hand, is mandated to lend support to the municipal mayor in terms of enacting ordinances and approving local resolutions and appropriate funds for the general welfare of the municipality and its inhabitants. The SB is similarly charged with the proper exercise of the corporate powers of the municipality in its drive to generate funds.

As of January 1995, there were about 78 positions both elective and appointive in the organizational plan of the municipal government of Quezon. Out of this total, 63 positions have been filled and the rest are yet to be occupied.

In terms of the development administration capability of the municipality, the most vital among the many local bodies is the local development council. As stipulated in Section 106 of RA 7160, the Municipal Development Council (MDC) is tasked, among others, to formulate a comprehensive multi-sectoral development plan to be approved by the SB. Thus, the primary role of the MDC is to provide guidelines/policies in the drafting of development plans, programs and projects for consideration and approval of the SB. The MDC is also expected to take the lead in the coordination, implementation and monitoring of investment programs and projects.

In the case of Quezon, the local development council has been active in the execution of its duties and responsibilities especially in the identification of development strategies suited to the needs of the local people. In a recent meeting with members of the MDC and representatives of local executive offices of the municipal government, it was learned that the proposed development strategy hinges on the transformation of the municipality into one of the province's major agro-industrial center.

Since the MDC is the main policy making body in as far as the formulation of the comprehensive land use plan is concerned, the burden of providing the necessary technical support and assistance to the local

development council lies on the shoulders of the Municipal Planning and Development Coordinator (MPDC) whose mandate under the new Code is to serve as chairman of the secretariat of the council. As such, his responsibilities include documentation of proceedings, preparation of technical studies and reports and providing such other assistance as may be required. At the present time, the office of the MPDC is headed by Engr. Danilo Usita. He is ably assisted by a Project Development Assistant. A statistician has also been allocated for the MPDC but this position has yet to be filled.

Municipal Income and Expenditures

For 1995, the municipality of Quezon expects to generate total revenue of 12,044,396. Out of this total, tax revenues will contribute about 11,462,339 or 95 percent of the total municipal income. Like many fifth class municipalities, Quezon relies heaviiy on its internal revenue allotment (IRA) to finance its local activities. This year, the Department of Budget and Management (DBM) has apportioned P8.8 million as the municipality's share in the national revenues. This amount represents about 74 percent of the total revenues to be generated by the municipality. The rest will be sourced from property taxes and other non-tax based local sources.

Looking at the income figures from 1991 to 1994, revenues generated for the period show an increasing pattern, from 2.6 million to 9 million. This amounts to an average increase of about 2.1 million annually; a considerable increment by any standard measure. Although revenue figures reveal an upward movement in absolute terms, the rate of growth, however, show a decreasing trend. After attaining a decent growth rate of 71 percent in 1992, the rate of growth started to decline during the succeeding periods as it posted rates of 64 percent in 1993 and 24 percent in 1994. The diminishing rate of growth is not necessarily a reflection of collection inefficiency but could possibly be attributed to the re-structuring of local funds as a result of the implementation of the new code.

During the same period, tax revenues exhibited fluctuations. While total annual growth rates of taxes decreased from a 78 percent in 1992 to 66 percent and 20 percent in 1993 and 1994, respectively, overall, only the Special Education Tax and Taxes on Goods and Services performed poorly. From 1991-1994, property tax and other taxes (particularly the IRA) posted total growths of 117 and 340 percent, respectively. Another noteworthy performance was on the income generated by the local government's business operations. Among local revenue sources, it is only this source which consistently exhibited positive growth rate.

It may be noted that the bulk of the municipal revenue come from the IRA. Since the IRA's share to total municipal income ranges from a low of 67 percent in 1991 to almost 85 percent in 1994, any changes in the IRA will correspondingly have a major impact on the total local revenues. To avoid a situation where local operations become too dependent on IRA, it is imperative to exert effort to increase local revenues either through an enhancement of the collection efficiency and/or being more creative in sourcing additional income.

Finally, in terms of expenditure patterns during the same period, the municipal government of Quezon spent most of its local revenues for personal services and daily operations of its executive offices. Quezon has not been able to maximize its 20 percent development fund since majorities of the funds have been allocated for other purposes other than development programs / projects.

VOLUME 2: COMPREHENSIVE LAND USE PLAN

INTRODUCTION

Overview

The Department of Agriculture has categorized Quezon as highly suitable not only for lowland rice production but also for intensified and diversified agriculture and agro-forestry. But to date, this agricultural potential remains relatively untapped. For more than three decades since its creation in 1959, the people of Quezon, Isabela have come to accept the fact that the development of their municipality will never be realized if they will rely solely on the assistance being provided by the national government.

Realizing that the town can not simply rely on the government's budgetary allocation, the municipality finds ways to uplift its present level of development. Capitalizing on the new set of powers and responsibilities granted to local government units by virtue of RA 7160, and the desire of the enlightened local officials and staff to uplift the plight of the local populace, the municipal government has embarked on an important task of planning its path to development. The municipal government sought the technical expertise of **RURBAN Planners, Inc.** in formulating its

Comprehensive Land Use Plan (CLUP) for the planning period 1995 to 2005.

The Quezon CLUP is a planning document that sets the stage for a sound development of the municipality. The CLUP prescribes the general and urban land uses, identifies socio-economic development priorities, high impact programs and projects, and the needed infrastructure and utilities that would serve the needs of its inhabitants. Thus, the CLUP is a multi-sectoral planning document that attempts to integrate various sectoral concerns and interests providing the framework not only for sectoral growth but also for spatial development.

Together with the Physical and Socio-Economic Profile, the Quezon CLUP serves as the municipality's blueprint in the identification and implementation of programs and projects. It is, therefore, envisioned to play a crucial role in the municipality's effort in attaining a sustainable level of development during the planning period.

Planning Goal and Objectives

The ultimate goal of the Quezon CLUP is to guide the short and long-term physical and socio-economic development of Quezon, Isabela. Specifically, the plan aims to achieve the following:

Promote the efficient and equitable utilization, acquisition and disposition of land as a limited resource and a valuable commodity;

1) Allocate land uses that will promote productivity and environmental integrity;

2) Effect an efficient settlement and infrastructure system for better access by the population to basic services, facilities and utilities;

3) Enhance the people's skills and capability in order to increase their income and uplift their standard of living;

4) Provide a mechanism that would pave the way for the institutionalization of people's participation in decision making; and,

5) Attain a level of local economic development that is sustainable and most importantly, based at and benefiting the grassroots level.

Plan Formulation Methodology and Process

The formulation of the Quezon CLUP was anchored on distinct but interrelated planning activities, to wit: (a) data gathering and public consultation, (b) physical and socio-economic profiling, (c) development framework formulation, (d) spatial strategy development, selection and land use planning, (e) sectoral plan formulation, and (f) identification of plan implementation considerations.

The first step involved secondary and primary data gathering. Maps from various national agencies (BSWM, NAMRIA, LMB, DENR, NSO, etc.) were collected and transformed into a scale appropriate for planning purposes. Statistical information from other national, regional and provincial agencies were likewise generated. The second set of data that were used in the project were taken from the various municipal offices during the consultants' numerous visits to the project area. Aside from these information, a consultation-dialogue with the local officials and members of the community was held, the main purpose of which was to elicit comments and suggestions on the various problems that beset the community and some recommendations on how these problems could be addressed.

Equipped with all the necessary data about the study area, the planning activity proceeded with the preparation of the Physical and Socio-Economic Profile (PSEP). The PSEP provides the basis of the plan. It gives a comprehensive account of the existing situation in the municipality.

After the completion of the PSEP, a brief review of the various development thrusts enunciated at the national, regional and provincial levels was undertaken. Given these development objectives, a suitable development framework was chosen for the municipality which in turn was further translated into various spatial development alternatives: With the assistance of the local officials and members of the community, the various spatial development alternatives were evaluated and a preferred spatial development scenario was selected.

Strategies were formulated to cushion the impact of land use allocation and distribution, and provide sound environmental interventions of various sectoral concerns and interests. The final output is a land use plan allocating land for specific functional purposes.

Finally, with the completion of both the sectoral and land use components of the plan, measures and relevant policy considerations

were identified that would facilitate the implementation of the plan.

Organization of the Report

The format of the report closely follows the procedural aspect of plan formulation. Immediately after the Introductory chapter, Chapter II presents a brief discussion on the various development thrusts enunciated at the national, regional, and provincial levels. Using the 1993-1998 Medium Term Philippine Development Plan, the Cagayan Valley Regional Physical Framework Plan (RPFP) and the draft Isabela Provincial Physical Framework Plan (PPFP), an appropriate development framework was formulated for the municipality taking into consideration the intrinsic and extrinsic characteristics of the study area. In addition, the same chapter provides an elaboration of the spatial development alternatives and its evaluation towards the selection of a preferred strategy.

With the formulation of the development framework, Chapter III discusses the procedures adopted in the preparation of the proposed land use plan and the policies that would govern the use of each land use category. This chapter which explains the proposed zonation scheme provides the integrating framework for the sectoral plans and programs.

Chapter IV, on the other hand, centers on the presentation of the various sectoral plans, programs, projects, and development policies on priority sectors such as infrastructure and utilities, agriculture, industry, and social services. Finally, Chapter V identifies a number of measures, strategies needed to effectively implement the various sectoral programs, and projects and ways by which compliance with the land use plan could be ensured.

THE GENERAL DEVELOPMENT FRAMEWORK

The Development Context

In the sections that follow, an attempt is made to outline the appropriate development framework for Quezon. A cursory review and analysis of the macro policies and spatial frameworks enunciated at the national, regional and provincial levels are presented. This is aimed at determining the principles and development objectives that may eventually impinge on the proposed development for the municipality. This would rationalize the development efforts and activities in Quezon and attune them with the provincial, regional and national goals and objectives.

The National Perspective

The previous national leadership set out to correct the structural defects and realign its policies with a view towards improving the economic performance of the country. Building on the gains achieved by former President Corazon C. Aquino, President Ramos embarked on an ambitious plan of making the Philippines a newly industrialized country by the year 2000. Such vision underlies the Medium Term Philippine Development Plan (MTPDP) for 1993-1998, and is popularized by the "Philippines 2000" battlecry.

The MTPDP is a document which spells out basic principles and identifies programs and projects that promote economic and social development. The plan also considers the protection of the environment. Since the natural resources and the environment, in general, sustain the economy of any nation in the world, the Philippine Strategy for Sustainable Development (PSSD) was similarly adopted and incorporated in the plan.

Pertinent national policy directives which bear on Quezon's development efforts include:

1) Human development efforts geared towards giving the population the opportunity to meet their needs and access to basic services;

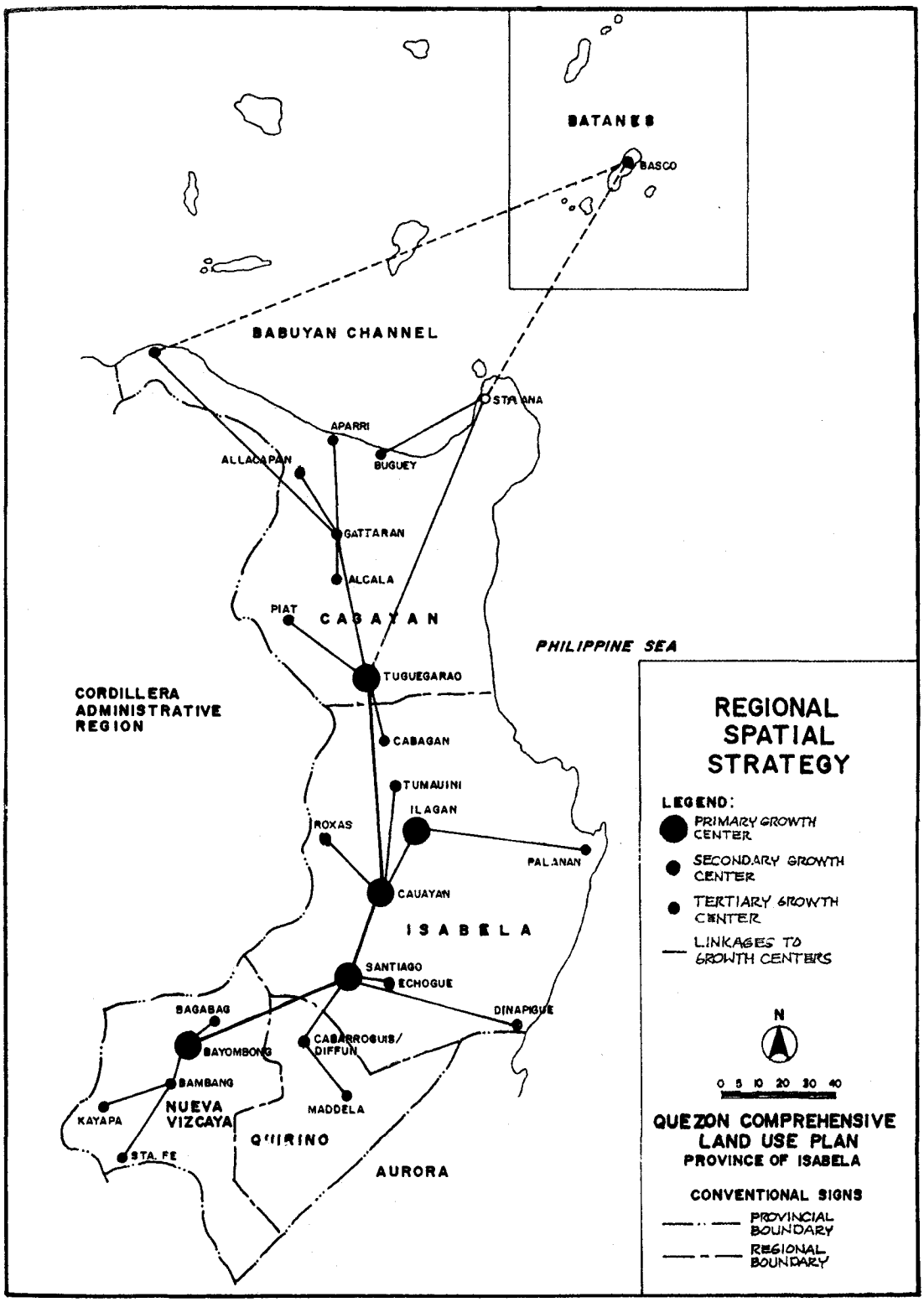
2) Agri-industrial development which focuses on the promotion of selected regional growth centers (consist of Regional Agro-Industrial Centers, Key Production Areas for agriculture, and Agrarian Reform Communities); and,

3) Infrastructure development endeavors which attempt to serve as catalyst for the development of the urban areas and the countryside.

Regional Development Thrusts

In keeping with what has been laid down by the national government, the Cagayan Valley Regional Development Council (RDC), with the assistance of the National Economic and Development Authority (NEDA) and the Regional Land Use Committee (RLUC), translated the relevant national goals into regional development goals and objectives. The RPFP for Region II, thus, has set its sights on the attainment of the following, to wit:

1) The attainment of an optimum and sustainable economic growth;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NUEVA VIZCAYA
MADDELA
QUIRINO
STA. FE
AURORA
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LEGEND:
PRIMARY GROWTH CENTER
SECONDARY GROWTH CENTER
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QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA
CONVENTIONAL SIGNS
PROVINCIAL BOUNDARY
REGIONAL BOUNDARY

2) The provision of an equitable access to social services and economic opportunities;

3) The rational and sustainable utilization of its natural resources;

4) The regeneration and preservation of the region's ecological balance; and,

5) The achievement of optimum levels, balanced distribution and social welfare of its population.

As far as the physical development of Region II is concerned, the RDC has evolved a spatial strategy or the "Midrib-Peripheral Socio-economic Zone Development Strategy."

As outlined in the RPFP, the development scheme involves the delineation of the region into clusters of municipalities called socio-economic zones and the identification of one or more municipalities within each cluster to serve as its growth center(s). The growth centers are expected to catalyze the socio-economic development of the other satellite municipalities within the cluster. Based on a hierarchy derived from a midrib-peripheral development concept, each growth center shall be supported with varying types and levels of investment, in order for them to provide distinct roles and functions in the region's overall development.

Within each socio-economic zone, a hierarchy of growth centers have been set-up. For the province of Isabela, four functional sub-regions have been delineated by the RDC. Likewise, primary growth centers have been designated at Ilagan, Cauayan and Santiago. The secondary growth centers include Tumauini and Roxas while the tertiary growth areas are identified as Cabagan, Dinapigue, Echague and Palanan.

Provincial Priorities

The structure plan for Isabela or the Provincial Physical Framework (PPFP) provided the direction for the development of the province. The document is meant to guide component municipalities in the preparation and updating of their land use plans as well as to contribute towards the resolution of conflicts between agencies with respect to the disposition and utilization of land as a scarce resource.

The draft PPFP for Isabela aligned its goals and objectives with the national and regional priorities and has come up with a spatial strategy to achieve growth and development well past into the 21st century. The Balanced Economic and Natural Resources Development Strategy (BENRDS), which was formulated with the assistance of the Australian International Development Assistance Board (AIDAB), basically involves the clustering of municipalities into five functional zones, namely: the coastal zone, the agro-forestry zone, lowland agricultural zone, industrial zone, and commercial/trading zone.

The thrust of the Coastal Zone is centered on eco-tourism and the development of marine and fishery resources with Palanan as the hub of activity. Other municipalities belonging to this zone are Maconacon, Divilican, and Dinapigue.

The Agro-Forestry Zone is envisioned to specialize in tree farming, livestock production and the preservation of the upland environment. Included in this group are all municipalities along the mountainous central portion of the province which include: San Pablo, Cabagan, Tumauini, B. Soliven, and San Mariano with Ilagan as the axis of development.

The northwestern section of Isabela has been designated as the Lowland Agricultural Zone covering the municipalities of Sta. Maria, Sto. Tomas, Delfin Albano, Mallig, Quirino, San Manuel, Burgos, Gamu, Aurora and Quezon. The nucleus of development is identified as Roxas. This sub-region has been designated as the rice granary of the province with Roxas as a major transshipment point for grain products.

To the southwest lies the Commercial / Trading Zone centered on the progressive city of Santiago. Clustered with the city are San Mateo, Ramon, Cordon, San Isidro, Echague, Jones, and San Agustin.

An industrial zone centered on Cauayan was established to spur industrial development in the region. For this purpose, the Regional Industrial Center (RIC) was located in the municipality with an initial area of 100 hectares reserved for industrial activities. Naguilian, Mercedes, Luna, Cabatuan, Alicia, Angadanan and San Guillermo has likewise been identified to focus their development around this model.

Municipal Development Concerns

The designation of Roxas as the major center and transshipment point for grain products highlights the province's thrust of transforming the sub-region into *the* rice granary of the province.

The supporting role which Quezon is expected to play to ensure the success of this

vision is made more significant with the debacle experienced by Region III as the former premier granary of Luzon in the aftermath of the Pinatubo eruption. Already, it is clear that the progress of the municipality will hinge on pursuing the development of its agricultural potential.

Fundamental Issues and Land Use Planning Considerations

A rational and logical derivation of the appropriate conceptual framework for the development of the municipality depends on the proper identification and due consideration of factors which could either hinder or promote the realization of the identified goals and objectives of Quezon. It is for this reason that effort was exerted to determine the significant issues which would influence Quezon's drive to progress. These factors are outlined in this section.

Development Issues and Constraints

The following is a list of common development issues and constraints, to wit:

1) Inadequacy of physical infrastructure and utilities system;

2) Poor conditions of circulation/road network;

3) Shortage of water for irrigation purposes;

4) Great depth to groundwater for domestic use;

5) Low agricultural productivity;

6) Inadequate agricultural technical assistance;

7) Distance from major market centers of Isabela;

8) Absence of coordinated programs on agricultural development;

9) Limited livelihood opportunities;

10) Conversion of agricultural lands to non-agricultural uses;

11) Forest denudation;

12) Health hazards, e.g., malaria; and,

13) Limited municipal financial resources.

Development Potential and Opportunities

Four development potential and opportunities have been noted, such as:

1) Extensive land resources;

2) Presence of major regional artery (Santiago-Tuguegarao Highway);

3) Designation of Roxas as secondary regional growth center and provincial agricultural center; and,

4) Potential for pasture and agro-forestry development.

Alternative Spatial Development Strategies

The following are alternative spatial development schemes which may be envisioned for the municipality of Quezon.

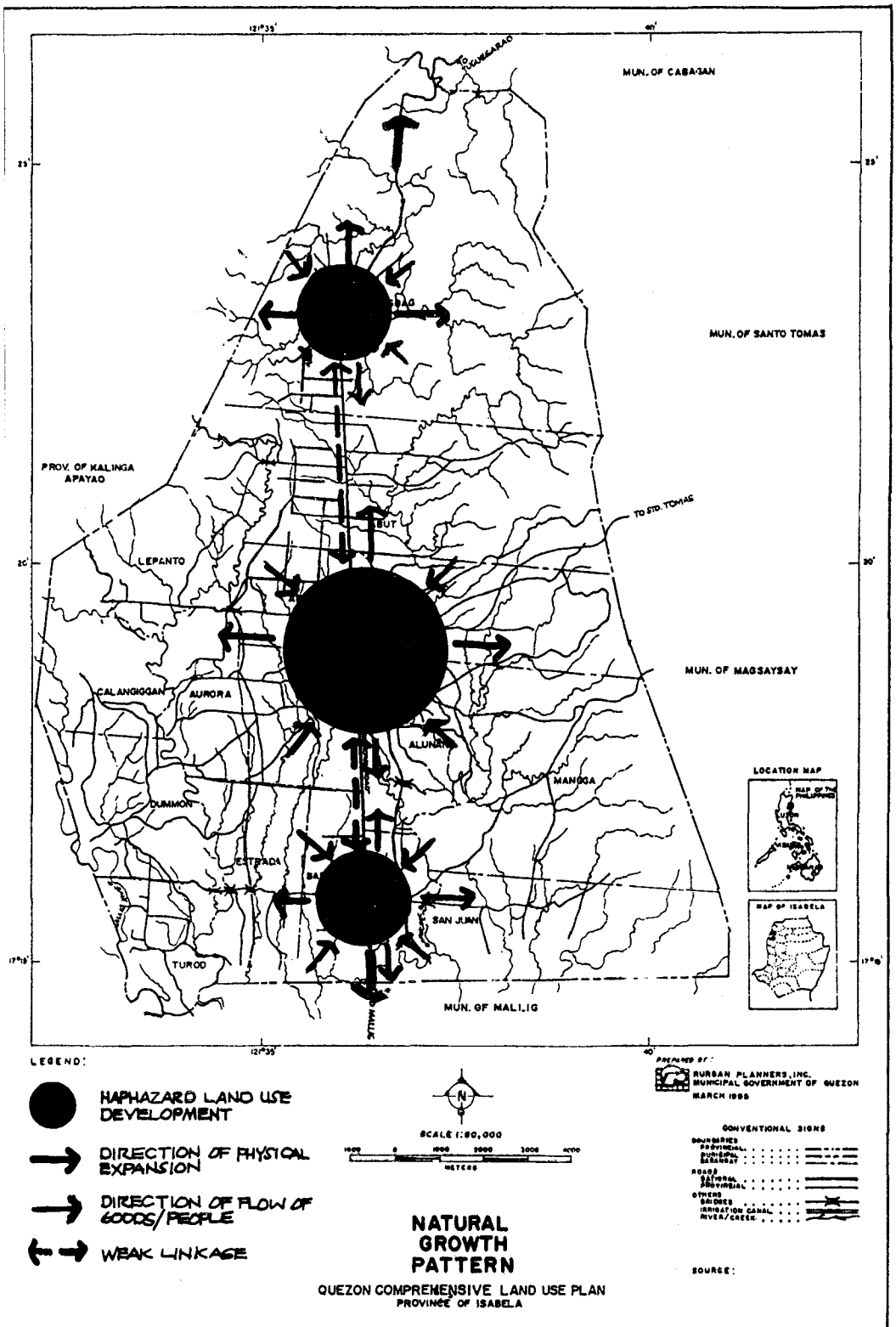
Natural Growth Pattern

This form of development, otherwise known as "sprawl," presupposes minimal government intervention. This scheme merely follows past trends, where the expansion of the Poblacion and other population/activity centers are left to their natural tendencies. Since the basic services and economic opportunities are frequently concentrated in major settlement areas such as the Poblacion, the logical flow of development is centrifugal; meaning an outward movement from the four barangays of Samonte, Santos, Arellano, and Alunan.

Because the direction and pace of urban development is often a function of the collective decisions of individual landowners, the state of infrastructure and utilities serves to preserve the existing urban pattern of the municipality. This form of development gives rise to a haphazard type of land use pattern which tends to wipe out potential areas for planned urban development. Prime agricultural areas which serve as the main source of livelihood for the locality are often exposed to strong land conversion pressures.

Another possible consequence and characteristic of this strategy is the presence of incompatible land uses whose ill effects tend to be counter productive to the overall growth of the local community. Pollution, flooding, environmental degradation, health and hygiene hazards, and impeded traffic flows, to name a few, are the consequent results – a feature of uncontrolled urban sprawl.

Simultaneously, the absence of a strong public land use regulation mechanism system results to the use of roadside areas for urban uses. Referred to as a linear-type or ribbon development, this is common in most towns because of personal accessibility considerations. However, its natural tendency is to impede traffic movement along major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DUMMON
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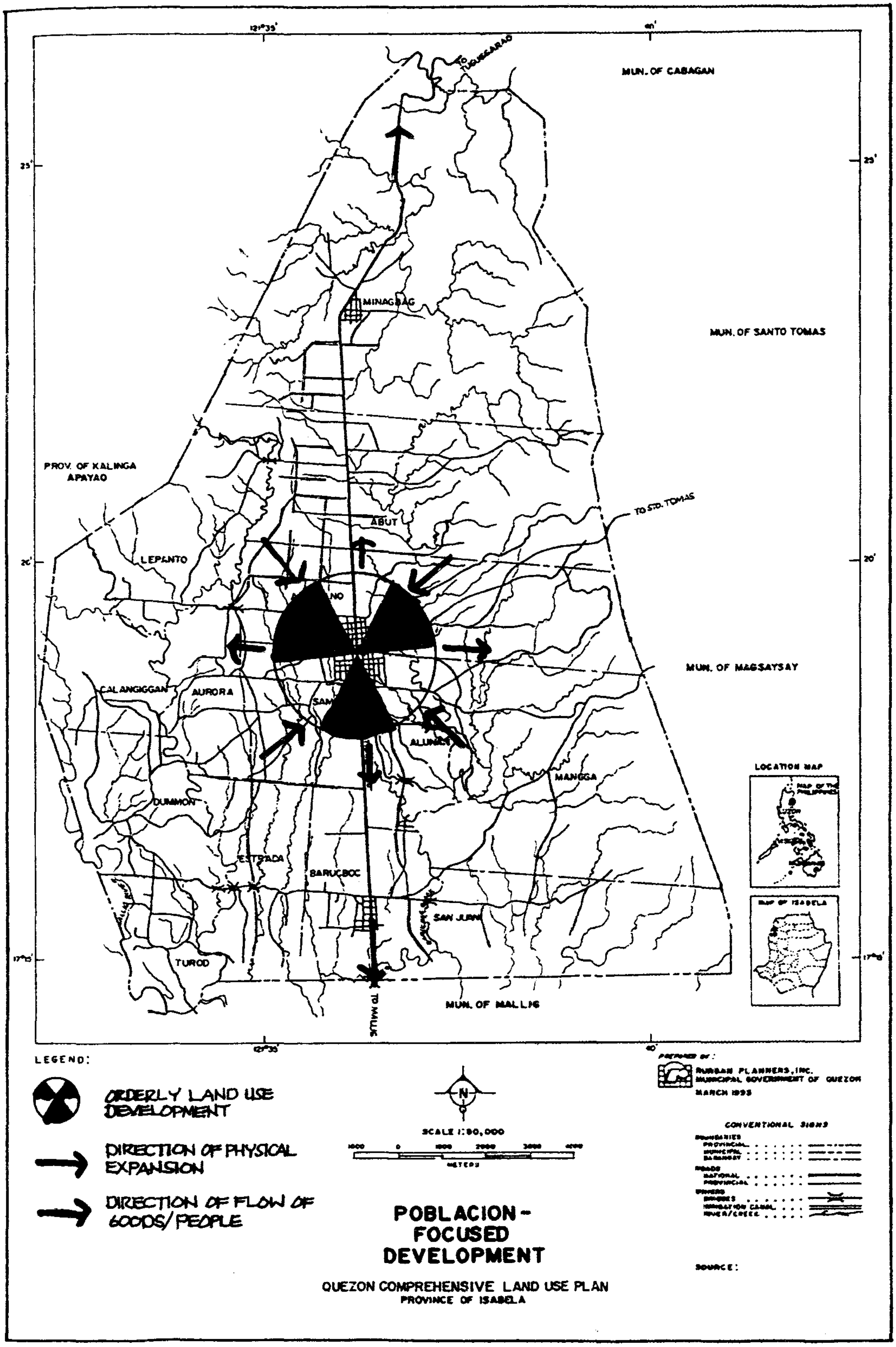
SAN JUAN
MANOGA
MUN. OF MAGSAYSAY
MUN. OF MALIG
TO SUMMARAO
TO STO. TOMAS
LOCATION MAP
MAP OF ISABELA
LEGEND:
HAPHAZARD LAND USE DEVELOPMENT
DIRECTION OF PHYSICAL EXPANSION
DIRECTION OF FLOW OF GOODS/PEOPLE
WEAK LINKAGE
SCALE 1:50,000
METERS
CONVENTIONAL SIGNS
SOURCE:
NATURAL GROWTH PATTERN
QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA
PREPARED BY:
RURBAN PLANNERS, INC.
MUNICIPAL GOVERNMENT OF QUEZON
MARCH 1995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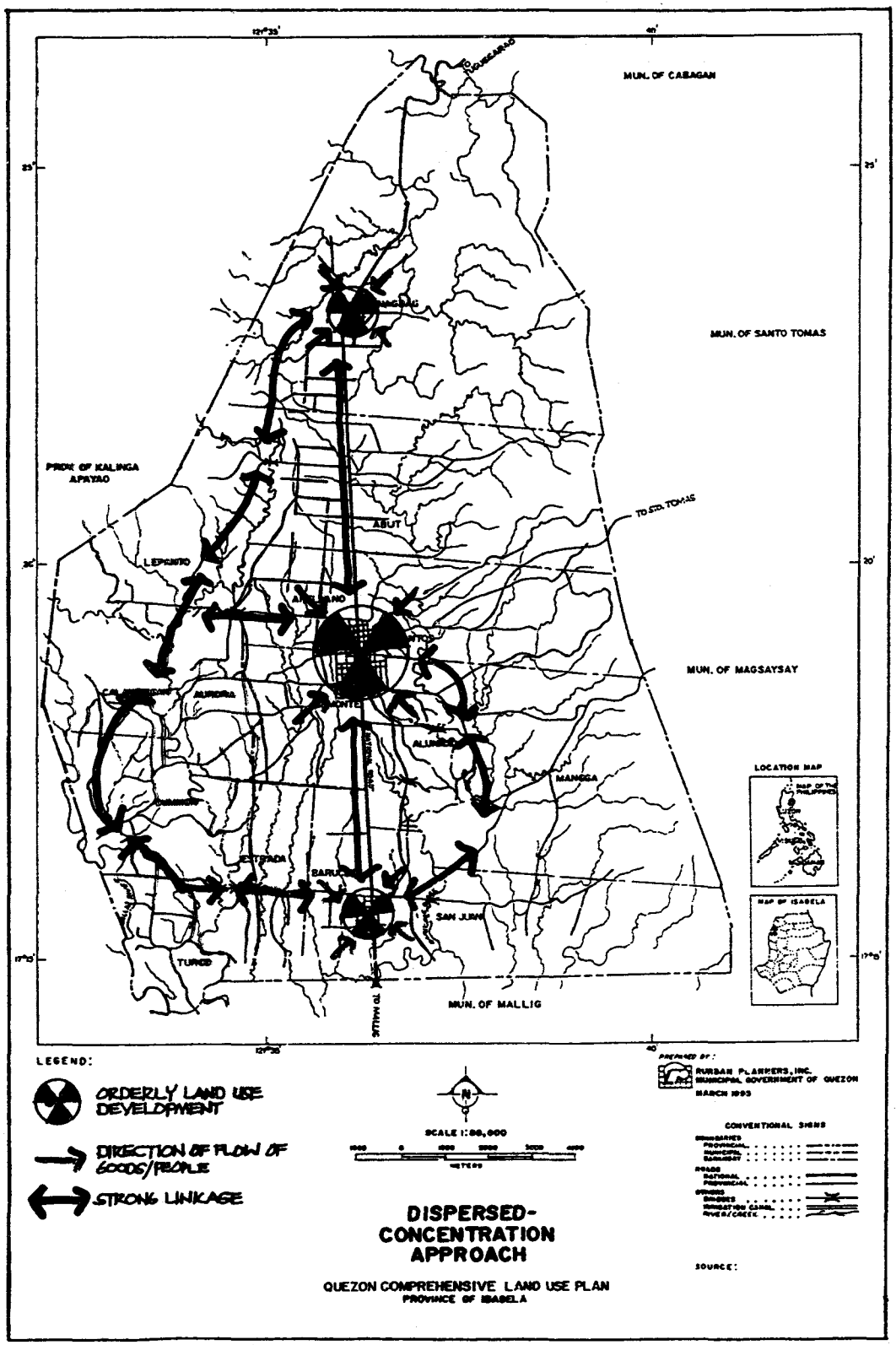
TO MALLIG
MINAGBAG
ABUT
LEPANTO
CALANGIGGAN
AURORA
ALUNAN
MANGGA
DUMMON
ESTRADA
BARUCBOC
SAN JUAN
TUROD
LOCATION MAP
LEGEND:
ORDERLY LAND USE DEVELOPMENT
DIRECTION OF PHYSICAL EXPANSION
DIRECTION OF FLOW OF GOODS/PEOPLE
SCALE 1:50,000
METERS
PREPARED BY:
RURBAN PLANNERS, INC.
MUNICIPAL GOVERNMENT OF QUEZON
MARCH 1995
CONVENTIONAL SIGNS
SOURCE:
POBLACION - FOCUSED DEVELOPMENT
QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA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ALUNDO
MANGGA
ESTRADA
BARURI
SAN JUAN
TUNGD
TO PHILLIS
MUN. OF MAGSAYSAY
MUN. OF MALLIG
LOCATION MAP
MAP OF THE PHILIPPINES
MAP OF ISABELA
LEGEND:
ORDERLY LAND USE DEVELOPMENT
DIRECTION OF FLOW OF GOODS/PEOPLE
STRONG LINKAGE
SCALE 1:50,000
METERS
PREPARED BY:
RURBAN PLANNERS, INC.
MUNICIPAL GOVERNMENT OF QUEZON
MARCH 1993
CONVENTIONAL SIGNS
SOURCE:
DISPERSED-CONCENTRATION APPROACH
QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

routes and at the same time, limits the road-widening capacity in anticipation of future demand.

Poblacion-Focused Development

As discussed, the natural tendency for the Poblacion is to continue growing even without any form of intervention. A Poblacion-focused development scheme, however, implies some form of state intercession. This intervention is often implemented through the planning function of the office of the MPDC.

The Poblacion-centered approach is premised on the prevention of the possible adverse consequences of the first strategy. It differs in that some semblance of planning and zoning is attempted to avoid the difficulties associated with incompatible land uses.

Another key consideration is the need to allocate limited resources within a small area and simply hope that the growth-pole "trickling down" phenomenon will take place. Likewise, the ribbon-type of development is discouraged in this strategy as it is perceived to be an inefficient system of land usage, particularly with respect to the provision of public utilities.

However, a major defect of this stance is the apparent shortsightedness of the approach. While it is true that there is minimal investible resources, it should be kept in mind that the objective of planning is to anticipate future needs and influence future conditions. Besides, the Local Government Code provides opportunities for enhancing local revenue generation of local governments. The third strategy is presented precisely to address this issue.

Dispersed-Concentration Approach

Taken from regional development literature, this strategy envisions the development of the municipality which is characterized by a dominant growth pole together with two satellite growth centers. Its surroundings is envisioned to contain a compatible mix of land uses. The rationale behind this strategy is to contain movement of resources, people, services, goods, trading and other opportunities within the confines of the municipality especially from the outlying barangays and its fringes.

The Poblacion, where the concentration of infrastructure and utilities are presently situated, shall continue its role as the dominant growth center. The continuous concentration and upgrading of its infra-utilities system should be given priority. The development of two potential satellite growth areas, namely, barangays Barucboc and Minagbag, are envisioned to complement the Poblacion.

Located in the northern and southern ends of the municipality, the main function of the satellites is to provide the needed services and opportunities in the outlying barangays within its influence or tributary area. This is aimed at reducing heavy dependence on an overburdened Poblacion. Also, they are meant to arrest the outflow of people, goods, services, trade and opportunities into the nearby municipalities of Mallig and Tuguegarao by serving as counter magnets to the attractiveness of these places.

The success of this strategy depends on the presence of a well-developed infrastructure and utilities system to ensure access within and between points in the core and satellite growth areas. Effective land use control mechanisms are critical in this strategy to prevent incompatible land uses within the respective core and satellite areas to ensure its overall complementary state. In effect, this strategy implies a strong presence of the municipality's planning office.

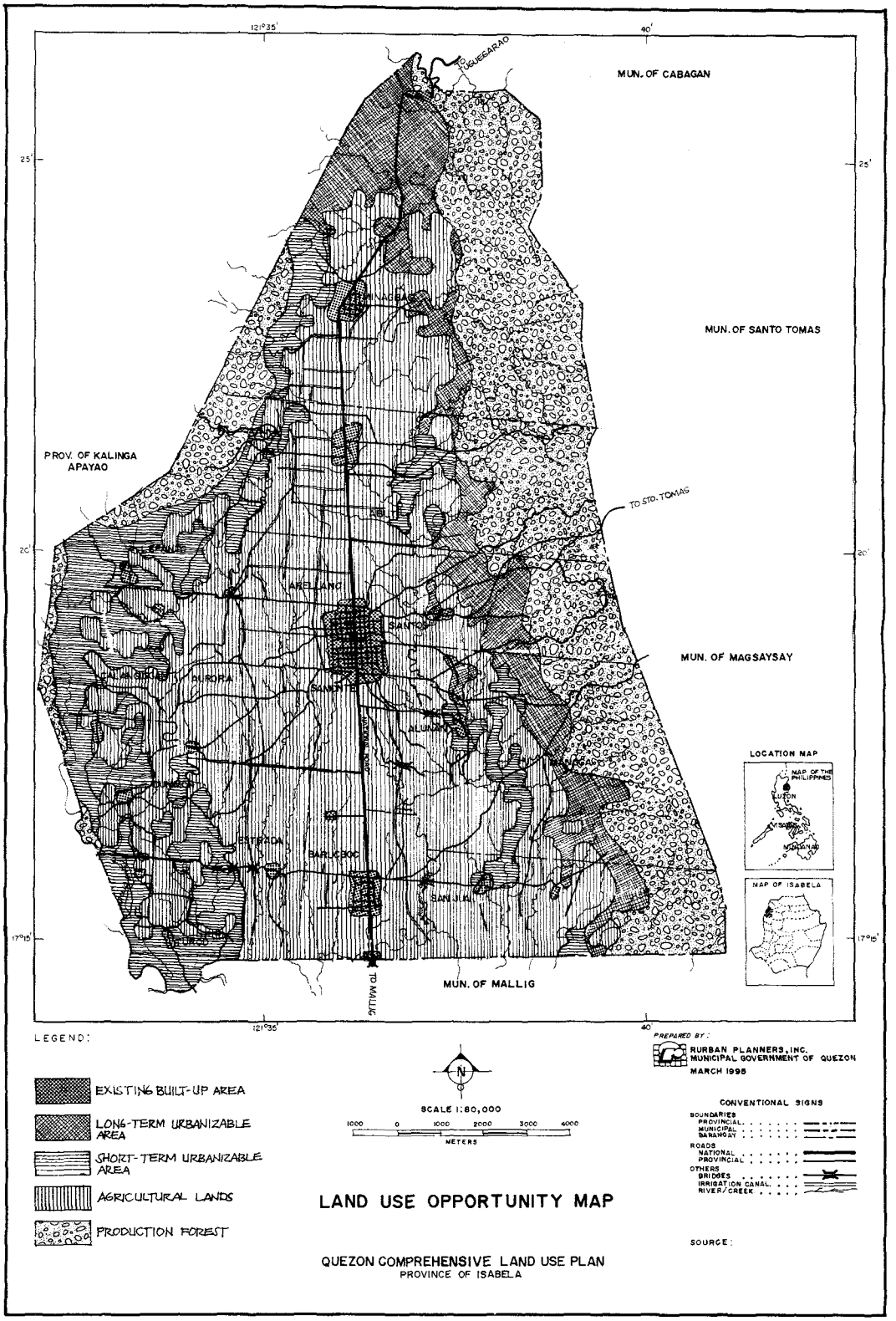
THE PROPOSED GENERAL LAND USE PLAN

Overview

The Quezon CLUP is a multi-sectoral plan which encompasses both the physical aspect as well as the sectoral concerns of development. It is generally viewed as an instrument for attaining a set of development goals for a given locality. For purposes of presenting the physical aspect of development, discussions in this chapter shall focus on the spatial dimension of the CLUP, that is, the land zonation scheme.

The land use component, aside from translating into geographic format the rational distribution of land resources, also provides the framework for integrating the sectoral interests and specific programs and projects in space. This spatial orientation provides the means for actualizing socio-economic goals/objectives through the specification of the spatio-sectoral patterns of activities in the municipality. The end product is, thus, a geographic representation of the idealized arrangement and distribution of the municipality's physico-cultural features: the proposed land use map.

The product is the result of a planning exercise; a deliberate effort to influence future conditions by assessing the present and anticipating how the ideal situation may be achieved.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MUN. OF SANTO TOMAS
PROV. OF KALINGA APAYAO
TO STO. TOMAS
MUN. OF MAGSAYSAY
MUN. OF MALLIG
TO MALLIG
LOCATION MAP
MAP OF THE PHILIPPINES
MAP OF ISABELA
LEGEND:
EXISTING BUILT-UP AREA
LONG-TERM URBANIZABLE AREA
SHORT-TERM URBANIZABLE AREA
AGRICULTURAL LANDS
PRODUCTION FOREST
SCALE 1:80,000
METERS
PREPARED BY:
RURBAN PLANNERS, INC.
MUNICIPAL GOVERNMENT OF QUEZON
MARCH 1995
CONVENTIONAL SIGNS
BOUNDARIES
PROVINCIAL
MUNICIPAL
BARANGAY
ROADS
NATIONAL
PROVINCIAL
OTHERS
BRIDGES
IRRIGATION CANAL
RIVER/CREEK
SOURCE:
LAND USE OPPORTUNITY MAP
QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

The Preferred Spatial Strategy: A Phased Dispersed-Concentration Approach to Development

The selection of the spatial strategy for Quezon was made on the basis of several criteria. First, the municipality is first and foremost an agricultural community. Given this fact and after due consideration for the macro policies (which supports the promotion of agricultural development in the northwestern quadrant of Isabela) that are brought to bear on the development of the town, it was decided that the progress of Quezon will revolve around an agriculture-led type of development.

Second, the physiography of the municipality is highly conducive for agricultural production. The extensive flat lands in the interior and the gradually sloping areas at the periphery makes low-land agricultural and makes agro-forestry activities an attractive opportunity. (Although at present there appears to be some problems with the effectiveness of agricultural support infrastructure, particularly the supply of water for irrigation, there are concrete plans to augment the needs of the agricultural sector).

Third, the expansive prime agricultural lands which fall under the ambit of Administrative Order #20 (which makes conversion of irrigated and irrigable areas a non-negotiable matter) and the numerous CARP areas within the municipality constrain the outward development of non-agricultural activities.

And fourth, the evaluation of several spatial schemes presented before municipal officials and residents led to the selection of a reformulated dispersed-concentration approach. While it was pointed out that the resources of the municipality was so limited as to prevent a meaningful diffusion of development over a wide geographic area, it was clarified during the consultative-meeting that the very object of planning is to look at development over the long run. Although the dispersion of development was not an immediate concern, it was realized that it is necessary to anticipate future demands for space.

As explained in the previous chapter, the major features of the chosen strategy is the designation of the Poblacion as the principal growth center and the barangays of Barucboc and Minagbag as satellite areas. However, the plan advocates for the development of the Poblacion first over simultaneous development of the satellite areas since existing conditions and levels of demand do not warrant the rapid urbanization of the identified satellite areas. The resulting spatial strategy, *Phased Dispersed-Concentration Approach to Development*, is a mixture of the second and third schemes presented.

This means that over the short and medium terms, development shall still be focused on the Poblacion area, but in the next ten years or so, the structures and mechanisms should already be there in preparation for the transformation of the satellites into major hubs of activity.

Derivation of the Proposed Land Use Scheme

Before a rational land zonation scheme was formulated for Quezon, a thorough analysis of physical, socio-economic, legal as well as practical planning considerations were undertaken. The process of identifying the best use and distribution of land resources was facilitated by the systematic use of the eco-engineering approach to map analysis. Also known as the sieve-mapping technique, this composite mapping tool involves the overlaying of selected inventory and criteria maps to derive analytical decision maps.

The composite analytical maps are derived by delineating specific categories on the relevant thematic maps based on particular factors or features. The analytical maps are then used as inputs in the derivation of more composite maps. Refinements to each subsequent iteration is done by applying ecological and engineering principles as well as practical planning considerations. This is similar to the Geographic Information System (GIS) which employs the same methodology using state-of-the-art computer technology. For Quezon, the manual version was applied.

Basically, the derivation process hinges on the identification of constraints to development. The first set of constraints may be classified as purely dictated by the physical environment. Examination of geologic properties, erosion potential and slope categories provided the data for the first iteration. The geologic map reveals the suitability of the structural properties of the rock formations underlying the municipality for land development. The erosion potential of the area likewise reveals the logic of restraining high-intensity development in the western and eastern edges. As revealed by the slope map, land development may be encouraged only in areas indicated by the gentle slopes. The composite map examines the suitability of the area for urban uses and must be recognized that such derivation is based only on physical parameters.

Aside from physical considerations, there are certain development constraints which

limit the optimum use of land. Among these development constraints is the existing land use. As a general policy, existing uses, particularly agricultural and residential/ commercial zones, are maintained provided they pose no threat or do not conflict with adjacent zones. Also, the protected agricultural areas as determined by the DA and NIA -- pursuant to A.O. No. 20--as well as the areas under CARP as determined by the MARO have been afforded due consideration.

With regards to the priority areas for agriculture map, it is alarming to note that although an extensive area is shown as irrigated, actual conditions in the municipality reveal that some ricelands are not reached by irrigation water. The unavailability of irrigation water at Quezon, notwithstanding the extensive irrigation channels, is attributed to two things: (a) the diversion of water into Kalinga-Apayao fields upstream of the Chico river, and (b) the inadequate amount of precipitation which fall into the Cagayan Valley for at least one-half of the year. Be that as it may, existing ricelands and CARP areas have been preserved for agricultural purposes.

Still another map which is of relevance is the committed land uses map. This map shows the location of government-sanctioned projects in the timberland areas to the east. It also shows the extent of A&D land in the municipality. As a guide, it is ill advised to promote intensive land use activities such as human settlements in the area.

The second iteration in the overlaying process involves the suitability for urban development map, the existing land use map, the priority areas for agriculture map, the areas under CARP map, and the committed land uses map. This results in the land use opportunity map which is indicative of what may or may not be done to the land resources of Quezon. Generally, the land capability categories show the suitability of the central areas for agricultural uses and the eastern section for production forestry activities. Near the foothills of the timberland area are lands which have been identified as urbanizable lands over the long term and to the west of the agricultural zone are the short-term urbanizable lands. The third iteration of the derivation process involves the land use opportunity map as input. First, it is overlain on the proposed circulation system. Since the physical and technical criteria have already been incorporated in the previous iterations during the planning activity, the other considerations like the official recommendations and expressed visions of the local leadership and pipelined infrastructure projects (e.g., communal irrigation projects) are taken into account. Also, due consideration is given to public reactions and suggestions. These are all evaluated vis-a-vis the adopted spatial strategy to produce the proposed land use zonation for Quezon.

The Functional Land Use Zones

Underpinning the proposed land zonation for Quezon is the policy of promoting a strong agriculture-backed economy. The translation of the policy may be easily discerned from the proposed land use map.

It has already been mentioned that the conceptualization of the land use plan adhered to an objective schedule. Employing the sieve-mapping technique, the physical and natural features were the first considerations after which constraints were identified. Socio-economic factors were later inputted in the light of macro development priorities. Then, government policies and programs provided another layer which eventually led to the present configuration of the plan.

What follows is discussion of the general land use scheme focusing on the policy imperatives for the use of land in Quezon in pursuit of a sustainable level of development.

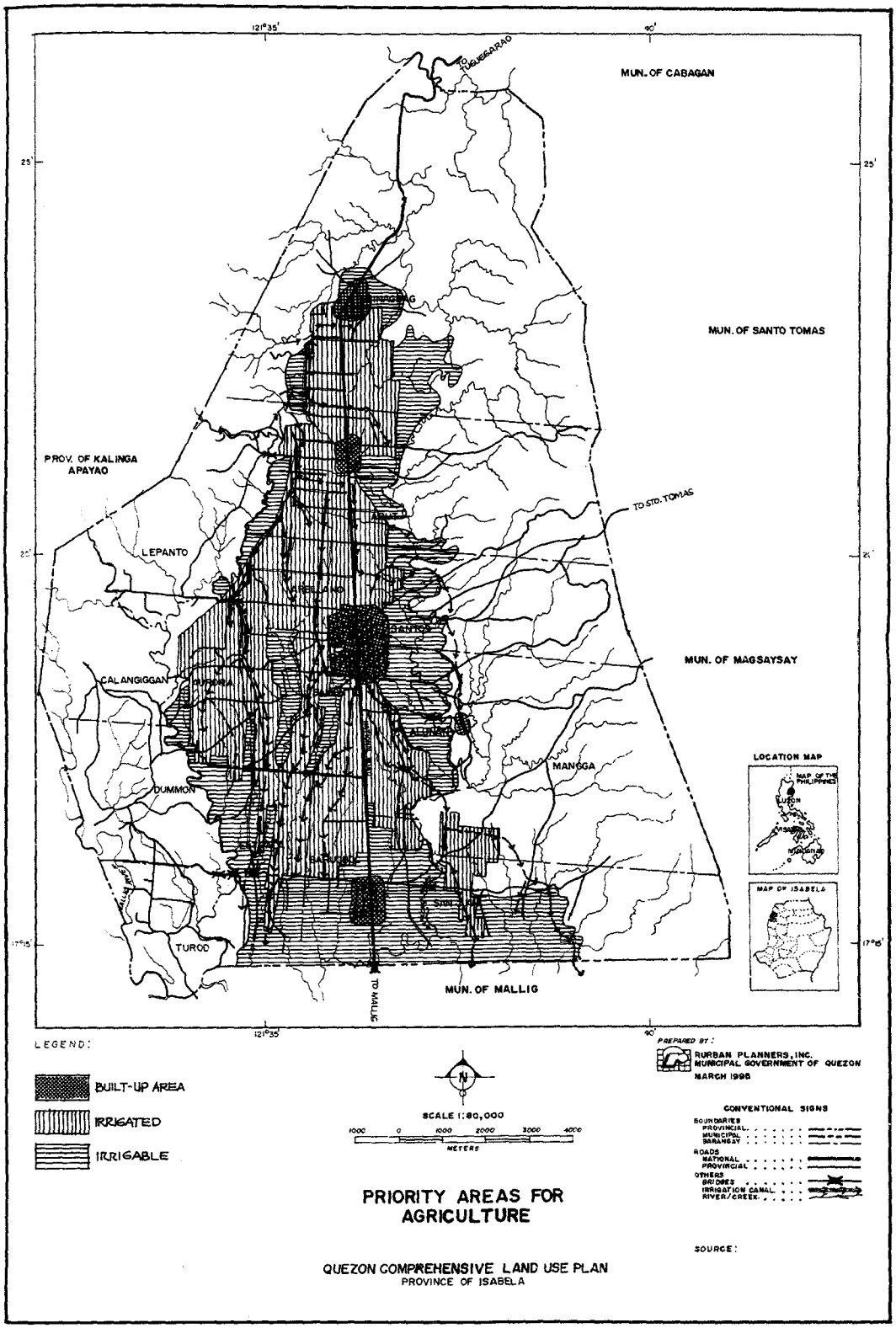
Built-Up Areas

Also referred to as urban land uses, the built-up areas reflected on the map is a consolidated zone composed of residential, commercial, institutional and industrial land uses. Characteristically, the major concentration of these areas are in the major population centers particularly the four agglomeration along the length of the national highway, i.e., in barangays Barucboc, the Poblacion, Abut, and Minagbag. A scattering of other small concentration of population are in the western edge of the municipality. These include the barangays and *sitios* of Turod, Estrada, Malalao, Dummon, Talaca, Calanguigan, Aurora, and Lepanto.

Principally because of the sloping terrain and public-owned lands, there is minimal human settlement in the eastern side of the municipality.

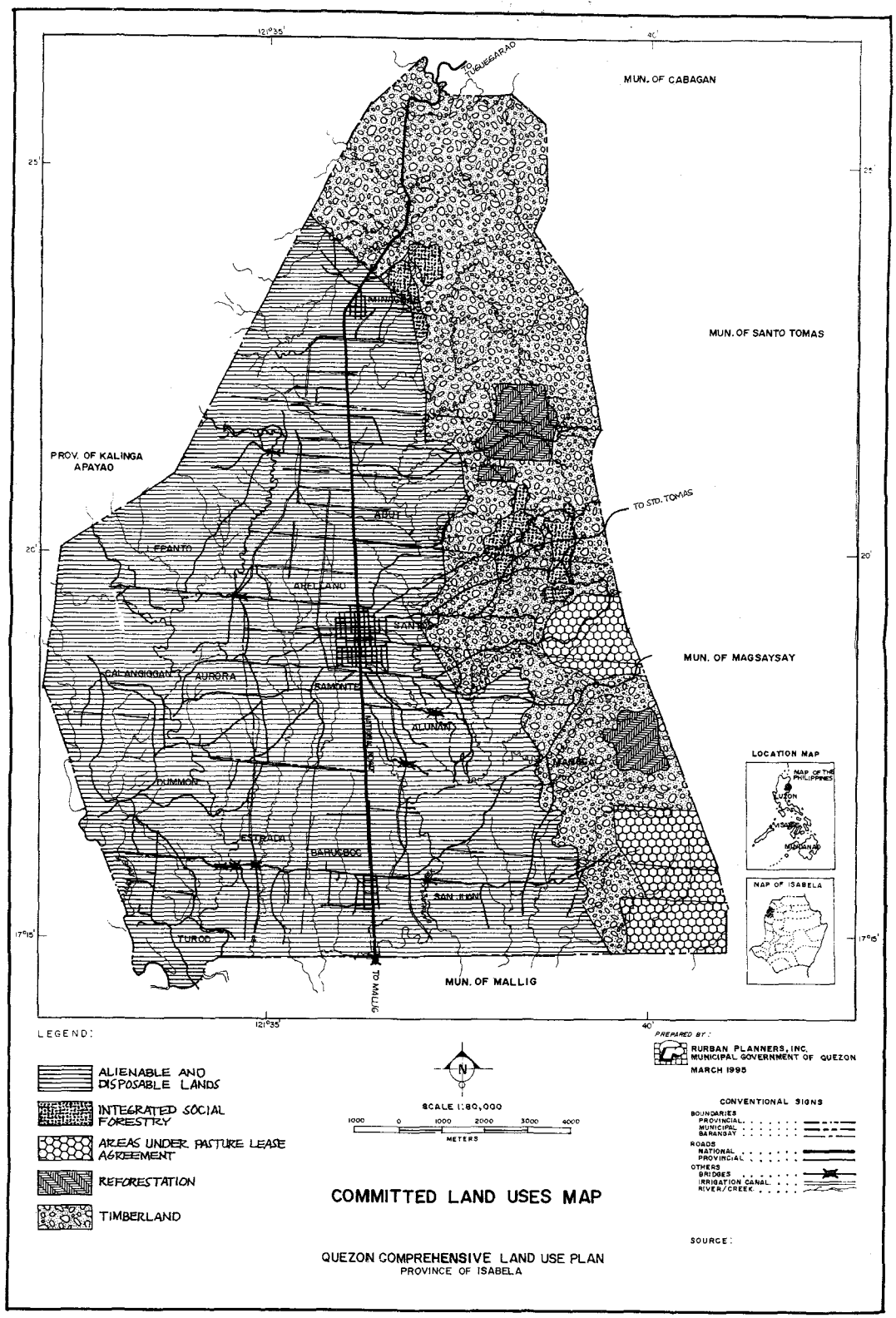
An extensive protected agricultural area occupies the middle portion of the municipality. The presence of these irrigated and irrigable areas offers a major constraint to the outward expansion, particularly, of the major settlement areas along the stretch of the national highway.

Since the protection of agricultural lands is a primordial concern, how then should the municipality reconcile this with the need for an urban expansion zone. In view of the DAR



PRIORITY AREAS FOR AGRICULTURE

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA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TO TUGUEGARAO
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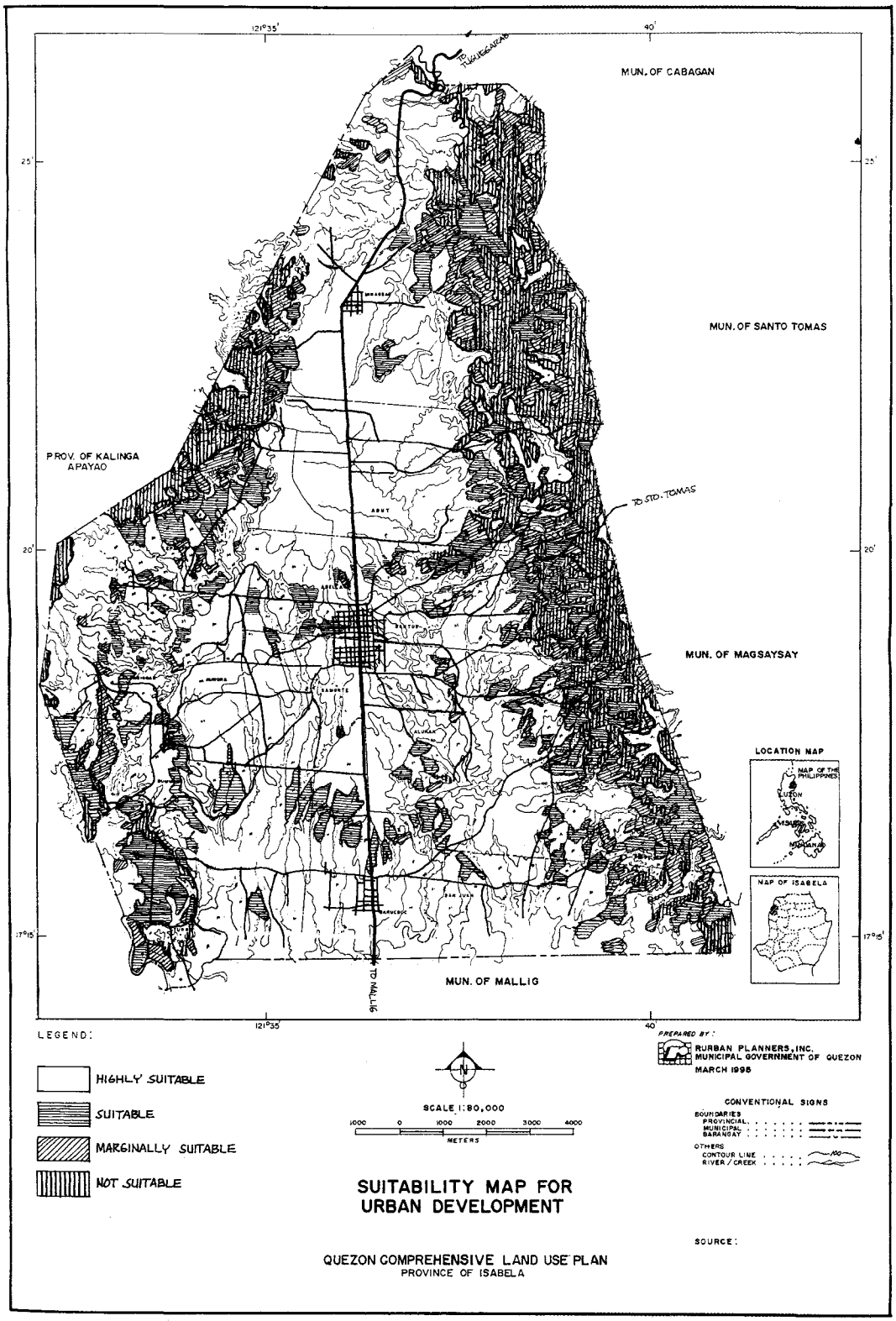
MUN. OF SANTO TOMAS
PROV. OF KALINGA APAYAO
TO STO. TOMAS
LEANTO
ARELLANO
SAN MARIANO
MUN. OF MAGSAYSAY
CALANGIGAN
AURORA
SAMONTE
ALUNAO
DUMMON
ESTRADA
BARUKBOK
SAN ILDEFONSO
TUROD
TO MALLIG
MUN. OF MALLIG
LOCATION MAP
MAP OF THE PHILIPPINES
LUZON
MINDANAO
MAP OF ISABELA
LEGEND:
ALIENABLE AND DISPOSABLE LANDS
INTEGRATED SOCIAL FORESTRY
AREAS UNDER PASTURE LEASE AGREEMENT
REFORESTATION
TIMBERLAND
N
SCALE 1:80,000
1000 0 1000 2000 3000 4000
METERS
COMMITTED LAND USES MAP
QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA
PREPARED BY:
RURBAN PLANNERS, INC.
MUNICIPAL GOVERNMENT OF QUEZON
MARCH 1995
CONVENTIONAL SIGNS
BOUNDARIES
PROVINCIAL
MUNICIPAL
BARANGAY
ROADS
NATIONAL
PROVINCIAL
OTHERS
BRIDGES
IRRIGATION CANAL
RIVER/CREEK
SOURCE:



SUITABILITY MAP FOR URBAN DEVELOPMENT

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

Administrative Order No. 12, minimal reclassification of agricultural lands may be done and reserved as urban expansion areas ***provided*** that the DA has certified that the land has ceased to become economically viable for agricultural purpose or the LGU can show that the land will have greater economic value for urban use. While section 20 of the Code is being invoked in this instance, to ensure that the prime agricultural areas are not significantly affected, there may be need to insist on a legislative measure (a municipal ordinance which incorporates a sanction or punitive action against violators) which will unequivocally state the municipality's commitment to protect its agricultural lands outside of an identified urban expansion zone. This becomes even more urgent in the face of the grains shortage in the country. In the meantime, they should be used for agricultural purposes until actual conversion (which will still need DAR approval) becomes necessary to accommodate the growing urban population. There is a need to implement a strict land use monitoring activity to prevent pre-mature urbanization of these areas.

As far as the existing built up areas are concerned, a more detailed urban land use survey has been done to ascertain the pattern of land zonation, specifically as it applies to the Poblacion. As a matter of policy, encroachment into agricultural lands will be prohibited as large plots within the urbanized zone are still undeveloped. Thus, an in-filling strategy will be promoted to prevent horizontal expansion of the urban core.

Although emphasis is placed on the protection of prime agricultural lands, the encroachment being prohibited in the above paragraph refers to massive land development. For practical purposes, single residential development on predominantly agricultural areas shall be permitted subject to the approval by the MPDC or the zoning administrator.

Protected Agricultural Zone

Land zoned for agricultural purposes is vast, accounting for approximately ¾ of the total land area. The protected agricultural areas include those lands which are either irrigated, irrigable or existing ricelands. They occupy the central plain and have been designated as such: (a) to avoid disrupting existing cultivation patterns; (b) to comply with the mandate of AO No. 20; and (c) in pursuance of the policy of food (rice) self-sufficiency.

However, a joint Memorandum Circular No. 54, allows reclassification in meritorious cases. But, at no instance should conversion/reclassification be allowed within KPAs.

Marginal Agricultural Areas

Still part of the agricultural lands, certain areas have been classified as marginal areas for agricultural development. The present vegetative cover is grass and shrubs. These are found in both lowland and upland areas, in flat and sloping terrain. They have been designated as marginal and represent areas which are covered under the agrarian land reform program but which are neither irrigated, irrigable nor cultivated.

Because of specific provisions in the CARL which prohibits conversion of distributed lands within a period of five years, it is suggested that these areas be put to productive use through the cultivation of vegetables and other cash crops.

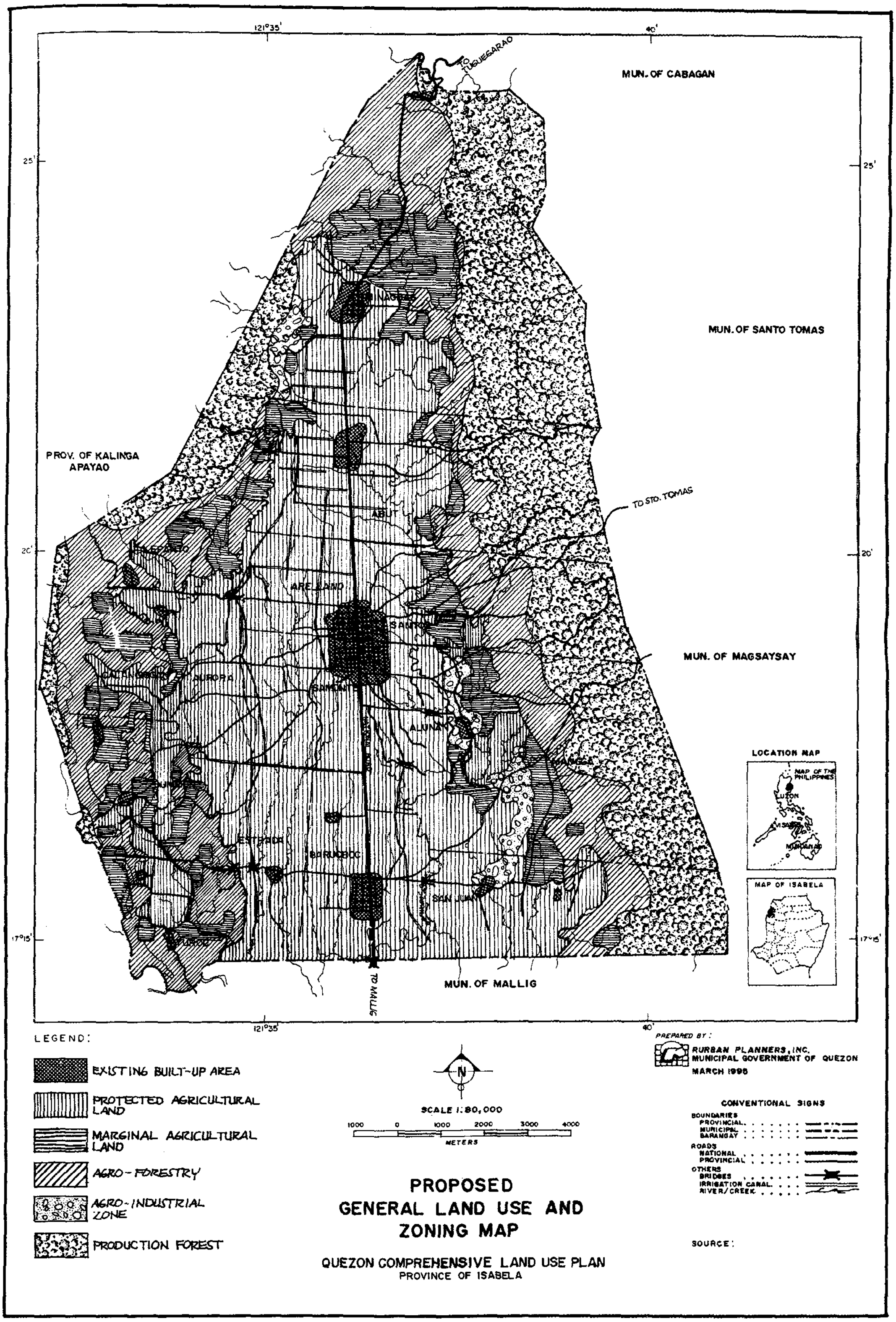
Over the long run, these areas have the potential of being used in a wide range of uses. If irrigation facilities are expanded into the area, they may be converted to protected agricultural lands; they may be used for agro-forestry activities; as urbanizable areas and possible relocation and socialized housing sites; and even for industrial uses.

Agro-Industrial Zone

Delineated in three separate zones are the envisioned sites for agro-processing industries. To the northwest in the vicinity of barangays Abut and Minagbag, an agro-industrial zone is located. It is situated on a rolling terrain in the eastern foothills of the mountains of Kalinga-Apayao. The location is designed to take advantage of the large cattle ranches in the northern portion of the municipality, the westward artery towards the CAR provinces, and the proposed circulation loop in the northwest.

The other two areas zoned for agro-industrial activities may be found southeast of the Poblacion. It is focused on the agro-forestry zone on the east where the majority of its raw materials will come from, close enough to the population centers also in the east where a ready pool of labor may be found, and oriented towards the southern market area in the Mallig agricultural region.

These three agro-based industrial sites comprises the agglomeration of agro-processing plants within a common area to be able to benefit from scale economies and to confine industrial wastes and by-products in a small area. The proposed loop in this quadrant is recommended to traverse the two zones.


MUN. OF CABAGAN
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LOCATION MAP
MAP OF THE PHILIPPINES
LUZON
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MINDANAO
MAP OF ISABELA
LEGEND:
EXISTING BUILT-UP AREA
PROTECTED AGRICULTURAL LAND
MARGINAL AGRICULTURAL LAND
AGRO-FORESTRY
AGRO-INDUSTRIAL ZONE
PRODUCTION FOREST
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SCALE 1:80,000
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IRRIGATION CANAL
RIVER/CREEK
SOURCE:

The Agro-Forestry Zone

The agro-forestry zone represents areas characterized by slopes of 18-30 percent and form part of the lower segments of the mountain system in the area. These areas flank the agricultural zone and serve as transition zone to the upland areas.

Although at present the majority of the zone is not cultivated, these areas are excellent candidates for orchards and tree-farming, silvi-culture activities, commercial timber stands, and pasture/ grazing areas. Cash crops may also be cultivated. All these agri-forest products can supply the requirements of the agro- processing plants earlier proposed in the agro-industrial zone.

Production Forest Area

Covering about ¼ of the municipal land area, the timberland is concentrated along the eastern periphery of Quezon. The western boundary into Kalinga-Apayao also has some areas classified as production forest but these are not as extensive as those in the east.

The zone exhibits rugged topographic features and is unfortunate that these public-owned lands have certainly seen better times. Although originally classified as timberlands, the slopes are no longer tree-covered and the dominant vegetation are shrubs and grasses.

Fortunately, reforestation projects and integrated social forestry (ISF) activities are being implemented by the DENR with the NGOs and the private sector. There are pasture lease agreement (PLA) licensees who have opted to utilize the potential offered by the environment.

Intensive activities including occupation of forests and timberland areas should be guarded against to prevent the worsening of upland degradation. The case of water shortage during the dry season in Quezon should already provide officials with enough resolve to intensify real efforts at protecting their immediate environment.

The Physical Components of the Land Use Plan

Proposed Road Network

The proposed circulation system is a vital cog in the viability of the proposed land use plan. It consists of all roads in the municipality and proposes the upgrading of existing and the opening up of new roads (along with the support utilities). Improving the circulation network is viewed as an important catalyst for initiating and distributing development within the locality. By opening opportunities and providing access to services to every corner of the municipality, it effectively addresses the people's need for mobility.

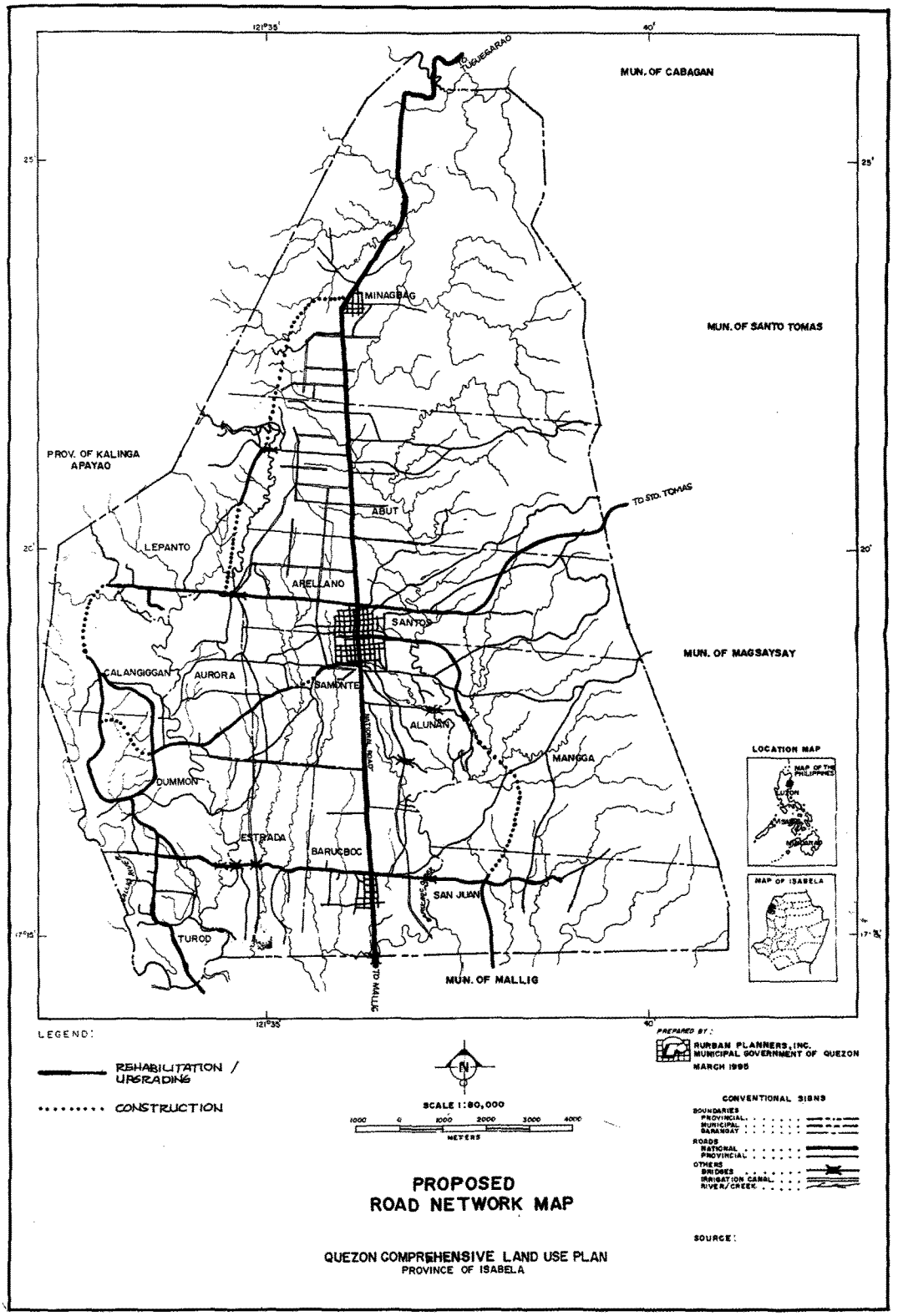
The nature of the proposed land use plan is influenced to a great extent by the national highway which divides the municipality into two main areas (the eastern and western portions). The Santiago-Tuguegarao highway traverses through the major settlement areas from the southern to the northern end. Its upgrading (widening and rehabilitation into an all-weather concrete pavement which is programmed for completion by 1998) is an important pre-requisite for the chosen spatial strategy for it will serve as the main access to and from Quezon.

The development of the eastern and western portions of Quezon are dependent on a series of road networks interconnected with one another through "loops" of circulation. The desired effect is to provide access to all settlement areas within, as well as interconnecting them with the major center, the Poblacion, and its satellites located in barangay Minagbag in the northern portion and barangay Barucboc in the southern end.

The configuration of the proposed circulation is characterized by a system of loops which are designed to create an interconnected road network. The loops o circulation encourages inter-baranga interaction by creating a cellular space economy. The effect of limiting movement within the municipality will hopefully create greater multiplier effects to the local economy.

It is envisioned that the provision of infrastructure, utilities and services shall still be prioritized in the Poblacion. Gradually, however, the two satellite communities shall be developed as alternative centers to complement the Poblacion. Far-flung and outlying barangays with limited access to the Poblacion shall be encouraged to gradually turn to the satellite areas for minor services. The road network that interconnects the various barangays with the centers and vice-versa is, therefore, crucial for such a strategy to be successful.

In summary, ACCESS, which is deemed vital in the movement of people, produce and services, is the very lifeblood of any activity in whatever municipality. It is foreseen that this important factor in the development of Quezon will be enhanced through the implementation of the proposed circulation system over the long run.



PROPOSED
ROAD NETWORK MAP

QUEZON COMPREHENSIVE LAND USE PLAN
PROVINCE OF ISABELA

The Public Utilities System

As stated earlier, it is imperative that the development of support infrastructure such as sewerage lines, storm drainage lines, water supply facilities and the like go hand-in-hand with road construction. Well planned provisions for such utilities will prove to be economical in the long term compared to the knee-jerk reactionary measures which characterizes most infra-utilities programs. Other utilities such as power and telecommunications will have a wider and more effective coverage of the municipality upon the completion of the road network.

A critical problem which has to be addressed is the acute shortage of water supply (both for domestic and agricultural use) prevalent in most of the barangays in Quezon. The continuing development of spring water reservoirs (some of which are already in the pipeline) is an encouraging sign that the problem is being addressed.

One notable limitation of such projects like the Chico River irrigation system, spring development and the like, is its dependence on limited water sources. Overdrawing of the Chico River has already produced negative results for farmers. The same goes for spring water sources, which are becoming scarce and limited in capacity due to the destructive effects of massive deforestation/denudation of the uplands and watershed in the area.

One water source which has not been tapped or exploited is rainwater. Records from the synoptic station in Tuguegarao reveal that on the average, a total of 1,572 mm of rainfall is received annually. Although relatively abundant, it is seasonal.

It would be beneficial to introduce a technology for rainwater catchment and storage, in the hope that this will augment the already limited water supply and distribution system of the municipality, especially during the dry season. It is envisioned that each barangay shall have its own rainwater catchment systems (similar to underground cisterns) both for domestic and agricultural uses.

The envisioned development of Quezon into a progressive municipality will surely bring with it attendant problems like refuse and waste, commensurate to the level of development. It is prudent, therefore, to prepare a solid waste disposal and management program to cater to the anticipated needs of the municipality. Tentatively, an area at the southern fringes of barangay San Juan could be a viable site for a dumpsite. Designating a specific location will, however, depend on a detailed feasibility study.

Urban Land Uses: Existing and Proposed

The Poblacion, being the seat of the municipal government and the center of business and trade, has the best facilities, basic infrastructure and services in the municipality. These reasons make the Poblacion (particularly Arellano and Santos) among the most urbanized and populated in the municipality, causing it to be a magnet for in-migration from other settlement areas of lesser stature.

To avoid the blight, traffic congestion, pollution, health and hygiene hazards, chaos and a resulting inefficiency in the coverage/scope of basic services that arise from rapid urbanization and progress, the growth of the Poblacion must be thoroughly planned.

Based on a detailed urban land use survey, residential areas dominate the urban-scape. Institutional areas occupy the central portion along an east-west stretch while the industrial/commercial areas concentrate within the vicinity of the public market. Approximately 30 percent of the Poblacion's area are still vacant/idle with a number of them having absentee owners. Likewise, the peripheral areas of the Poblacion are still devoted to agricultural uses which reveal the capacity of the Poblacion for future urban growth. Being hemmed-in on practically all its boundaries by productive agricultural areas, it would be logical therefore, to utilize these vacant/idle lands to absorb growth in the short to medium term period rather than look outwards for its expansion needs.

The urban land use plan, therefore, classifies most of the vacant/idle lands into buildable areas predominantly for residential use. An innovative feature, however, would be the programming of such areas for short- and medium- to long-term allocation. The plan also sees the need for retaining portions of such vacant lands for institutional, agricultural uses, as well as related mixed land uses.

The on-going concreting of the national road that practically traverses at the center of the Poblacion opens up a lot of potential opportunities for the municipality, in general, and the Poblacion, in particular. This development, together with the upgrading of a provincial access road to the eastern municipalities like Sto. Tomas, would make the Poblacion a natural "melting-pot" and major transportation node in Isabela. It is, therefore, imperative that the frontline areas along the national road be carefully planned.

It has been proposed that these frontline areas be zoned for light commercial uses to exploit the economic opportunities that come with its strategic location. A main feature, however, would be the mandatory provision of ample parking spaces and loading/unloading bays for public transportation, so as to mitigate or minimize the potential traffic problems that will occur, typical of most linear development patterns. Special emphasis is given to the term light commercial, so as not to compete with the role of the public market, which has a focal role to play, being the center of commerce and trade. Another innovation in this commercial strip would be the designation of the areas fronting the municipal complex and other institutional areas, as zones for certain limited and special commercial areas such as bookstore, office/school supplies and related dry goods / items, so as to complement the hierarchy of the predominant activities/functions already in place.

Critical to the success of the proposed urban zoning scheme is the development of a vast tract of land (owned by the municipality) into a mixed cluster of institutional/commercial uses: that is, the fire station, upgraded district hospital, and a huge transportation terminal for buses, to ensure and direct potential economic activities that come with the movement of the people and services. A buffer zone consisting of a strip of green belt shall be placed in said zone to prevent land use incompatibility. This measure is needed to particularly muffle noise and screen airborne pollutants inasmuch as the district hospital is only a stone throw away. At the same time, it serves as a rest area and haven for weary travelers, passersby, lounging government servants or even frollickers.

A series of traffic rerouting schemes and designation of uni-flow avenues are needed to ensure smooth traffic flow within this area of the Poblacion. Also, the designation of a two-block auto-restricted street is proposed to provide shoppers/market-goers with an accident-free shopping environment.

Another innovation which is well worth considering would be to provide prominent visual features or landmarks which would help people (locals and visitors) orient themselves and identify certain areas in the Poblacion. This can take the form of a tree-lined avenue or other similar scheme. All these should be designed to give the Poblacion its unique and memorable image which would enhance altogether the development of the whole municipality into its vision well beyond the fast approaching millenium.

SECTORAL DEVELOPMENT PLANS

Agriculture and Forestry Development Plan

Summary of Existing Conditions

The dominant economic activity in the municipality of Quezon centers on the production of palay and corn. Data reveal that out of a total of 8,400 hectares of agricultural lands, close to 77 percent or 6,551 hectares are cultivated while the rest (1,849 hectares) remains idle and unproductive. Palay is the most widely planted crop followed by corn, tobacco, fruits and vegetables, and coconuts and peanuts combined. Rice farmers on irrigated paddies average about 80 cavans per cropping per hectare.

Aside from rice farming, farmers also venture into tilapia culture. Average production value per worker per annum ranges from P1,400 to P3,500.

As expected, livestock and poultry raising are also practiced by most farmers. Types of livestocks raised include cattle, carabao, hog, goat and horse. Most of these, however, are used as work animals. Poultry animals such as white leghorn and some native species are grown on a backyard scale. Supporting the local farming industry are various facilities including 17 rice/corn mills, 22 warehouses, and 26 buying stations.

A worthwhile program of the government in the municipality is the Comprehensive Agrarian Reform Program (CARP). As of 1994, a total of 4,023 hectares have been distributed to farmer-beneficiaries.

Finally, data suggest that the municipality has a total of 2,305 hectares of forest lands most of which are already denuded due to kaingin, illegal logging and unlawful gathering of minor forest products.

Development Issues and Concerns

The performance of the agricultural sector is poor compared to its inherent potentials. A number of development issues and problems may be identified, to wit:

Lack of water for irrigation

Foremost among the many factors that contribute to the sub-par performance of the agricultural sector is the lack of water for irrigation. Although there exists a network of irrigation structure or canals especially on the north-northwestern portion of the municipality, the problem lies on the insufficient amount of water available for irrigation. There have been cases where vast tracts of palay areas on the

eastern portion of the municipality were destroyed due to water unavailability. Some farmers are constrained to adopt a two-cropping system as irrigation is limited during the dry months.

Low productivity of rice

As a result of the problem, farmers are limited to just 80 cavans per hectare on irrigated lands while only about 30 cavans are harvested on rainfed areas. In addition, low production of palay may also be attributed to farmers' lack of information on the latest technology on rice farming.

Inadequate income from farming

With limited rice production, farmers' income are relatively low and inadequate and this contributes, in general, to the lowering of their standard of living.

Lack of assistance from knowledgeable farm technicians

Aside from inadequate water for irrigation purposes, low agricultural production may be explained by the absence or the lack of assistance from farm technicians. Present farming practices no longer depend on heavy infusion of pesticides and chemical fertilizer but on the integration of organic farming and integrated pest management. Beside rice farming, farm technicians may also provide farmers with information and knowledge on agricultural intensification and diversification.

Conversion of agricultural lands to non-agricultural uses

During a consultation-dialogue with the local officials and members of the community, it was explicitly cited that one major problem is the conversion of agricultural lands to non-agricultural uses. It was feared that rampant conversion could in the long run, undermine the municipality's effort to attain food sufficiency.

Denuded upland areas

Located on the eastern portion of the municipality are forest areas which are mostly devoid of trees. Local officials attribute the sorry state of their public forest to unscrupulous loggers and unlawful gathering of minor forest products.

Development Potential and Opportunities

Despite the presence of some development issues and problems that constrains the agricultural sector, the municipality of Quezon is not without any opportunities which its people can optimize. These potential include the following:

Vast tracts of land highly suitable for agriculture

An assessment of the existing resources of the municipality reveals that its agricultural lands are among its most important resource. Initial studies by the BSWM show that almost one half of the total area is suitable or highly ideal for farming.

Designation of the Mallig region as the province's premiere rice granary

As part of the Mallig region, the province's major rice granary, Quezon can now set its sights on being a major rice producer of the province. As such, funding coming from the provincial and national governments will be poured for the rehabilitation and development of the various irrigation systems and other infrastructure support facilities in the municipality.

Potential for agro-processing industries

Aside from the production of palay, the municipality may also venture into the production and processing of high-value crops which can be sold to major processing centers in Roxas and Ilagan. In time, small scale agro-processing may be set up in the municipality. This will in the long run augment the meager incomes of farmers.

Sectoral Policies and Strategies

Given the various constraints and potential, the development of the agricultural sector hinges on the following policies:

Protect all irrigated and irrigable agricultural lands

In view of the national policy of attaining food sufficiency, it is the responsibility of the local government to protect its irrigated and irrigable lands from conversion. There are a plethora of existing laws which mandate the protection of these lands. DAR Administrative Order No. 12 provides the guidelines for the protection and conversion of agricultural lands.

Establish suitable irrigation systems in areas appropriate for palay production

Although this policy would require the municipal government to allocate vast amounts of financial resources, it can seek the assistance of the provincial government in requesting the proper national agency for funding assistance. In addition, in view of the approval of the Irrigation Crisis Act of 1995, the national government is expected to

appropriate vast amount of capital for the development of irrigation systems nationwide.

Promote the propagation of high-value crops

The production of high value crops such as vegetables and fruits will be a big boost to the farmers' economic plight. A study conducted by a team of experts from BSWM indicates that there exists an extensive area suitable for such activity in Quezon.

Introduce farming techniques that are environment-friendly and sustainable in the long run

Gone are the old days when farming practices were heavily dependent on pesticides and chemical fertilizers. The present thrust of the government is the introduction of organic farming and integrated pest management into the farming practices of farmers in the rural areas.

Provide infrastructure support facilities and other agriculture-related infrastructure

An important requirement of the agricultural sector is the provision of infrastructure support such as farm-to-market roads and post-harvest facilities.

Improve the timber stand of the remaining forest

To ensure continued supply of water both for irrigation and domestic uses, the local government must enhance the existing timber stand especially in areas with slopes greater than 18%. Aside from conducting reforestation projects, efforts must be exerted towards the integration of upland communities into the local government's forest enhancement program.

Priority Programs and Projects

Crops Development Program

The overall objective of this program is to increase the production of palay in the next three to six years and to maximize the use of agricultural lands through intensification and diversification. The program's proposed projects are the following:

1) Construction of Communal Irrigation Systems in barangays Minagbag, Abut and Mangga;

2) Production and distribution of high-value crops; and

3) Information and education campaign on organic farming, integrated pest management (IPM), and intensified and diversified agriculture.

Livestock Dispersal Program

To augment the meager income of farmers, existing cooperatives must be supported in giving their members the opportunity to acquire good varieties of cattle for their livelihood project. The Land Bank of the Philippines for instance is one among the many government financing institutions which extend financial assistance to cooperatives. Other livestock which can be part of this program include goats and swine.

Fisheries Development Program

This program aims to increase not only the production of agricultural products but also the meager income of the farmers. The fisheries development program involves initially the conduct of training and information campaign on the integration of fish culture in rice paddy, on one hand, and fishponds development on the other. The second part of the program entails the actual dispersal of fingerlings to farmer-beneficiaries.

Forest Enhancement Program

This program is envisioned to rehabilitate existing forest lands that are denuded or heavily eroded. Under this program, projects which can be implemented include reforestation, integrated social forestry (ISF) and other programs of the DENR.

Industrial Development Plan

Summary of Existing Conditions

The local economy of Quezon is oriented towards agricultural production. In a predominantly agricultural economy, the type of industries that usually develop are those that support the personal needs of the local residents and have backward linkages with agricultural activities. In the case of Quezon, the most dominant establishments as per records of the Office of the Mayor are the sari-sari stores. They are common in other rural areas throughout the country.

As expected, local industries include those that provide support to farming activities. These establishments come in the form of cooperatives which extend financial and other farming-related assistance to member-farmers and some privately owned establishments which sell agricultural equipment and farm inputs.

Aside from these industries, some entrepreneurs actively engage in the preparation of balut, vinegar and wood and rattan processing. Some of the products are sold to nearby towns and provinces.

From a spatial viewpoint, the distribution of these establishments is highly skewed in favor of the Poblacion, particularly barangay Arellano. In the light of the municipality's poor transportation and road network, access of residents to goods and services is considerably limited.

The census of establishments conducted by the National Statistics Office in 1993 indicate that the majority of those identified and listed by NSO belong to wholesale and retail trade, examples of which include, sari-sari stores and other types of convenience stores. The data also reveal that the municipality was able to generate about 132 jobs in 1993. Out of this total, majority were employed in community, social and personal services, wholesale and retail trade and manufacturing activities. Only about 13 were employed in banking and finance related activities. While other members of the labor force are mostly involved either in agricultural activities or employed itself by the local government unit. In some instances, others seek employment outside the municipality.

Development Issues and Concerns

Results of public consultations regarding the state of the municipality's development revealed a number of issues and problems, details of which are presented below:

Inadequate infrastructure support facilities

One of the major factors that influences the locational decision of an investor is the state of infrastructure support facilities. For instance, the proposed site for business establishment must be accessible to major thoroughfares, provided with adequate power supply and telecommunication facilities to name a few. At present, the municipality is quite inaccessible as the main road linking Quezon to other parts of Isabela and nearby provinces is currently being rehabilitated. Power supply is only sufficient for the existing residential areas and the telecommunication facilities leave much to be desired.

Distant from major market centers

For investors, distance means added costs. This explains the reason why most investors prefer those locations which are closer to their markets. In the case of Quezon, the municipality is quite far from the province's major market centers such as Ilagan and Santiago City.

Lack of access to suitable livelihood technology

Aside from capital, another important requirement in the development of local industries is people's access to livelihood technology. In Quezon, for instance, tamarind fruits are sold to buyers at a very low price. If given access to technology, these fruits could be processed into candies which could increase its value-added.

Absence of coordinated programs on agricultural development

In a predominantly agricultural economy, the ideal industry mix would be those that would optimize the use of agricultural products as inputs for production. These industries are usually referred to as agro-processing industries where raw agricultural produce are transformed either into consumer-ready or intermediate products. At present, Quezon has yet to institute measures to facilitate the development of agro-processing industries in the area. Towards this end, other types of agricultural produce such as fruits and vegetables or high-value crops should be vigorously promoted so that investors will have a solid foundation to set up agro-processing industries.

Sectoral Policies and Strategies

In view of the foregoing issues and problems, the full development of this sector should be guided by and solidly anchored on the long-term policy of people empowerment through a mass-based economic development. This simply means that initially, the focus of industrial development should be the ordinary family or household by giving them access to capital and technology.

In addition, the economic development of the municipality should be guided by the overall national objective of sustainable development. Every decision should take cognizance of the interplay of population, environment and natural resource and its impacts on the economic development of the local community.

To attain the long-term development objectives for the municipality of Quezon, it is imperative that the following strategies be strictly observed and implemented:

Rehabilitate and upgrade existing physical infrastructure

Industrial development is influenced, to a large extent, by the state of the physical infrastructure in the area. The more varied and upgraded the types and level of infrastructure, the better is the prospect for

business and employment generation. Therefore, the local government should be vigilant in following up national infrastructure projects such as road networks that would link Quezon to Tuguegarao and other major parts of Isabela. In addition, other major infrastructure projects should similarly be given due emphasis such as communal irrigation systems, telecommunication, local road networks, water supply, and drainage.

Promotion of cottage and small-scale industries

The local economy of Quezon is dominated by and will continue to remain agricultural in the years to come. Introducing large scale industries at this stage may not be viable. But in the next three to six years, the LGU could vigorously promote the development of cottage and small-scale industries. Household-based enterprises are appropriate given the existing natural and human resources in the area.

Strengthen the spirit of cooperativism among the people

Based on existing records, there are about ten active cooperatives in the area. Despite this achievement, there are still a large number of farmers who have yet to be integrated into the existing cooperatives. It is, therefore, the role of the LGU, through the Municipal Agricultural Office, to spread the spirit of cooperativism among non-member farmers in the municipality.

Redirect efforts towards sustainable agricultural development

The municipality is blessed with vast tracts of lands which are ideal for agricultural activities. Since palay is the major crop in the area, Quezon should look for technical and financial assistance that would upgrade and expand existing irrigation system in order to enable farmers to stretch their planting and harvesting seasons. Similarly, organic farming and integrated pest management should also be encouraged to sustain agricultural production. The other equally relevant component of local agricultural development is the promotion of high-value crops such as fruits and vegetables in the agricultural practices of farmers.

Formulate policies that would attract prospective investors to the area

Although this strategy is contingent on the policy of infrastructure rehabilitation and upgrading, it is necessary to provide an environment conducive for investment. Policies which include tax holidays and incentives for industries that would make use of the local agricultural products, lower land rent, and assistance in the processing of application papers are but some examples.

Undertake human resource development training programs

Aside perhaps from vast tracts of land suitable for agricultural activities, the other major resource of the municipality is its people. Since the dominant economic activity is agricultural in nature, the local government should provide training programs with particular focus on farming techniques. This program aims to upgrade the basic skills of the local manpower.

Priority Programs and Projects

To implement the policies and strategies enunciated in the previous section, the following programs and projects are hereby recommended:

Livelihood training program

This program aims to assist families or households augment their income by preparing them for small-scale and household-based industries that make use of raw materials available in the area. The Department of Science and Technology (DOST) together with the Technology and Livelihood Resource Center (TLRC) are currently promoting small-scale industries which are appropriate in a place like Quezon. To facilitate the implementation of this program, this may be coursed through the existing cooperatives. Trainings include fruit processing and packaging, garments manufacturing, handicrafts and souvenir items production.

Farmers' Training Program

In view of the need to upgrade the skills and the technical know-how of farmers, a series of training programs on farm techniques and crops development and management may be sponsored and/or conducted by the local government unit concerned. These training programs may also focus on the latest strategies concerning the marketing aspect of farm products.

Establishment of Agro-processing center

Once the necessary infrastructure support system has been placed and the planting of high value crops widely practiced among farmers, the municipal government may, in the long run, also promote the establishment of an agro-processing center in the locality. This industry shall process high-value crops produced by local farmers and transform these using local labor into end or intermediate products.

Social Services Development Plan

Summary of Existing Conditions

In 1990, the total number of housing units in Quezon was placed at 3,103. Out of this total, 2,986 were occupied by 3,029 households. Of the 2,986 units, 94 percent were single-detached most of which were located in the rural areas.

As far as the educational sector in the municipality is concerned, there are at present 13 public schools in Quezon composed of 12 primary and elementary schools and one high school. La Salette of Quezon located in the Poblacion is the only private school in the municipality.

The teacher-pupils ratio in primary schools (except for Day Care Centers) shows a slight deficiency (1:45) with regard to the national standard requirement of one teacher for every 40 students. However, the 1:27 and 1:38 teacher-student ratios for both pre-school and secondary levels, respectively are within the accepted standard. The classroom to student ratio at the secondary level was placed at 1:48; elementary and pre-school at 1:45 and 1:27, respectively.

Recently, the municipality inaugurated its 10-bed Emergency Hospital. Manning the said hospital are two doctors, three nurses, and four paramedics. In addition, Quezon has one Rural Health Center (RHC) with a doctor, nurse, midwife, medical technologists and sanitary inspector. Five Barangay Health Stations (BHS) located in barangays Abut, Lepanto, Barucboc, Turod and Mangga provide health care service to the rest of the town.

Reports show that the municipality has a total of 95 severely malnourished children out of 3,521 weighed during Operation Timbang. For second and first degree malnourishment, Quezon registered a high of 386 and 973 respectively. For children below five years of age, malnourishment incidence was pegged at 33 percent.

There are 12 Philippine National Police (PNP) personnel providing protective services in Quezon. This gives a policeman to population ratio of 1:1,297. Although the headquarters is in the Poblacion, there are barangay brigades providing assistance to the police. In support of its peace keeping duties, the police has a service jeep and a motorcycle.

The fire protection force, on the other hand, has six firemen which translates to only one fireman for every 3,036 population. The fire department has one firetruck.

For the disadvantaged members of the municipality, social welfare services are provided by the Municipal Social Welfare and Development Office (MSWDO). MSWDO operates 16 Day Care Centers located in each of the 15 barangays except for Minagbag which has two centers. At present, these centers benefit some 419 children from a potential clientele of 2,470 with ages ranging from 1-4 years.

Finally, basketball seems to be the most played game by the youth in the municipality. To date, all barangays have basketball courts except for Estrada and Callanguigan. The municipality also has four baseball/softball fields and three public parks for children and promenaders. A cockpit arena is found in barangay Arellano.

Development Issues and Concerns

The following are some of the major development issues identified for the social sector:

1) Absence of sites for socialized housing; Inadequate classrooms in elementary and secondary levels;

2) Lack of teachers in primary schools;

3) Lack of barangay health stations;

4) Lack of medical personnel and medicines in the barangays;

5) Slightly high incidence of malnourishment among children;

6) Lack of funds to sustainably implement social welfare programs; and

7) Lack of police and fire fighting manpower.

Sectoral Policies and Strategies

In view of the problems and issues identified in the previous section, it is the goal of this plan to uplift the living and social conditions of the local populace. Specifically, this plan intends to achieve the following:

1) Ensure access to land for housing the less privileged members of society;

2) Provide adequate educational facilities such as additional school buildings or classrooms and other support facilities;

3) Deploy additional teachers at primary and intermediate levels;

4) Undertake series of training programs for teachers of elementary and secondary schools;

5) Provide health assistance to the less privileged members of the community;

6) Increase public awareness on health and nutrition;

7) Reduce incidence of malnutrition among children;

8) Advocate policies and allocate resources addressing social welfare concerns; and

9) Ensure public security and safety by beefing up existing police and fire fighting forces.

PRIORITY PROGRAMS AND PROJECTS

Identification of sites for socialized housing

In response to the provision of RA 7279 which mandates all local government units to identify sites for socialized housing, the municipal government should exert efforts to incorporate into their land use plan possible locations for socialized housing.

Construction of new and/or upgrading of deteriorating school buildings/classrooms in barangays Abut, Arellano, Barucboc, Lepanto, Minagbag, Poblacion, Samonte, and Santos

With existing students-classroom ratios for all levels except pre-schools falling below national standards, there is a need to supplement existing number of classrooms to accommodate present and future students. With insufficient local funds from SEF, the municipal government may seek either the assistance of the DECS which have annual allocation in its budget for such purpose or from the Countrywide Development Funds of Congressmen and/or Senators. In the event that the municipal government failed to solicit the assistance from these possible sources, it may opt to adopt an innovative program that has been recently adopted by DECS in cooperation with NGOs. This program, the Multi-Grade Program for Educational Development, involves the integration of a number of grade levels given a limited number of classrooms.

Science, Mathematics and English Teachers' Development Program

Aside from the need to hire or deploy additional teachers especially at the primary and intermediate levels, the municipal government should also seriously look into the development and re-training of its present teachers at all levels. In view of the government's thrust of improving the quality of Science, Mathematics and English teaching in primary, elementary and high school levels, local officials must coordinate with the DECS to allow teachers to improve their capabilities on these subjects. Recently, the DECS in collaboration with UP Institute of Science and Mathematics Education (UP-ISMED) and People's Television 4 (PTV 4) launched an innovative TV program called CONSTEL. This particular program aims to upgrade the existing knowledge and capabilities of elementary and high school teachers through a series of modules/lectures on Science and Mathematics.

Construction of Barangay Health Stations

At present, only a few barangays are being served with a barangay health station. To provide health services to those in need, BHS must be constructed.

Nutrition, Health and Population Information and Education Program

To immediately address the problem on malnourishment among children, health workers must implement a long term information and education campaign on proper nutrition, health and family planning. Aside from fora and radio announcements, brochures, comics and other handouts may be used in this effort.

Malaria and Leprosy Control Program

As previously mentioned, cases of malaria have been reported in the past five years. In order to address this problem, the local government may seek the assistance of the DOH which is currently running a program on malaria eradication.

Purchase of medicines, medical equipment and facilities

One of the major complaints of residents in rural areas is that barangay health stations have inadequate supply of medicines. It would do the municipality well if the local government ensure that sufficient supply of medicines are available in all its health stations.

Immunization Program

This program aims to lessen mortality and morbidity cases due to communicable diseases such as measles, polio, DPT and tetanus.

Family Planning Program

Through the municipal government's various health stations, a comprehensive family planning program may be implemented in all barangays. Attention must be focused on responsible parenthood and information on various family planning methods.

Sports Development Program

To encourage and promote camaraderie and social cohesion among communities, a sports development program should be implemented municipal-wide.

PLAN IMPLEMENTATION CONSIDERATIONS

Although the formulation of a plan is the first step towards addressing local concerns, unless a plan is implemented, goals, objectives and targets remain as nothing more than ideas to be hoped and aspired for. Contrary to common belief, however, the test of a good plan is not whether it is implemented or not but how well it addresses the need for which it was designed. With these in mind, it is necessary to be aware of the different dimensions of plan implementation to really have a grasp of the situation and ensure success of the plan.

Procedural Aspects of Plan Implementation

Implementation of the CLUP demands that it must first go through the legitimization process. As far as LGUs are concerned, this means an official recognition of the legality of the document through a legislative act of the Sangguniang Bayan (SB). This is normally achieved after extensive public hearings have been conducted to generate support for the plan, a resolution of adoption has been passed and a zoning ordinance has been approved. Upon adoption, the plan becomes the official vision or framework for development of the municipality concerned. This, however, is only the initial step.

The documents (the plan, the zoning ordinance and the resolution of adoption) are then forwarded to the Sangguniang Panlalawigan (SP) for review. With the assistance of the Provincial Land Use Committee (PLUC) and the office of the Provincial Planning and Development Coordinator (PPDC), the SP either ratifies or recommends improvements to the document. This review process which is mandated by the Local Government Code (LGC) is meant to assess the technical and legal aspects of the plan and to ensure vertical integration with the PPFP and other higher level plans. As with the previous process, this also requires the holding of public hearings.

Only after the SP has approved the plan does the zoning ordinance, which legitimizes the land allocation and zonation scheme contained in the proposed land use plan, become a basis for deciding cases on the physical and spatial aspect of development.

The rather lengthly process of having a plan legitimized, while meant to ensure social acceptability and technical soundness, provides the safeguard of plan continuity. Considering that local chief executives only have three years to serve, the long bureaucratic requirements can deter officials from totally disregarding previous plans, particularly if these have been prepared by a previous administration.

Plan Monitoring, Evaluation and Update

Land use plans, by their very nature, are long-term. However, as the planning period becomes longer, uncertainties become greater. There is a need, therefore, to have a periodic review of plans. The review process is meant to be the monitoring aspect: to help determine whether the objectives of the plan are being met; whether the plan is still attuned to the needs of the times. While it may be necessary to institute changes, as a general policy, these changes have to be consistent with the original objectives and intent of the plan, particularly with respect to the land use component.

A pre-requisite to the periodic evaluation, say every three years (to coincide with the tenure of local officials), is the need to establish a municipal-wide database system. Changes in the prevailing physical and socio-economic environment can best be monitored by regularly updating the municipal profile. This can, therefore, provide the basis for any plan update or re-adjustment.

Worth mentioning is the vital functions of the Municipal Development Council (MDC), the Municipal Planning and Development Coordinator (MPDC) and his staff in the monitoring-evaluation process. Since both bodies are mandated to ensure compliance with the plan, the development permit system is a good mechanism for regulating development in the area. Although every local office is tasked to update their respective data needs, the MPDC can coordinate the compilation of these information to make his job as chief technical evaluator of the plan easier.

The Constitutional Framework

The institutionalization of planning in the country has slowly taken root since the creation of the then Human Settlements Regulatory Commission (HSRC, now Housing and Land Use Regulatory Board, HLURB). Gradually, planning documents are being viewed not as ends in themselves but as a means to an end. The passage of the new LGC has ensured its growth and maturation.

The three basic powers of the LGU which is derived from the very essence of its existence ensures the constitutionality of its actions in its drive to implement plans. This refers to the LGU's inherent powers of police, eminent domain, and taxation power.

Police Power

The legality of government actions which are sometimes construed as violative of individual rights may be traced to the concept of *parens patriae*. It is from this concept that the right of the state to intervene, in the actions of individuals or groups of individuals whenever such actions impinge on the well-being of the majority, is derived. Regulatory or control measures such as zoning and enforcement of building and other planning standards, outright prohibition such as in the enforcement of anti-pollution laws, and the use of development permit system are specific tools which fall under this constitutional power.

Eminent Domain

This power of the LGU which grants it the right to acquire privately owned lands is a tool which is rarely used in the country but one which has tremendous potential if properly handled. For as long as it can be shown that the land which is the subject of contention will be used for a public purpose, due process is followed, and just compensation paid, exercise of the power of eminent domain will have a direct impact on the use pattern of land resources.

It may usefully be noted that alternatives to expropriation proceedings do exist. Other modes of land assembly or land banking which may be employed to influence land use include negotiated purchase, donation, land swaps, among others.

Taxation

Basically a revenue-generating activity, taxes are imposed to finance the operation of the government unit concerned and to ensure the delivery of basic social and other services to constituents of which all LGUs are mandated to serve.

The new LGC has consolidated various taxation laws and devolved certain powers to LGUs which enhances the sustainability of its autonomy. Aside from reformulating the wealth-sharing scheme between the local and national governments, the Code has widened the corporate powers of the LGU and, thus, ensured their self-sufficiency in fiscal matters.

As it pertains to land use matters, taxation may be used as instrument of inducement or instrument of development regulation. Land contingent activities may be promoted by providing incentives such as tax holidays/exemptions or they may be used as control mechanism through land revaluation and taxes on idle lands and non-conforming uses.

Revenue Mobilization Program

Effective governance depend to a large extent on availability of financial resources to fund local projects which address local needs. Although programs have already been implemented by the LGU to enhance revenue generation, to ensure continued viability of adequate provision of services, the following policy recommendations must be pursued regarding revenue generation and fiscal administration:

1) Undertake a regular land re-valuation program to reflect the existing market value of real properties. Real property taxes are a major source of income. Therefore, all legal moves that can maximize property tax collection must be enforced;

2) Adopt tax ordinances that would allow the municipal government to collect taxes at revised rates. Assuming that the municipal government has not yet fully integrated the various revisions on the rates of collecting taxes as per the provisions contained in the LGC, it is imperative that the SB pass tax ordinances to legalize collection of taxes, fees and other charges generally authorized by the Code;

3) Punitive actions and legal sanctions for tax evasions should be adopted and strictly enforced;

4) The municipal government should not be discouraged to implement projects that require huge amounts of investment. The Local Government Code of 1991 has provided the opportunity for LGUs to enhance their financial capability to undertake major infrastructure projects. These may be done through credit financing, entering

into contract with the private sector through the build-operate-transfer scheme and its variations, direct loans from other LGUs, and foreign loans provided they are guaranteed by the national government. Local government units may also issue bonds and securities to finance self-liquidating, income-producing development projects; and

5) Imposition of special taxes such as the idle lands tax to discourage sub-optimal land utilization and the special levy on real property to recoup investments from the implementation of public infrastructure projects which have benefited landowners through enhanced real property values.

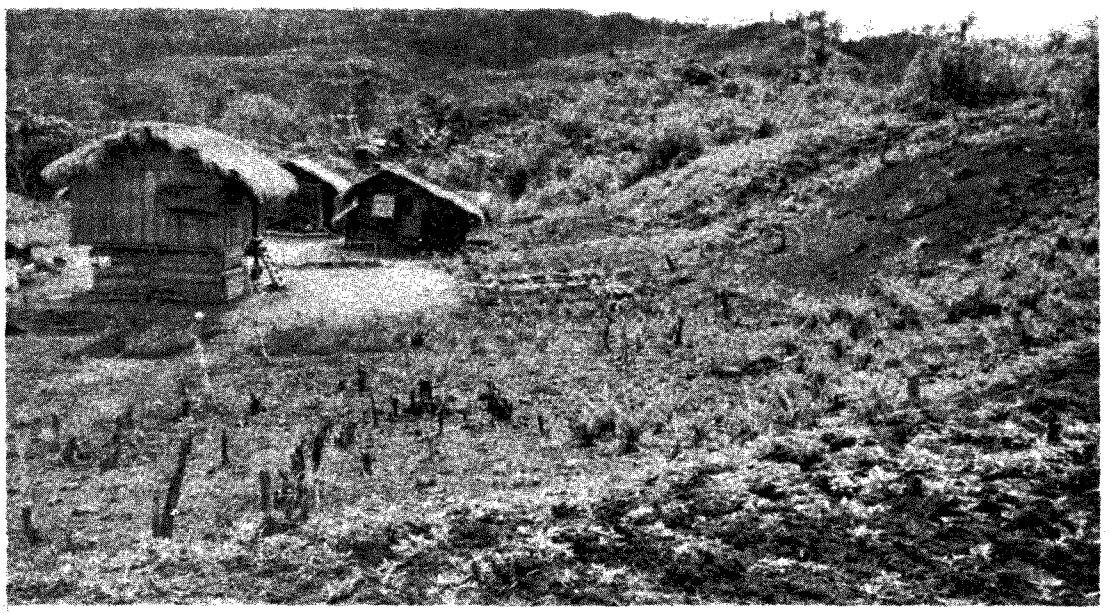
Investment Programming

In the past, the synchronization of the planning and budgeting systems were conceptualized through the Local Development Investment Programming (LDIP) model. While the LDIP was supposed to be a mechanism for optimizing the allocation of financial resources through the prioritization and systematic implementation of programmed projects, the loopholes in the local-level planning system reduced the LDIP to nothing more than a "shopping list" of sectoral projects and programs.

Concerned with the poor performance of the LDIP, the DILG/BLGC has evolved a capital investment planning-programming model which may be adopted to rationalize resource allocation in the municipality. Guidelines on how it works may be obtained from the Department of Interior and Local Government (DILG).

Furthermore, it is recommended that the use of the 20 percent Local Development Fund be optimized. To increase the physical assets of the municipality and at the same time propel the local economy, local officials should strictly follow the provision of the Code which mandates that a 20 percent allocation of the interval revenue allotment (IRA) of the municipality be used for local infrastructure and socio-economic development programs and projects. With the investment program based on the proposed development plan for the municipality, the local government can look forward to a rational financial resource allocation system.

It is also imperative to prioritize programs and projects as contained in the CLUP of the municipality. However, because prioritization and programming of projects are best left to the people who have a stake in the development and have a deeper knowledge of local needs/aspirations, this section shall be limited to identification of priority programs and projects which may be considered for implementation. It is hoped, however, that the prioritization and implementation of projects be done in an objective manner rather than as a political exercise.



CONCEPTUAL FRAMEWORK PLAN
MUNICIPALITY OF NASUGBU, BATANGAS

UP PLANADES PLANNING TEAM

INTRODUCTION

Historical Background

Prior to the arrival of the Spaniards, this coastal town of Nasugbu had a population of one thousand people. Founded in 1899, the municipality now has an estimated population of 75,462. The townsite was situated a kilometer East of the present site. Historians recall that in 1896, about five hundred people (who had taken up arms against the Spaniards) perished from the hands of enraged Spanish soldiers. The livelihood of the Filipino residents then was to work for the hacienderos who owned practically the entire town of Nasugbu.

When the Americans came, the town people eventually built a new town. The new town dwellers were to become the forebears of the community who resisted the Japanese invaders, four decades hence. The end of the Second World War saw Nasugbu back to its normal way of life, slowly but imperceptibly accepting the modern changes brought about by the process of urbanization.

In the early 1970s, the hacienda owners decided to sell to the people, a majority of their landholdings, over a period of ten years. These lands became the abode of the ever-growing population now living in 42 barangays throughout the municipality.

Rationale for the Project

The current thrust of the government is the dispersal of urbanization and industrialization to make available more employment opportunities in the countryside. Together with the peripheral areas around Metro Manila, the municipality of Nasugbu is now becoming an attractive area not only to local investors but to foreign investors as well. The private sector groups are also in the process of expanding and modernizing their operations in order to contribute to the industrialization and modernization of the province, in general, and of the municipality, in particular.

It is in this light that the expansion and growth of the municipality take cognizance of the need to update and revise development plans prepared earlier in order to respond more effectively to the following issues and concerns:

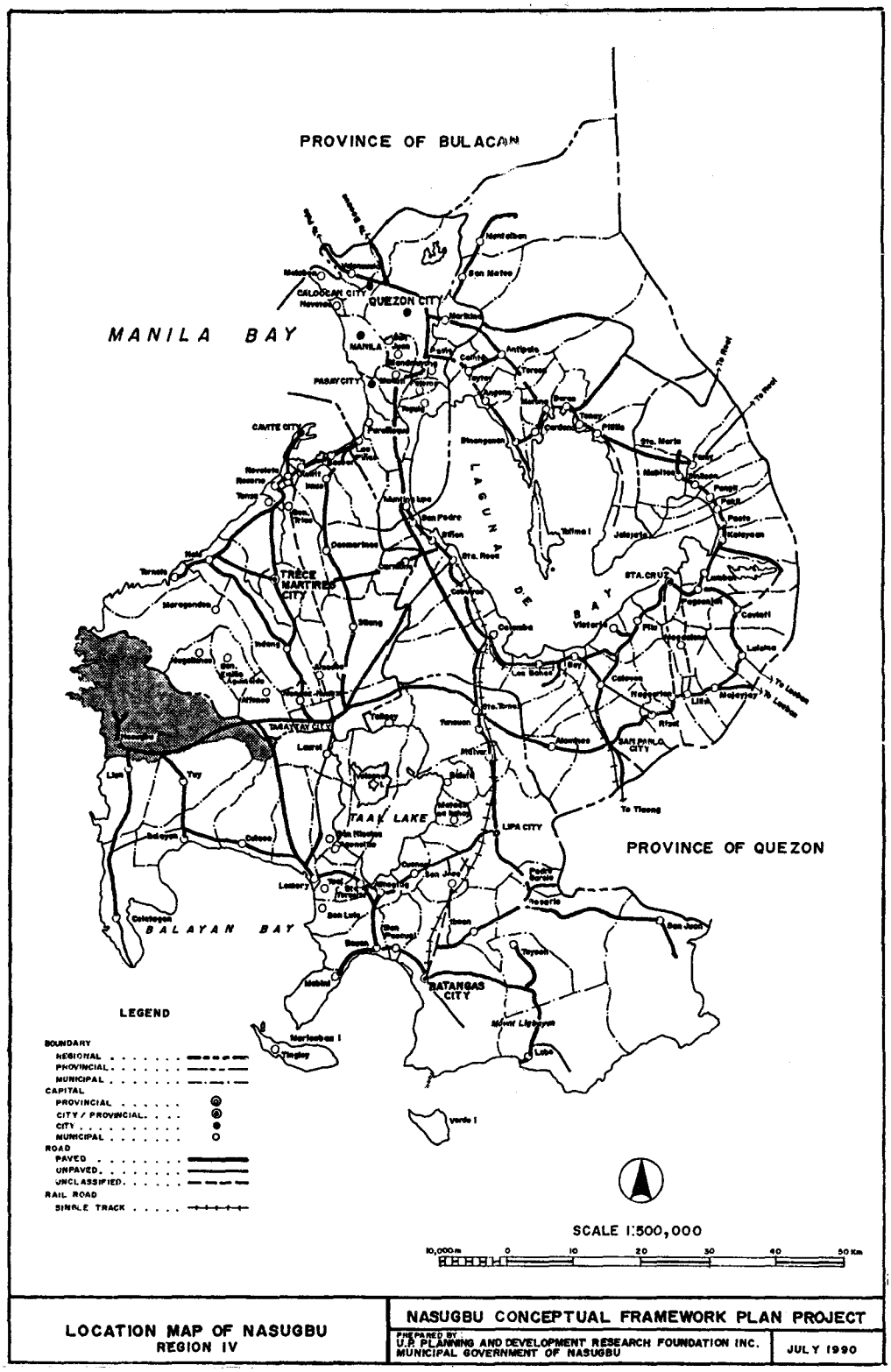
- New trends in planning and management of cities and municipalities that emphasize planning as a dynamic process that is responsive to the continuing growth and expansion of human settlements;

- New and better techniques and methodologies in the preparation of land use plans and accompanying zoning maps and ordinances;

- New guidelines of the government such as the need for a development plan which shall become the basis for policies on conversion of agricultural lands to urban uses in order to accommodate the ever-increasing growth and expansion of the community;

- The interest of government, as well as, private sector groups to develop the national scenic spots along the coastline of the municipality which necessitates proper land use planning in order to integrate such developments with the overall developmental scheme for the town; and

- The desire of the government to encourage foreign nationals, especially overseas Filipinos to retire in the Philippines because of the natural beauty of its towns and cities.



LOCATION MAP OF NASUGBU
REGION IV

NASUGBU CONCEPTUAL FRAMEWORK PLAN PROJECT

PREPARED BY:
U.P. PLANNING AND DEVELOPMENT RESEARCH FOUNDATION INC.
MUNICIPAL GOVERNMENT OF NASUGBU

JULY 1990

Objectives of the Study

The primary objective of the study is the preparation of a conceptual framework plan for the Municipality of Nasugbu specifying general land uses, overall transportation and other infrastructure network and linkages with surrounding communities. The framework plan will also formulate alternative developmental schemes/strategies to guide the future growth and expansion of the municipality, twenty years hence.

The secondary objective is the preparation of large scale decision maps (based on the analysis of data generated in the study) for use in day to day policy decision-making by local administrators and legislators.

Research Methodology

An assessment and evaluation of the previous municipal comprehensive development plan was undertaken to determine the applicability of said plan in the light of new development trends, opportunities and constraints. The evaluation provided the project team the latest data/information on the physical, social, economic and environmental characteristics of the municipality, as well as, revealed data gaps in the previous plan.

Survey questionnaires were prepared and field interviews were conducted to identify and assess perceived problems, goals and objectives by the decision-makers, the private sector groups and the public, in general. The analysis of survey results yielded the general perception of the people of their emerging problems which in turn provided the basis for the formulation of goals and objectives.

A series of alternative development strategies were formulated by the planners in consultation with the decision-makers and the private sector group representatives. The strong and weak points of each strategy were evaluated in terms of their consistency with desired community goals and objectives.

A series of dialogues and consultations with field representatives of national line agencies about their programs and projects were held in order to streamline and minimize the wastage of limited financial resources being channeled to the municipality. An agreement on priority projects and programs was arrived at with these agencies and residents of the municipality. These programs and projects became the basis of the major thrusts of the preferred plan.

Organizational Arrangements for the Study

A project team from U.P. PLANADES was organized composed of consultants in the fields of physical, social and economic planning. The pool of consultants under the direct supervision of the project director was supported by researchers from Manila and augmented by the staff of the local municipal planning and development office.

The consultants related with the inter-agency groups composed of representatives from the Department of Agrarian Reform (DAR), Department of Agriculture (DA), Department of Local Government (DLG), Department of Environment and Natural Resources (DENR), Philippine Tourism Authority (PTA), Department of Education, Culture and Sports (DECS), Department of Public Works and Highways (DPWH), and the private sector group representing various socio-economic and civic-oriented groups in the municipality.

GOALS AND OBJECTIVES OF THE PLAN

One of the commonly used approaches in the determination of issues and problems in urban and regional planning is to solicit the views of various influence groups in the community in order to arrive at common problems which will serve as a basis for the formulation of community goals and objectives. In the municipality of Nasugbu, the planning consultants administered a set of questionnaires among barangay officials and local residents, the representatives of national line agencies and municipal officials, as well as, the private sector represented by the private investors and non-governmental organizations.

2.1 Goals and Objectives as Perceived by the Barangay Officials and Residents.

2.1.1 To increase household income by:

- creating alternative income-generating opportunities (i.e., livelihood and employment);

- improving current livelihood activities through proper management of fishery / marine resources; provision of appropriate and equipment; better access to capital / land / market / technology.

2.1.2 To improve the quality of and access to health services in the municipality by:

- providing each barangay with its own health centers;
- augmenting the number of health personnel currently attending to the needs of the people;
- providing health centers and personnel with adequate and appropriate medical supplies; and
- proper training of volunteer health workers.

2.1.3 To increase and / or improve educational facilities by:

- providing each barangay with an elementary school;
- providing adequate number of classrooms;
- maintaining the facilities of existing schools.

2.1.4 To meet the water requirements of the population by:

- developing water resources to ensure adequate and accessible supply to meet both domestic and agricultural needs;
- providing the various barangays with sufficient number of deep wells;
- expanding service area of current water distribution systems;
- managing the municipality's water resources to prevent further worsening of observed salt water intrusion and river pollution.

2.1.5 To meet power requirements of the barangays or to ensure continuous supply.

2.1.6 To promote better linkages between and among barangays and the Poblacion by:

- maintaining / upgrading / expanding the municipality's road network;
- establishing an efficient transportation system;
- improving existing communication services;
- setting up appropriate communication facilities; and
- improving the postal delivery system.

2.1.7 To improve the quality of life in the Poblacion by:

- installing a drainage system;
- establishing a waste disposal management system;
- containing the growth of squatter colony; and
- checking a growing social problem of drug abuse.

2.2 Goals and Objectives as Perceived by the National Line Agencies and Municipal Officials.

2.2.1 To provide the sectoral agencies and the municipal offices with the appropriate financial, human, and material support needed for a successful implementation of their tasks.

2.2.2 To address the problem of poverty.

2.2.3 To manage the municipality's marine and forest resources by:

- controlling illegal fishing and logging activities; and
- checking the destruction of corral reefs.

2.2.4 To improve the quality of life in the Poblacion by:

- providing more toilet facilities;
- installing a drainage system;
- establishing a waste disposal system; and
- checking the growth of drug abuse.

2.3 Goals and Objectives as Perceived by the Private Sector to Include Non-Governmental Organizations.

2.3.1 To alleviate poverty in certain sectors by providing alternative sources of income;

2.3.2 To provide support to private sector organizations in the form of:

- financial assistance;
- manpower; and
- technology transfer.

2.3.3 To address problems of illegal fishing and piracy.

2.3.4 To address the growing social problem of drug abuse.

2.4 Goals and Objectives of the Community.

A careful examination of the "wish lists" of the three groups interviewed led to the formulation of the following goals and objectives for the Municipality of Nasugbu.

2.4.1 Socio-Economic

a) Poverty alleviation:

- to improve household income especially of those belonging to the low-income bracket;
- to encourage investments; and
- to provide gainful employment opportunities.

b) Improved economic productivity

- to improve access to land, capital, markets and technology;
- to provide appropriate training and equipment; and
- to establish the necessary infrastructure support.

c) Improved basic services delivery:

- to provide sufficient health, educational and social welfare services;
- to increase power facilities and expand service areas;
- to expand and improve water supply and delivery services; and
- to encourage and promote community participation in the delivery of basic services.

2.4.2 Physical / Spatial

a) Development and judicious management and utilization of natural resources:

- to control the degradation of the municipality's marine, water, and agricultural resources which may result from economic activities in the area;
- to ensure the judicious use of the municipality's natural resources;
- to promote sound resource-appropriation technologies and practices; and
- to develop the locality's water resources.

b) Rational and integrated spatial system:

- to establish a well-integrated road network;
- to promote an efficient transportation system;
- to improve existing power and communication facilities;
- to provide for effective inter-and intra-municipality communication system; and
- to establish a system of urban centers to facilitate access to urban functions / services.

2.4.3 Politico-Administrative

a) Enhancement of the private sector's capabilities as active partners in development:

- to effect measures in improving the local government's effectiveness; and
- to facilitate access to funds and technology.

b) To provide line agencies with required financial, human and material support.

III. EXISTING SITUATION AND DEVELOPMENT POTENTIALS

3.1 General Physical Characteristics

3.1.1 Physical Features and Topography

Geographical Location

The municipality of Nasugbu is located in the coastal areas (Western Tip) of the province of Batangas with a bearing of 14(04 latitude and 120° longitude.

It is bounded on the North by the municipalities of Maragondon, Magallanes and Alfonso (all of the province of Cavite); on the East by the municipalities of Laurel, Calaca and Balayan (all in the province of Batangas); on the South by the municipalities of Lian and Tuy also of the province of Batangas; and on the West by the China Sea.

Travel distance from Metro Manila is about 102 kilometers via Tagaytay City.

From Batangas City (the provincial capitol), its distance covers about 70 kilometers, traversing through several municipalities of the province.

Land Area

Nasugbu has a total land area of 27,633 hectares, subdivided into 42 barangays (including the 12 barangays forming the poblacion), with a total population of 75,462. Average gross density is 2.73 individuals per hectare.

Densely populated areas are concentrated in the poblacion and the barangays within its immediate vicinity, as well as, in the coastal barangays.

Nasugbu's total land area has been classified into five major categories:

- Built-up areas - include those areas being utilized for residential, commercial, industrial and institutional purposes;
- Agricultural areas;
- Marginal lands - include rivers, marshes, creeks, highways, roads and tourist areas;
- Forest and pasture lands - include non-commercial forest land which can be subjected to forest development programs; and
- Fishponds.

Table 1 shows the land use distribution in the municipality in terms of the five categories.

Table 1. General Land Use, Nasugbu, 1987

Type of Land Use	Area (has)	Percent
Agricultural	21,615.77	78.22
Built-up	303.73	1.09
Marginal Lands	452.00	1.63
Forest & Pasture Lands	5,124.00	18.54
Fishponds	137.50	0.52
Total	27,633.00	100.00

Source: Socio-economic Profile, Nasugbu, 1987

3.1.2 Soil Condition

The soil types identified in five sampling locations within the municipality are:

Magallanes Loam and Magallanes Sandy Loam of the Magallanes series, characterized by light reddish brown color, friable and fine to coarse granular loam somewhat sandy in texture;

Tagaytay sandy loam is dark brown to nearly black, friable and granular sandy loam with considerable amount of volcanic sand;

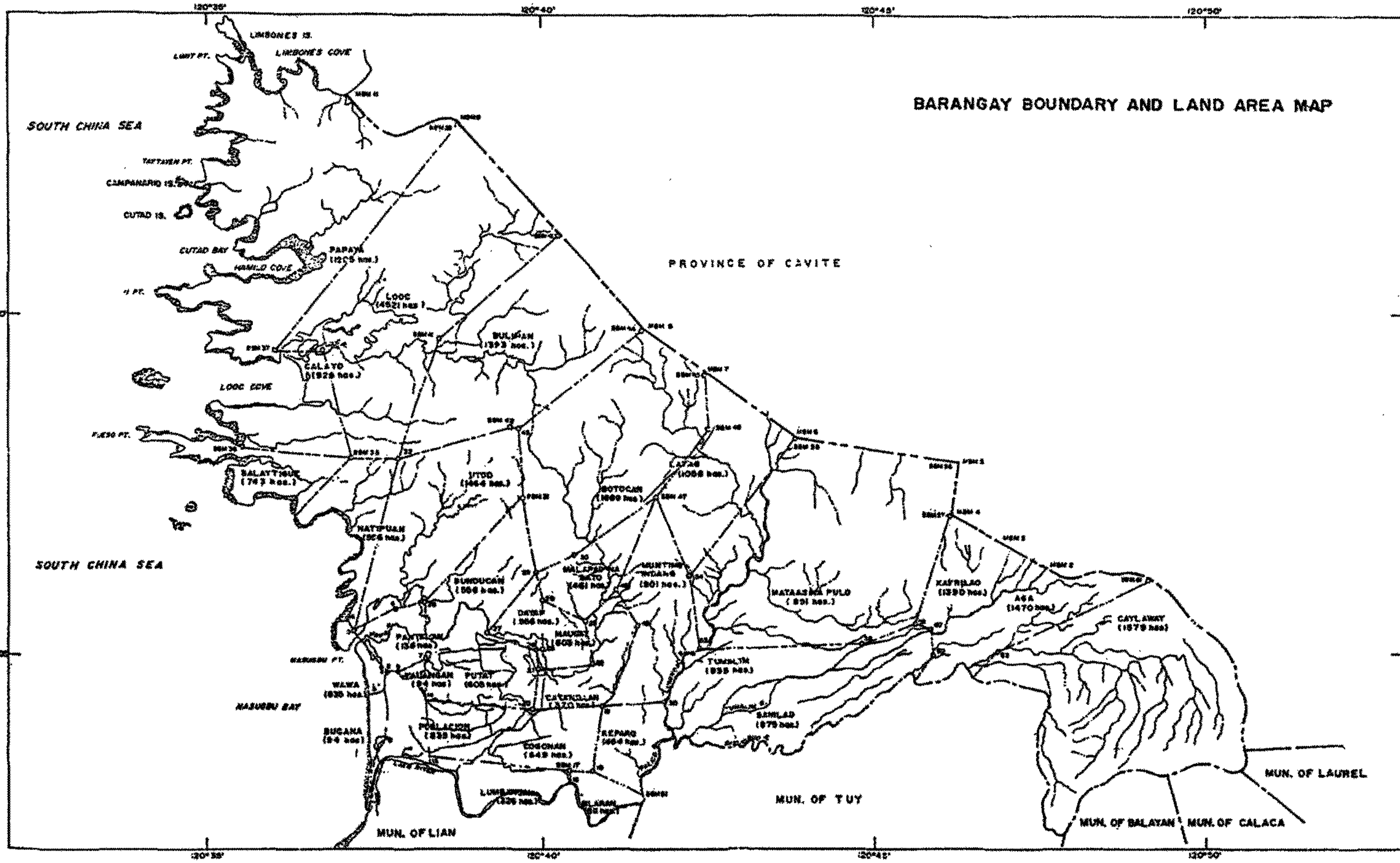
Calumpang clay loam is light grayish brown, loose and structureless sandy loam, and;

Taal Sandy Loam of the Taal series (the formation of which was influenced largely by the successive eruptions of Taal Volcano) consists of brownish gray, loose and structureless sandy loam.

3.1.3 Meteorology

Climate

Climatological data taken from the Wawa, Nasugbu Synoptic Station shows that the climate in the Municipality falls under the first type of classification (TYPE I) characterized by two pronounced seasons: dry season from November to April, and wet season for the rest of the year.



MUNICIPALITY OF NASUGBU

PROVINCE OF BATANGAS

SCALE 1:100,000

METERS

NASUGBU CONCEPTUAL FRAMEWORK PLAN PROJECT

PREPARED BY:
U.P. PLANNING AND DEVELOPMENT RESEARCH FOUNDATION INC.
MUNICIPAL GOVERNMENT OF NASUGBU

JULY 1990

Rainfall

Based on the recorded data, maximum rainfall is experienced in the month of August with an average of 604 mm. while the minimum is during the month of February with an average of only 1.0 mm. The annual average rainfall is 2,245 mm.

Temperature

The annual average temperature in the municipality is 27.3°C. January is the coolest month having an average temperature of 25.8°C, while April is the warmest month registering an average temperature of 29°C.

Winds

North Easterly winds prevail in the municipality in the months of October to April, while South Westerly winds prevail during the months of May to September. The annual average wind speed is two miles per second.

Typhoons

The frequency of typhoons in the municipality is, as in the whole province of Batangas. Sixteen percent (16%) of all typhoons passing the Philippines affects Batangas province.

3.1.4 Slope

The municipality has mixed topographic reliefs. The areas on the Eastern side of the poblacion and those along the shores on the Western side are characterized as predominantly level to gently sloping. Areas on the Southern side are described as gently sloping. The mountainous areas are generally on the Northwest section.

Based on a thorough analysis of the geologic and slope / relief characteristics of the municipality, it may be observed that a major portion of the total land area may be classified as falling in the 0-8 percent slope category. This vast area may be termed as buildable, allowing permanent structures to be built without fear of any environmental risks. It implies, therefore, that the siting of possible settlement centers (or built-up areas) in any part of the municipality will not, to a significant extent, be constrained by topographic features.

3.1.5 Geology and Rock Formation

Geology

The area is characterized by gently rising hills that culminate at the volcano crater of Taal some 35 kilometers East of Nasugbu. Pyroclastic and other rock units of Miocene to Quaternary Ages outcrop in the higher areas of the municipality. The lowland plain consisting mostly of recent alluvial deposits is abundant in groundwater, which is the primary source of domestic water in the area.

The pyroclastic rocks which belong to the Guadalupe formation offer the best areas for groundwater recharge. Even if cementation and compaction have somewhat reduced the porosity and permeability of this formation, it still provides in some places, sufficient groundwater. However, the most important groundwater reservoirs in the region are found in the alluvial sequence in the plain area and can be exploited to meet present and future water requirements of Nasugbu.

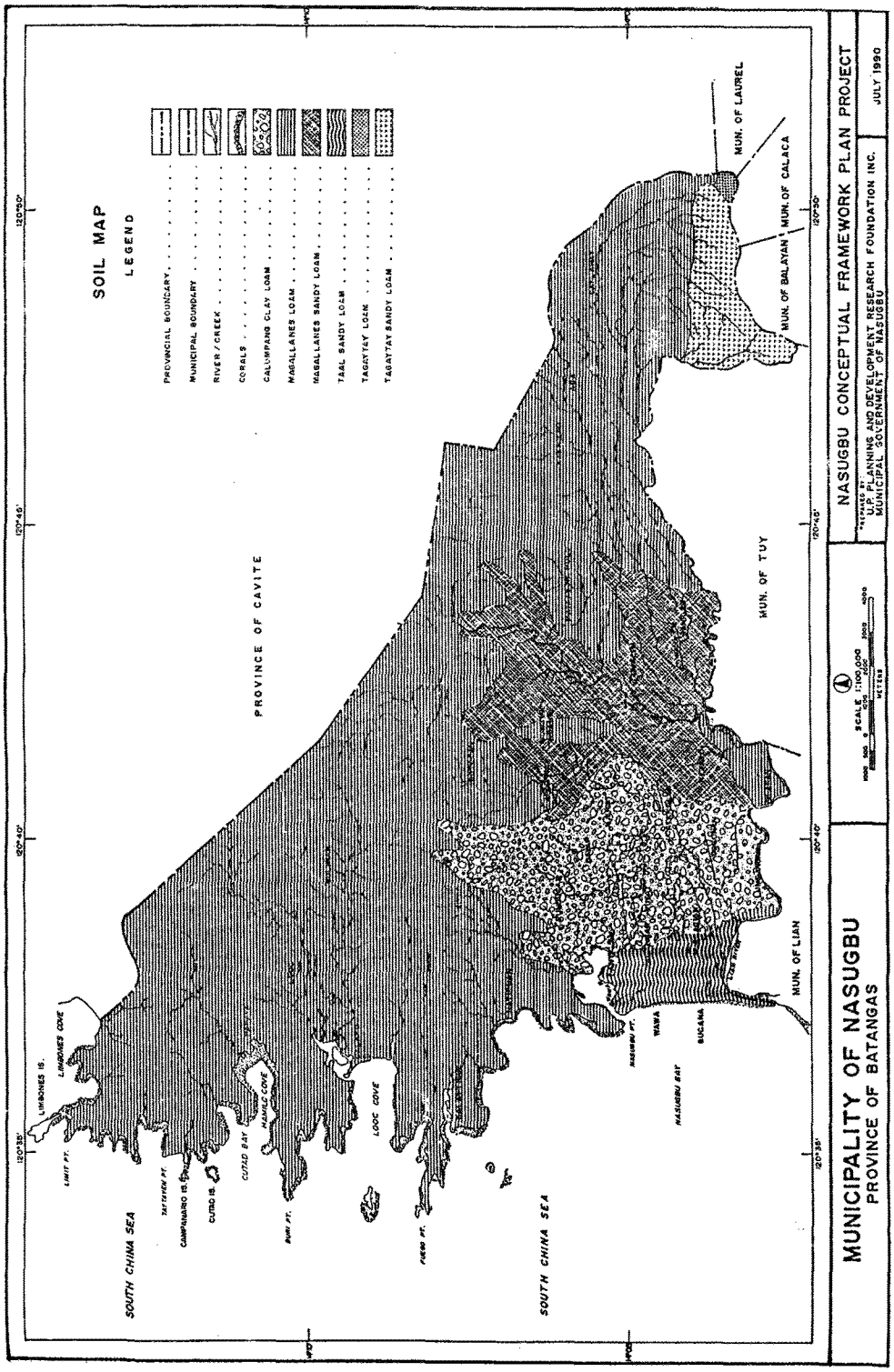
Mineral Resources

The mineral potential of the municipality is believed to be great and promising. However, in-depth studies and detailed geological surveys are needed to explore such potentials.

3.1.6 Hydrology

The Palico River is the major perennial river in the municipality. An impounding dam for irrigation purposes was constructed about five kilometers from the coast. Unused water for this purpose is utilized by a sugar milling company in the vicinity, with the rest discharging into Nasugbu bay.

Investigations were conducted in the upstream and downstream sections of the river. Flow measurement at the upstream section, some eight kilometers from the poblacion, revealed a discharge of about 3,500 liters/second. Another flow measurement downstream at a point about 4.5 kilometers from the coast revealed a discharge of about 2,800 liters/second. The difference in the amount is being utilized for irrigation purposes.


SOIL MAP
LEGEND
PROVINCIAL BOUNDARY
MUNICIPAL BOUNDARY
RIVER / CREEK
CORALS
CALUMPANG CLAY LOAM
MAGALLANES LOAM
MAGALLANES SANDY LOAM
TAAL SANDY LOAM
TAGAYTAY LOAM
TAGAYTAY SANDY LOAM
PROVINCE OF CAVITE
MUN. OF LAUREL
MUN. OF BALAYAN
MUN. OF CALACA
MUN. OF TUY
MUN. OF LIAN
SOUTH CHINA SEA
SOUTH CHINA SEA
LIMBONES I.
LIMBONES COVE
LIMIT PT.
CAMPANARIO I.
CUTAD I.
CUTAD BAY
NASUGBU COVE
LOOC COVE
NASUGBU PT.
WAWA
BUCANA
NASUGBU BAY
MUNICIPALITY OF NASUGBU
PROVINCE OF BATANGAS
SCALE 1:100,000
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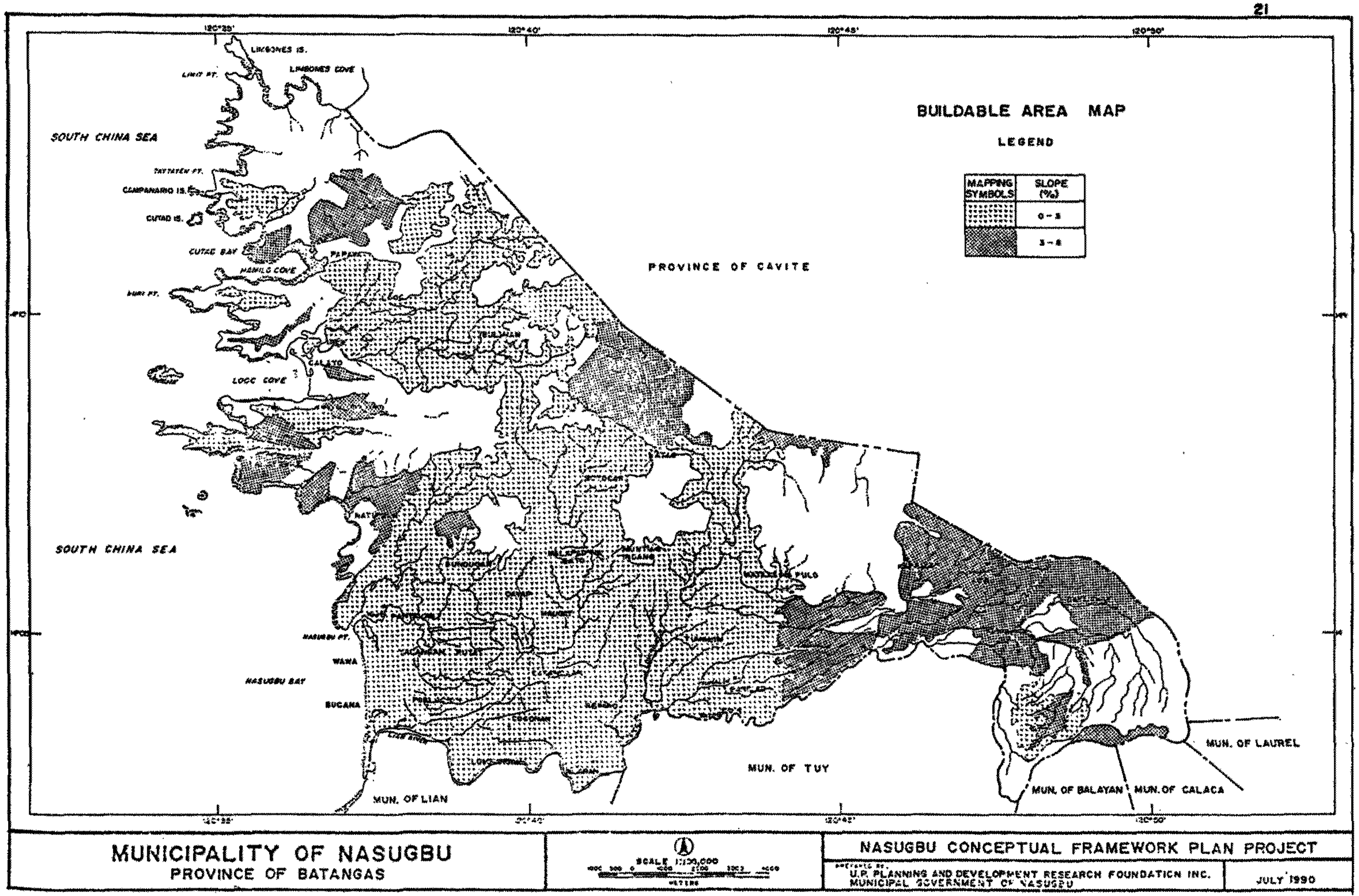
21
BUILDABLE AREA MAP
LEGEND
MAPPING SYMBOLS
SLOPE (%)
0 - 3
3 - 8
PROVINCE OF CAVITE
SOUTH CHINA SEA
SOUTH CHINA SEA
LIMBONES IS.
LIMBONES COVE
CAMPANARIO IS.
CUTAD IS.
CUTAD BAY
LOOC COVE
NASUGBU BAY
WAWA
BUCANA
MUN. OF LIAN
MUN. OF TUY
MUN. OF LAUREL
MUN. OF BALAYAN
MUN. OF CALACA
MUNICIPALITY OF NASUGBU
PROVINCE OF BATANGAS
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The Wawa River another perennial water course originating from the Northeastern section, it flows Westward on the Northern portion of the poblacion and discharges into the Nasugbu Bay.

Since there is no gauging station located along this river, its maximum and minimum flow has not been quantified.

Other watercourses, mostly small creeks, are either intermittent or do not have significant flows that are worth considering as possible water supply sources. These creeks serve mainly as drainage channels, thus, they are largely dependent on rainfall.

Springs located in the Northern portion at a distance of about 8-10 kilometers from the poblacion are of low capacities and incapable of meeting the water requirements of the water district. These springs are primarily being utilized by farmers in the area for irrigation purposes and as a source of domestic water for local residents.

3.2 Demographic Characteristics

3.2.1 Population Growth Trends

Table 2 shows the comparative population growth of Region IV, Batangas, and Nasugbu from 1903 to 1990.

Table 2. Population Growth* of Region IV, Batangas, and Nasugbu 1903 – 1990

Year	Region IV		Batangas		Nasugbu		
	Pop'n	(%)	Pop'n	(%)	Pop'n	(%)	% of Prov'l Pop'n
1903	924		258		6680	2.59	
1918	1231	2.22	340	2.13	12423	5.73	3.27
1939	1813	2.25	442	1.42	19820	2.83	4.48
1948	2804	1.66	510	1.71	23668	2.16	4.64
1960	3081	3.99	681	2.74	34845	3.90	5.12
1970	4457	4.47	926	3.59	46849	3.44	5.06
1975	5214	3.40	1032	2.28	No data		
1980	6119	3.47	1174	2.75	59405	2.68	5.06
1990	8261	3.00	1476	2.30	75462	2.70	5.11

* Figures for Region IV and Batangas for 1903 to 1980 were taken from the Medium- Term Southern Tagalog Region Development Plan, 1987-1992, Chap. 3, p. 8.
Figures for 1990 were taken from the NCSO population count.
Figures for Nasugbu were computed from NSO data.

The table indicates that:

- The population of Region IV and Batangas exhibit an initial gradual but steady increase in its growth rate. The peak seems to have been reached and the growth rate is now on a decline. Region IV population shows a more consistent pattern;

- Region IV's population is increasing at a faster rate than that of either Batangas or Nasugbu. The rate of increase of Nasugbu's population shows a fluctuating pattern;

- The proportion of the population of Batangas who reside in Nasugbu has been gradually increasing over the years, from 2.59 percent in 1903 to 5.11 percent in 1990. This trend can be expected to continue and the rate of increase of the population may even be higher, if measures are taken up in Nasugbu to attract population.

3.2.2 Current Population

The NSO Preliminary Population Count for 1990 distributes the Batangas population of 1,476,000 into 272,000 households for an average of 5.4 persons per household. This current household size shows a decrease from the 1980 figure of 5.6 persons, but is higher than the national average of 5.3 per household.

Similar information is not available for Nasugbu, so comparisons regarding household size cannot be made at this point.

The dependency ratio is 0.886833, which is favorable, considering that for every person in the labor force, there will be only 0.89 person who is dependent. This will facilitate efforts to improve the socio-economic welfare of the population by providing gainful employment to those who are in the labor force.

The highest population density is 20 persons per hectare in Bucana, or the equivalent of only 5 persons per square kilometer. Nasugbu is showing a lot of wisdom in planning for its future growth at this time when the population density is still very low. Such action will prevent possible dislocation among the population, as well as, rationalize and maximize its current and future land uses.

3.3 General Economic Characteristics

The purpose of this section is to describe the existing situation with respect to Nasugbu's economic base and activities. The income status and sources of livelihood of the people will first be examined. The economic strengths and weaknesses of the municipality will then be assessed through a documentation of the town's economic structure, land-use patterns, and natural resource endowments. In the process, strategies aimed at enhancing the economic potential of Nasugbu will be proposed.

3.3.1 Income and Employment

Nasugbu houses a relatively poor population. Data shows that 68.8 percent of the households in Nasugbu had annual income lower than P4,000 in 1980, while only about 5.3 percent had annual incomes of over P10,000.

In 1988, a higher 94.92 percent of the total population of the entire province of Batangas had annual incomes of 10,000 and over. Among the barangays in Nasugbu, Lumbangan had the highest total income in 1988, while Looc ranked the lowest.

In 1980, Nasugbu had a labor force of 31,520 representing 53.1 percent of the municipality's total population of 59,405. Of the total labor force population, 16,750 or 53.1 percent were considered gainfully employed. In 1987, 62.20 percent of the total labor force of Batangas was gainfully employed.

3.3.2 Structure of the Local Economy

The fact that Nasugbu has essentially an agriculture-based economy is readily apparent. The evidence presented reveals that 52.75 percent of the gainful workers of Nasugbu had been projected to be employed in the agricultural sector. Reflective of the town's low level of industrialization, workers in the manufacturing sector represent only 10.66 percent. Social and personal service workers constitute 14.72 percent, while wholesale and retail trade employees comprise a relatively low 7.72 percent.

Understandably, a very high proportion of agricultural workers are found in the rural areas. Service workers predominate in the urban areas.

3.3.3 Agricultural Crops and Land-use

Agriculture will continue to dominate Nasugbu's economy in the years to come. Of the municipality's total land area covering 27,633 hectares of generally flat lands, 21,615.77 hectares, or 78.22 percent, are devoted to agriculture in 1990. Sugarcane is the principal agricultural crop covering a huge area of 6,065 hectares, or 28.06 percent of total agricultural land in the municipality. For this reason, sugarcane farming and milling are the primary sources of livelihood of the residents of Nasugbu. Sugarcane farming produces an average yield of 80 MT per hectare. It is important to note in this connection that sugarlands are owned by few proprietors and are cultivated to tenancy basis. Most prominent among the proprietors is Don Pedro Roxas who owns the sole milling company, the Central Azucarera de Don Pedro.

Rice is the second most dominant crop in terms of area covered, occupying 2,486 hectares, or 11.50 percent of the total agricultural land in Nasugbu. Relative to the area covered, however, the performance of the rice/palay sector is dismal, yielding only a total production of 6,538.18 MT in 1990.

Nasugbu is not a rice producing municipality. Ricelands are either irrigated, rainfed, upland or palagad. In this connection, the pattern of distribution of ricelands in Nasugbu is similar to that of the province as a whole. In Nasugbu, irrigated ricelands cover 717 hectares or 28.84 percent of the total land area and these are found mostly in Barangay Talangan, northeastern side of Barangay Wawa, and some portions of Barangay Looc and Barangay Bulihan. As should be expected, the average yield per hectare is much higher for irrigated areas (84 cavans per hectare) than for rainfed (69.9 cavans per hectare) and upland areas (39.9 cavans per hectare). Surprisingly, the palagad system yields a higher value of 87.2 cavans per hectare.

3.3.4 Livestock and Poultry

Livestock and poultry raising are also major economic activities of the people in Nasugbu. In 1987, total livestock and poultry production amounted to an overall total of 3,394,139.03 kilograms with pork and carabao meat as principal products. Nasugbu contributed a significant 5.31 and 11.18 percent,

respectively, of the total pork and carabao meat production of the province in 1987.

3.3.5 Fishery and Fishpond Operations

The fishing industry in the area is also noteworthy, because of the large bodies of water in the municipality. There are several rivers and dams in Nasugbu, and the town is bounded on the West by the China Sea. In addition, there are several inland fishponds in Barangay Wawa and Barangay Pantalan covering an area of 169.85 hectares.

Total fish production in the municipality for 1987 amounted to over 10.0 percent of the total fish production of Batangas. This relatively high proportion can be attributed to the fact that fishpond production in Nasugbu represented over 50 percent of the total fishpond production in Batangas. Nasugbu's share in terms of commercial production is a relatively low 4.48 percent.

A significant factor in Nasugbu's fishing industry is the presence of the A.H. Apacible School of Fisheries which offers courses in fisheries and related fields. On the other hand, a major problem confronting the industry is the worsening pollution of the coastal waters brought about by the indiscriminate dumping of human and industrial waste.

The problem which has escalated in recent years, is aggravated by illegal fishing practices (e.g., dynamite fishing, use of poisons, etc.). These practices have obviously reduced the productivity of the fishing grounds in the municipality.

3.3.6 Commerce and Industry

Compared to the other more progressive towns of the province, commercial and industrial activities in Nasugbu are minimal. In fact, there are only two major industrial establishments in the municipality, both of which are of the agri-business variety: the sugar processing Central Azucarera de Don Pedro, and the piggery-based Cordova farms. Other types of commercial activities in the municipality are limited and mostly of the sari-sari store variety. In view of the rich agricultural resources of the municipality, it is imperative that efforts be exerted to expand agro-related industrial and commercial activities in the area, possibly in the poblacion and nearby barangays.

3.3.7 Tourism

The municipality boasts of several existing and potential tourist spots. Indeed, Nasugbu is well-known for its clear blue beaches, coves and white sands covered with seashells and pebbles. Most of these attractions are found in three barangays: Bucana, Wawa and Natipuan.

It may also be noted that there are at least 10 resort hotels in the municipality which could provide support to the further development of its tourist potentials.

3.3.8 Sufficiency Analysis of Agricultural Production

As noted earlier, the agricultural sector will continue to dominate Nasugbu's economy in the years to come. For this reason, it is important to assess the sufficiency levels and future requirements of various agricultural crops and products as basis for the formulation of strategies for further development of the agricultural sector.

Agricultural Crops

It can readily be discerned from the data presented that Nasugbu is deficient in rice, the major staple of the country. The municipality has only a slight surplus in corn production. It has, however, an overwhelming surplus of sugarcane which further documents the fact that the municipality is a major center for sugarcane production.

The municipality contributed more than 12.9 percent of the total sugarcane production of Batangas province in 1990.

The relatively large contribution of the municipality to the mango production (13%) of the province is also noteworthy.

Livestock Products

In terms of its livestock production, the municipality is sufficient for most meat products. The sufficiency level is particularly high for hog and carabao production, and somewhat lower for cattle and goat production.

Fish and Poultry Products

In contrast to its livestock production, the municipality is deficient in poultry production. Its fish production, however, is more than

sufficient, although sufficiency levels have been noted to have declined in recent years. The municipality's surplus in fish products is not surprising given its rich water and marine resources. As noted earlier, however, the fish industry is faced with the worsening problem of water pollution, a problem which obviously has to be dealt with if production in this sector of the local economy is to be sustained in the future.

3.4 Social Services

3.4.1 Education

Two out of the total 41 Public Elementary school Districts in Batangas are located in Nasugbu; the Nasugbu East and West Districts. The 1989-90 District Officer's report to the DECS enumerate the areas of coverage of each district. The East District covers the easily accessible areas of Caylaway, Aga, Sitio Bayabasan (Aga), Banilad, Bilaran, and Lumbangan which lie along the national road, and the relatively inaccessible areas of Cayrilao, Mataas na Pulo, Tumalim, Sitio Pingkian (Reparo), Reparo, Catandaan, Malapad na Bato, Sitio Tala (Munting Indang), Latag, Sitio Panuca, (Butucan), Bulihan, and Looc, where the roads are rendered impassable during the rainy months. The West District, on the other hand, include the Poblacion barangays, Balaytigue, Sitio Balokbalok (Putat), Putat, Bunducam, Calayo, Dayap, Maugat, Natipuan, Pantalan, Papaya, Utod and Wawa. Bucana, Cogonan and Talangan were not reported as belonging to either of the two districts.

In addition to public elementary schools, the National Barangay Operations Office (NBOO) of the Department of Local Government (DLG) reports two private schools in the poblacion and one vocational school in Bucana. In addition, Nasugbu is served by eight private and public high schools located in Banilad, Biliran, Caylaway, Looc, Lumbangan, Mapalad na Bata, Sitio Tala (Munting Indang) and Tumalim.

Of the two elementary school districts, the West District attracts significantly more students, mainly because its catchment areas include the Poblacion and the surrounding areas. In 1987-88, the Nasugbu West District ranked second among the 41 districts in terms of enrollment while the East District ranked 10th only. Among the schools in the West District, those in the Poblacion and Wawa registered high enrollments, to the extent that both have nearly reached the limits of their absorption capacities. In the East District, the schools in Lumbangan, Biliran, and Calayway absorbed relatively more enrollees than the rest. Although, in general, the schools in this district can still absorb more students, the increasing number of school age children, especially in more recent years necessitates an examination of the future needs in terms of additional classrooms to forestall shortages. Already, this has been felt in some barangays in both districts. Inadequacy of classrooms was cited as a major problem in Aga, Looc, Reparo, and Talangan. This problem of additional classrooms is analyzed further in the next section. The issue of whether or not the performance of the students come up to par with DECS standards/targets will not be discussed since it is an issue which is properly addressed in a development plan.

3.4.2 Health

Nasugbu is served by three hospitals and two Rural Health Units, with each unit servicing specific barangays.

In terms of hospital beds, Nasugbu has more than enough for its current requirements. There is urgent need, however, for additional doctors, nurses, and a sanitary inspector. Because of this shortage, a doctor's presence, particularly in the outlying barangays, is rare. At the same time, because of poor acccessibility, households in those areas find it extremely difficult to bring their sick to health stations. Adding to the problem of shortages of medical personnel, is the inadequacy of medical supplies. The presence of barangay health workers has served to alleviate the problem but their effectiveness is hampered not only by the lack of medical supplies but also by inadequate training. Flooding (which is a major problem in the Poblacion as perceived by local residents) further serves to aggravate health conditions.

In other barangays, like Wawa, Tumalim and Barangay II, the lack of toilets was cited as a major problem. In some other barangays, the lack of potable water contributed to health problems.

Compared to the provincial rates, Nasugbu registered higher birth and death rates for

1989. Areas covered by RHU 2, especially, had significantly higher rates.

In terms of maternal mortality, the most cited causes were post partum hemorrhage / hemorrhage, post partum eclampsia / eclampsia, and septicemia wherein only a minimal proportion of the population (pregnant women) was affected.

The above-mentioned problems of lack of potable water and toilet facilities, as well as, flooding in different areas may have contributed to the prevalance of diarrhea. The leading causes of morbidity are poverty and lack of knowledge on personal hygiene and proper diet. This indicate the urgent need for basic facilities and more adequate health services.

3.4.3 Housing

Dwelling units are distributed among the various barangays as shown in the map. No data on housing could be obtained from Nasugbu. Some information was gathered from the Provincial Capitol, but these were insufficient for purposes of this analysis. The Nasugbu Comprehensive Development Plan (1982-1990) has figures for 1990 but these were estimated from the 1980 Census. A study made in 1988 by the National Barangay Operations Office provides information on housing for that period based on interviews of barangay captains.

Estimating the 1990 number of dwelling units from 1988 data, and using the 1990 NSO Preliminary Count on the total households, the data reflect a total of 11,650 dwelling units as against a total household of 14,125, or an estimated shortage of 2,475 dwelling units for 1990. This figure includes the squatters, which were estimated at 2 percent, based on the Nasugbu Comprehensive Development Plan.

At the moment, there seems to be no major problem in housing as far as Nasugbu is concerned. The Comprehensive Development Plan states that single detached dwelling units constitute 94 percent of housing stocks, which is a high percentage. The interviews conducted also did not reflect any major problem except the increasing number of squatters in the Poblacion, Wawa and Bucana. As stated above, this problem has already been considered in the 1990 estimate.

3.4.4 Recreation

Actually, Nasugbu boasts of different types of sports and recreational facilities, including beaches, a billiard hall, a moviehouse, and others. This section, however, considers only basketball courts and playgrounds, for which standards are available, indicating a requirement for these facilities.

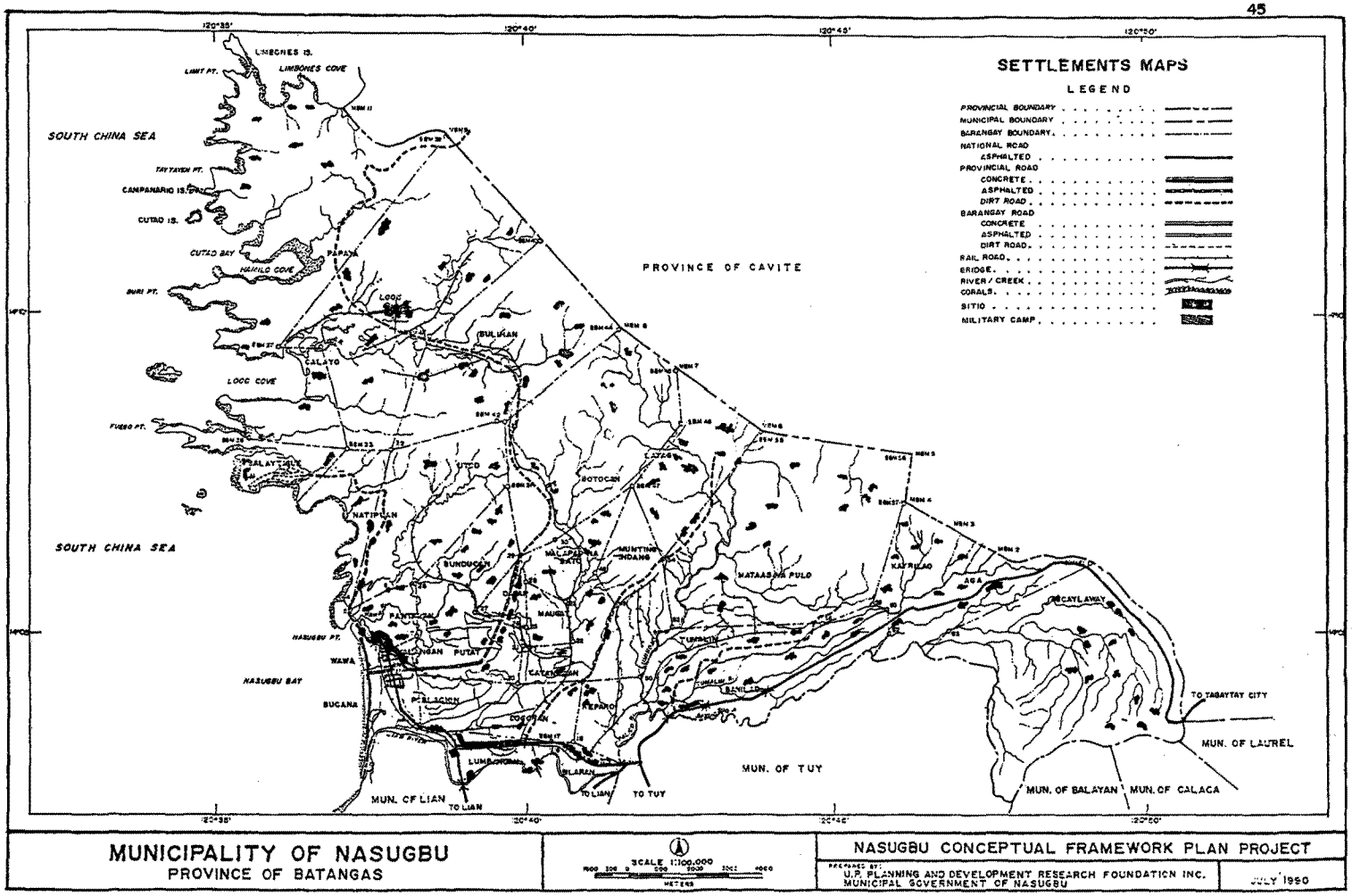
Of the 42 barangays, Banilad and its adjacent barangay, Tumalim, have the most number of sports facilities. Banilad has three basketball courts and four school playgrounds while Tumalim has five basketball courts and two school playgrounds. Other barangays such as Caylaway, Latag, and Lumbangan have a total of six sports/recreational facilities. Contrary to what one might expect, the barangays in the Poblacion have the least number of sports/recreational facilities among all the barangays. This is probably due to the availability of other recreational facilities in the area. The majority of these ball courts are not cemented, as required in the standards. They are, however, adequate, as far as area/number in relation to total population is concerned.

3.4.5 Police and Fire Protection

Police Force

The Police force of Nasugbu has not been able to keep up with the increase in population. In fact, between 1987 and 1990, while the population of Nasugbu has increased, its police force has decreased in number. Thus, while in 1987 Nasugbu had 41 policemen in its force, in 1990, according to the MPDC, there are only 33, or a ratio of one policeman for every 2287 persons. This is more than double the standard of one policeman for every 1,000 population. Aside from the municipal police force, private service men are employed by Central Azucarrera de Don Pedro, Roro Terminal, PISA and Foremost Investigation Agency, all of which are located in the densely-populated areas of Nasugbu.

At the barangay level, as of 1988 there were a total of 800 barangay tanods, fire brigades, and patrol personnel. Among the barangays, Tumalim and Putat had the most law enforcers with 45 and 40 barangay tanod/fire brigades, respectively.



MUNICIPALITY OF NASUGBU PROVINCE OF BATANGAS	SCALE 1:100,000 METERS	NASUGBU CONCEPTUAL FRAMEWORK PLAN PROJECT PREPARED BY: U.P. PLANNING AND DEVELOPMENT RESEARCH FOUNDATION INC. MUNICIPAL GOVERNMENT OF NASUGBU JULY 1990

PHILIPPINE PLANNING JOURNAL Vols.XXVI (2) & XXVII (1), April-October 1995

In 1989, Nasugbu ranked 4th among the 34 municipalities in terms of the most number of crimes reported. In the same list, Nasugbu ranked highest in terms of crimes committed against a person (8.10%). At the barangay level (of the 144 crimes reported in 1988), Wawa had the highest record (17.36%) of crimes reported, followed by Papaya with 13.89% percent.

At present, the PC-INP in Nasugbu has programs to control during addiction and illegal vice. These programs properly address the problems cited in the interviews where residents of Poblacion Barangays I, VIII and XII, cited problems of peace and order while Poblacion Barangays I, VIII, IX, V, and X and Biliran reported problems of drug addiction and other vices. Clearly, at this early stage Nasugbu has to increase its Police force not so much to meet the standard as to maintain peace and order and to control drug addiction. At the moment, the municipality needs 42 policemen to be able to effectively and adequately carry out its function.

Fire Protection

Nasugbu has inadequate fire-fighting personnel. There are only 12 firemen servicing the lone fire station, resulting in a ratio of one fireman for every 6288 persons. This is more than three times the standard of one fireman for every 2,000 population. Nasugbu needs to augment its current firefighting force to about 38 personnel.

3.5 Infrastructure

3.5.1 Water Supply

Water supply for the municipality is serviced by the Local Water Utilities Administration (LWUA) through the Nasugbu Water District (NWD). The NWD derives its present water supply from two wells constructed by the then Bureau of Public Works. The present sources, well numbers 3 and 28 have a tested discharge of about 4 liters / second and 12 liters / second, respectively.

At present the area coverage of the wells is limited to Barangay Wawa and the 12 barangays comprising the Poblacion.

Other areas not covered by the piped water system obtain their water supply from dug wells and other wells drilled by the DPWH. However, most of the DPWH wells were abandoned due to lack of maintenance.

Depths of drilled wells range from 6 to 210 meters while dug wells have depths of 2 to 15 meters. Well production is from 0.32-12 liters / second, and specific capacities range from 0.12-3.25 liters/m^2.

Based on the present area covered by the NWD, it is most obvious that the distribution of piped water is inadequate. The water district should expand its connections inasmuch as its pumps can still supply other households with adequate water supply; it should also tap additional wells and explore other potential sources of water supply to meet the future demands of the whole municipality.

3.5.2 Power and Electricity

Power supply for the municipality is derived from the MAKBAN station of the National Power Corporation (NPC) and served through the facilities of the Batangas Electric Cooperative I (BATELEC I).

Located at the municipality of Calaca, BATELEC I has a power generating capacity of 13,200 KWH which services about 79 percent of the total number of barangays in the municipality.

The remaining barangays not serviced by BATELEC I are predominantly located in the Northern and Northeastern portion of the municipality, where the terrain is rugged and mountainous, making access very limited.

3.5.3 Communications / Transportation Facilities

Telephone Services

The municipality is being served by the privately owned Western Batangas Telephone System (WBTS-PLDT) whose main transmitting station is located at Miralles Subdivision, Barangay Wawa.

The scope of its service is very limited. For this reason, privately owned industrial companies (like the Central Azucarera de Don Pedro) and resorts (Batulao Resort) operate their own telephone system.

Telegraph

Telegraph services in the municipality are operated by the Bureau of Telecommunications (BUTEL) with its radio transmitter located within the municipal compound along J.P. Laurel Street; and complemented by RCPI, a private entity, whose office is located on the same street about 2-4 blocks away from BUTEL.

It must be kept in mind that the development of the municipality to its full potential will be seriously hampered unless vital telecommunications facilities, such as its telephone and telegraph systems, undergo urgent expansion and modernization.

Postal Services

Postal service is provided for by the Bureau of Posts, with its office located at the municipal building, and a sub-office located at barangay Lumbangan along the National Highway.

To meet the standards of 1 letter carrier per 5,000 population, there should be at present 15 letter carriers serving the whole municipality. The current number of mail carriers is inadequate. Thus, there is a need to augment the postal service staff to achieve an effective and efficient postal service.

Broadcast and print media are available to the municipality due to its proximity to Metro Manila.

Transportation Facilities

Land transportation terminals in the municipality are concentrated mostly within the Poblacion (Barangay I). The presence of a private bus firm, the Batangas Laguna Tayabas Bus Company (BLTB Co.) constitutes the major mode of land transport service in ferrying commuters to and from the municipality, and to different points like Metro Manila and other adjacent municipalities (trips are on an hourly frequency).

Augmenting this, are the public utility jeeps (or jeepneys) whose terminals are also concentrated within the Poblacion. The jeepneys route is somewhat limited due to the municipality's poor road network condition. This mode of transportation serves as a major means of travel to other municipalities within the province of Batangas. Travel within the poblacion is primarily by tricycles and pedicabs which can easily negotiate the narrow and unpaved thoroughfares.

Being a coastal town, travel by water vessels and craft along the stretch of the coastal areas is possible. However, the absence of a well developed seaport or terminal inhibits the development of sea travel and trade on a commercial scale.

Road Network

The total length of roads in the municipality is 183.28 kilometers, broken down into four categories namely: National Roads, Provincial Roads, Municipal Roads and Barangay Roads.

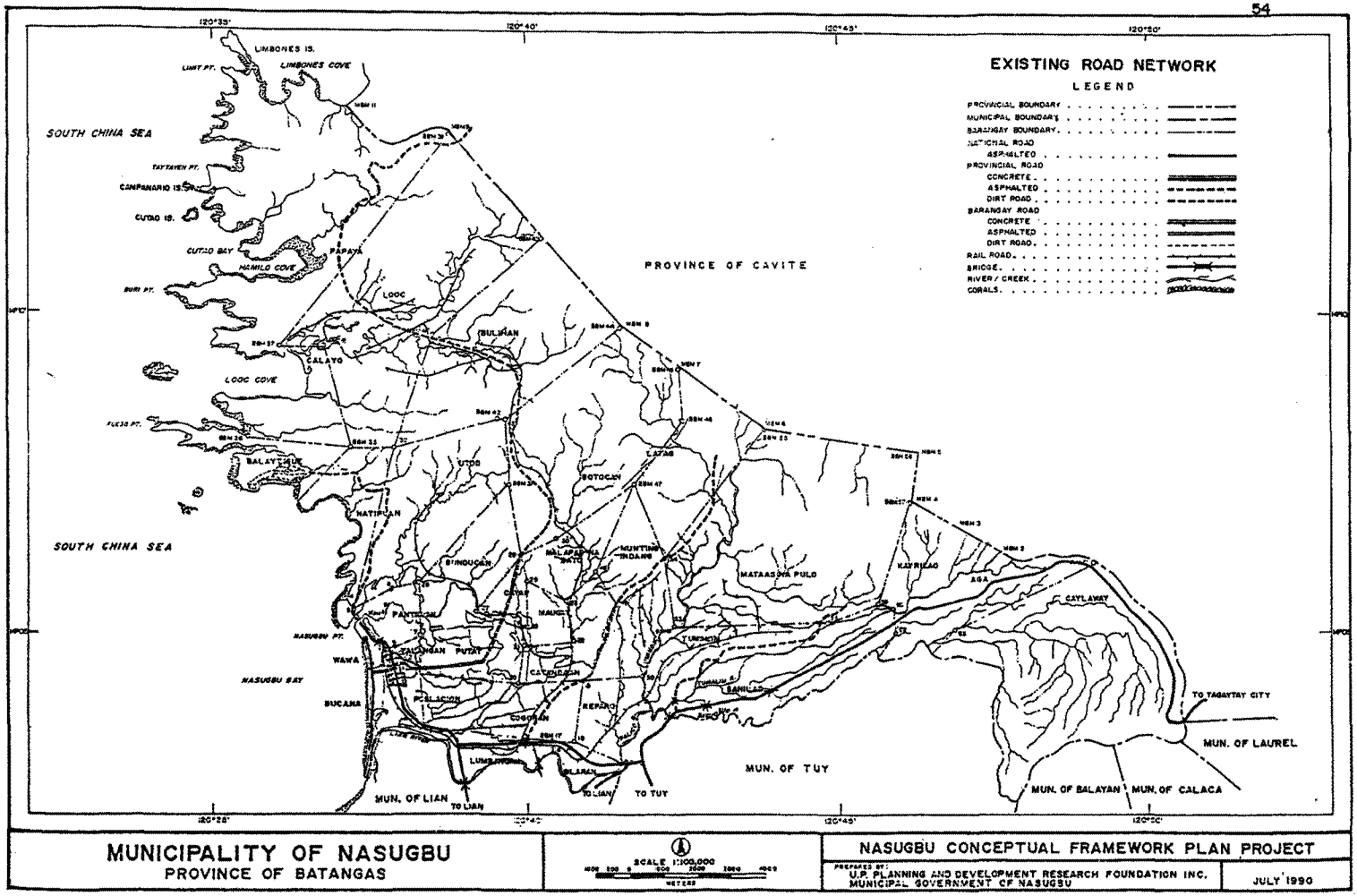
The general road network condition is poor. Of the total roads in the municipality only 10 percent are of all-weather concrete. Twenty two percent (22%) are asphalt while the remaining are either gravelled or earth filled. Mobility within the municipality is limited, most specially in the outskirts and peripheral areas. Perenniai flooding further aggravates the situation making most of the barangay roads impassable during the rainy period. This sorry state of roads limiting access is the primary reason that deters the development of the municipality.

3.5.4 Drainage and Sewerage

The municipality lacks a well planned drainage and sewerage system as evident in its present system which is rather crude and inadequate. This is aggravated by perennial floods, one of the predominant problems prevalent throughout the municipality. A good number of the barangays rely on small creeks and canals as their drainage and sewerage channels. The Poblacion meanwhile, has a series of open tranches/canals along its road network. However, both of these systems have a natural tendency to overflow during heavy downpours due to their limited capacity to contain and channel run off rainwater. It is imperative that an efficient and effective municipal-wide drainage / sewerage system be planned and developed in line with the development of its road network.

3.5.5 Irrigation and Flood Control

The municipality has two main irrigation systems, namely, the Palico River Irrigation



MUNICIPALITY OF NASUGBU
PROVINCE OF BATANGAS

SCALE 1:100,000

NASUGBU CONCEPTUAL FRAMEWORK PLAN PROJECT

PREPARED BY:
U.P. PLANNING AND DEVELOPMENT RESEARCH FOUNDATION INC.
MUNICIPAL GOVERNMENT OF NASUGBU

JULY 1990

System and the Looc Communal Irrigation Project. The former derives its water from the Palico River and has a potential service area of 852 hectares, while the latter utilities Looc River as its water source and has a potential service area of 300 hectares.

As mentioned earlier, springs located in the Northern portion of the municipality are being utilized for irrigation purposes in as much as they have low capacities.

3.5.6 Public Market and Commercial Areas

Commercial activities or the municipality are concentrated mostly in the reconstructed Nasugbu Public Market (the old one was gutted down by a fire in March 1981). Four years in operation (since December 1985) after its reconstruction, it has a total of 484 stalls offering a combination of wet and dry goods.

This wide range of goods option invites patrons not only from the local barangays, but also from nearby municipalities like Lian, Calatagan and Tuy.

3.5.7 Administration Building

The administration building compound of the municipality is located at the corner of Escalera Street and J.P. Laurel Street. Just across are the town plaza and the Nasugbu West District Elementary School, while adjacent at its rear is the parish church and convent. It was established in 1951 with a total land area of 7,270.6 m^2. The compound accommodates 17 main offices of the municipal, provincial and national governments.

The two storey main building houses the following:

Ground Floor	Second Floor
Bureau of Posts	Mayor's Office
Bureau of Internal Revenue	Sangguniang Bayan
Municipal Treasurer's Office	Secretariat
Office of the Municipal Planning and Development Coordinator	Municipal Trial Court
	Regional Trial Court
	Fiscal's Office

Other municipal offices within the compound include those of the Municipal Agriculturist, Municipal Assessor, Municipal Engineer, Municipal Library and the Rural Health Unit I. The National Offices are the Integrated National Police Headquarters, Comelec Office, Local Government Office, Bureau of Telegraph and Telecommunications and the Registry of Deeds.

IV. PROJECTIONS

As noted in the previous chapter, Nasugbu is deficient in various agricultural products, particularly rice and corn. The town has similar needs in terms of health and educational facilities. The purpose of this chapter is to present projected land and service facility requirements that must ideally be met to enable the municipality to cope with such deficiencies. These projected requirements will serve as a basis for the formulation of policy guidelines which will be presented in the concluding chapter of this report.

4.1 Population Projections

Based on the 1990 population and the use of the growth rate from 1980 to 1990, the population of Nasugbu was projected for five-year periods up to the year 2015. These projections are based on constant trends and do not take into consideration such processes as industrialization which would attract population into the area and possibly alter the rate of population growth. The population of Nasugbu will reach 95,659 in the year 2000, and 136,530 by 2015.

Unless intervention measures are introduced to alter the pattern, the population densities of the Poblacion, Bucana, Lumbangan, Pantalan, and Talangan will progressively increase.

4.2 Projection of Agricultural Requirements

It will be noted that in terms of rice production alone, an additional 3,776.29 hectares have to be planted to rice, if Nasugbu has to be self-sufficient by the year 2000 given present levels of production. The land requirement rises to 6,451.90 hectares by the year 2015.

The land requirements would be much lower, however, if additional hectares of riceland are irrigated. Land requirements (to achieve rice sufficiency levels) would decrease to 2,652.49 hectares by the year 2000, and to 5,327.10 if one assumes that an additional 450 hectares of riceland are irrigated in 1995 and the year 2000.

The additional land requirements for the other agricultural products are much smaller. To

achieve self-sufficiency by the year 2000, an additional 41.20 hectares of land are required for corn, 376.40 hectares for rootcrops, and 660.17 hectares for vegetables. By the year 2015, the land requirements for these products will rise to 136.57 hectares for corn, 541.49 hectares for root crops and 950.78 for vegetables.

Nasugbu has substantial hectarage of uncultivated lands which are suitable for agriculture, particularly for rice production. It is doubtful, however, whether the municipality could find the necessary resources to develop these lands in the near future. For this reason, it is imperative that other means for enhancing agricultural production be fully explored. These include the improvement of production technology as well as construction of additional irrigation facilities. As previously indicated, only 28.84 percent of ricelands in Nasugbu is irrigated partly accounting for the relatively low rice production in the municipality.

Table 3. Agricultural Expansion Areas (ha.) Nasugbu, 1990

Agricultural Crops	Existing Land Uses	Suitable Areas for Agri. Prod'n
Rice	2486.0	6899.4
Corn	182.0	1396.0
Vegetables/Citrus	20.0	1188.0
Sugarcane	6065.0	6984.9
Coconut	123.0	1948.0
TOTAL	8876.0	18416.3

The importance of the immediate implementation of pipeline projects in irrigation becomes evident, particularly of the rice requirement projections.

Similar efforts must be exerted in improving poultry production in the municipality. The town's deficiency would rise to 245,548.80 kilograms by the year 2000, and 376,336.00 kilograms by the year 2015, should current production levels be maintained.

4.3 Projected Health Needs

Normally each municipality is provided with only one Rural Health Unit (RHU) but with varying staff size depending on the size of the population. Two RHUs, however, fit the health services needs of Nasugbu not only because of increasing population but equally because of the wide geographic area of coverage and the inaccessibility of some of the barangays, especially during the rainy season. Health requirements are based on the projected needs of the catchment areas of each of the RHUs and the corresponding RHU category for the projected population size of the area.

The present bed capacities of the three hospitals need not be increased for the duration of the planning period. It should be emphasized, however, that this is based on a constant rate of population growth.

The need for additional RHU personnel suggests the need for additional health stations, especially in areas where there are none. Primary health and emergency services, in particular, should be made accessible. In the interviews conducted, the lack of health centers was cited as a major problem in the barangays of Poblacion II (Munting Indang and Maugat). Health stations should be provided in strategic areas so that all barangays will have access to one.

4.4 Classroom Needs

A major problem met in the projection of needs was the absence of 1990 data on age-distribution of the population in both the municipal and barangay levels. For this reason, a trend for the 1980-90 decade could not be set. What was done was to project the 1990 data based on the 1980 municipal age structure, using a total population data for 1990. The Sprague multiplier was then applied to break the age brackets into chronological ages with corresponding frequencies. To determine the classrooms required at the barangay level, the frequencies under each age level was proportionately distributed among the different barangay schools, using the same proportion in the 1989-90 enrollment reports for each age and grade level. The participation rate used in the projections was 100 percent to determine the maximum classrooms and land are required for the planning period.

4.5 Housing Needs

For purposes of the projections, the 1990 figure for total households was used, as provided by the NSO Preliminary Count. However, no data on total number of dwelling units for 1990 was available. The latest available figure was from the NBOO Study in 1988, which was disaggregated on the barangay level and therefore fitted the requirements of the projections. To arrive at the 1990 estimate, a

construction rate of 2 percent per year was used. Allowance was made, however, for the 2 percent barong-barong stated in the Nasugbu Development Plan. This was taken as an estimate of the number of existing squatters who will need to be relocated. Thus, instead of using a factor of 4 percent for a two-year period (1988-1990), only 2 percent was used.

After having made allowances for the squatters in the 1990 estimate, the projections that follow consider the current and future households that need housing. Households, instead of family nuclei, were used in the projection because extended families are generally accepted and practiced in the Philippines. Besides, nuclear families that constitute households were also counted under the definition. For purposes of projecting households, projected future population was divided by average households size. Following the pattern from 1980 to 1990 in Batangas, the average household size used was decreased by 0.2 every ten years.

The usual formula for housing need is an estimate of how many houses will need to be built, considering the backlog and the future needs; backlog being defined in terms of number of doubled up families and of unacceptable dwelling units and the future needs in terms of new families and houses that will need to be replaced due to obsolescence. The requirement for the conceptual plan, however, is to estimate land requirements for housing, which is not the same as housing need. For instance, there is no need to estimate the number of housing to be replaced because these houses are already sitting on land. The unacceptable dwelling units are also sitting on land and only the structures will need to be replaced. However, there could be a need to allocate land for squatters since they will need to be relocated in case the landowner decides to use the place of land for other purposes. There are cases, of course, where the landowner decides to sell the land to the government in favor of the squatters. The projections also do not take into consideration the annual construction rate of housing units because even these units will need land, and the projections are meant to reserve land for all future housing units that will need to be constructed.

It should be emphasized that on projected housing needs, all figures listed beyond 1990 represent the number of houses that will be needed over the immediately preceding five-year period. Thus, the figures for 1995, for instance, represent the total number of dwelling units that will be required in each barangay from 1991 to 1995 due to additional households formed during this period.

4.6 Protective Manpower / Facilities Requirements

The standard used to estimate the number of firetrucks required is one firetruck for every 20,000 population. All standards used were derived from the Sectoral Guidelines prepared by the MHS.

Appropriate structures will have to be built to house the additional firetrucks, based on existing standards. Similarly, additional policemen will require additional space. Unfortunately, because of lack of information regarding existing police outposts, projections cannot be made as of the moment.

4.7 Projections on Recreational Facilities

The projections that follow are based on standards of one basketball court for every 5,000 population with an ideal size of 0.8 hectare On the other hand, the projection for the children's play area are based on a standard of 0.4 hectare per 1,000 population.

Although the barangays in the Poblacion have the least number of basketball courts (on the basis of the projected population of its barangays), there is no need for additional courts at least until the year 2015.

However, from year 1990 to 2015, due to the increasing population, there is a tendency for other barangays to require additional courts beyond 2015. Likewise, majority of the barangays will require additional spaces for children's playground areas beyond the year 2015.

V. DEVELOPMENT SCHEMES

5.1 Nasugbu Within the Framework of Provincial and Regional Growth

5.1.1 CALABARZON and Its Role in Development

CALABARZON refers to the five provinces of Cavite, Laguna, Batangas, Rizal and Quezon which strategically envelops Metropolitan

Manila. The Regional Development Council of Southern Tagalog envisions CALABARZON core to serve as a catalyst to stimulate the agro-industrial development of the whole region. Supportive of the Country-side Agro-Industrial Development Framework, CALABARZON was identified as the site of the Northern Industrial Core – a component of the proposed industrial core network of the country.

In line with the national and regional objectives, the goals of the CALABARZON Development Project are as follows:

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

b) To sustain high levels of growth led by the industrial sector which will be internationally competitive, attaining a stronger industrial structure and inducing related service activities;

c) To promote more equitable development, avoiding the operation of the urban poor and squatters, uplifting the rural poor from poverty, and realizing a better distribution of population and economic wealth; and

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

5.1.2 Batangas Province and Its Role in CALABARZON

As stated in the above goals and objectives, the province of Batangas being the lead province of the Project and Batangas City as an alternate growth center to Metro Manila will provide benefits to its constituents.

The province, which includes Nasugbu, will benefit from the implementation of package type programs, i.e., the conversion of the Batangas port into an international port of entry, the development of Taal Lake as a source of domestic water supply and the development of the long and pristine coastline into tourism areas, among others.

The province of Batangas in general and Nasugbu in particular, being agriculture-based, will pursue programs aimed at increasing its agricultural productivity. This stance may be gleaned from the list of agricultural development projects identified for implementation, namely: (a) integrated broiler breeding project, (b) integrated cattle production, (c) rice production program, (d) vegetable production program, (e) fruits and beverage processing, (f) corn and sorghum production, (g) supplementary food crop production, (h) food terminal project, (I) farm mechanization program, (j) cooperative promotion development, and (k) irrigation development project among others.

Endowed with many scenic, cultural and historical spots, the province realizes the great economic potentials of its tourism industry. The province has identified several programs to ensure success in projecting itself as a major tourist destination. Examples of these are the Parador Development Program, the Resort Village Crafts Promotion Program and the upgrading of both public and private beach resorts.

The province is also sponsoring several major public works projects in order to improve both rural accessibility as well as inter and intra-provincial connections. Massive rehabilitation, improvement and upgrading efforts are being done on existing telecommunications facilities to provide the province with an efficient communications network. A long term human resource development program is being prepared to address the manpower demands of the various establishments that are expected to be put up in the province. An ecosystems management system is also being designed for implementation to obviate any irreparable environmental damage that may or may have resulted from irresponsible economic behavior or harmful industrial operations.

5.1.3 The Role of Nasugbu in Relation to Provincial and Regional Growth

In line with the present government's thrust of decentralization and industrialization, Nasugbu's resources may be tapped to encourage both local and foreign investors to focus on agro-based industrial activities as well as tourism.

The municipality of Nasugbu in the context of the framework of Batangas has been

considered by various government agencies and private organizations to be a suitable area for tourist attraction and economic opportunities. Several on-going projects and programs, like the Hacienda Looc Land Use Plan being funded by USAID, are aimed to help the government through APT in disposing of the Looc property in a manner that is politically, bureaucratically and financially feasible and attractive to private investors and developers alike. The Department of Tourism (DOT) in connection with the Tourism Development Plan have just launched the Looc-Taal Tourism Development Program. As mentioned earlier the following projects have been envisioned to support the program to ensure that the tourism potentials of Nasugbu and Batangas province are maximized: (a) concreting of roads; (b) Resort Village Crafts Promotion; (c) Taal Restoration and Parador; and (d) upgrading of public and private resorts.

The province and the municipality of Nasugbu deem these infrastructure and other developmental projects as important underpinnings to their development efforts in the context of its role in the CALABARZON sub-region and Region IV as a whole.

5.2 Alternative Development Schemes

5.2.1 Natural Growth Pattern

Otherwise known as "sprawl," this form of development has a similarity with the idea of development that merely follows past trends (i.e., expansion of the poblacion and other population centers are left to its natural tendency or pattern).

Since this pattern maintains the 'status quo' as to the urban pattern of the municipality, wherein the primary services and opportunities are concentrated on the Poblacion, existing major routes linking it with the other barangays are to be upgraded into all-weather concrete roads to ensure and enhance access. The development of road along the coastline will provide the link between the coastal barangays and the Poblacion.

Initial advantages brought about by this scheme, like the decongestion of the poblacion and maximizing the use of roads, are offset by certain undesirable consequences in the long run. In effect, it gives rise to a land use pattern which tend to wipe out potential areas or sites for planned urban/industrial development, as well as prime agricultural areas which traditionally serve as the main source of sustenance and livelihood of local communities.

One distinct advantage that this scheme possesses is its greater likelihood of being implemented since it involves minimal change in the existing land use pattern. Also, it requires minimum government intervention.

5.2.2 Linear Corridor Pattern

This could be considered as a modification of the "sprawl," and represents a deliberate planned expansion of the Poblacion and other population centers along the main communication / transportation routes.

The objective is to create new activity centers as new focal points of growth along the main lines of communication/transportation instead of allowing for a continuous and uncontrolled "sprawl." This scheme helps to decongest the poblacion and population centers by creating new reception areas for dispersing industry, commerce and households.

This type of urban pattern is evidently rigid due to it's dependency on the course of the road network; its dire effect is such that it impedes the smooth flow of traffic (road capacity is inflexible) and limits road-widening capabilities for future demand. An over extended linear development necessitates an economical run of utilities.

To achieve and maintain such pattern requires effective land use control mechanisms to keep areas outside the selected corridor under low density development, or as agricultural production areas and open spaces.

5.2.3 Single-Centered Growth Strategy

This pattern could be considered as a "controlled" modification of the "sprawl" wherein the existing urban center, the Poblacion, is chosen as the most viable growth center where development is concentrated. Expansion areas, being contiguous, are planned and directed with linkages of access to the core.

The advantages of this scheme are in its economical provision of utilities and facilities throughout the area, the preservation of land resources for other uses, and the containment of urban sprawl.

However, with services, opportunities and other settlement activities focused on the Poblacion, a resulting effect could be local in-migration. Population figures indicate that the Poblacion has the highest density in the whole municipality and such a trend is to continue for the next 25 years. This phenomenon gives rise to the primacy of the said area and, with the expected influx of migrants, the constant and ever increasing pressure brought about on the existing infrastructure and utilities periodically reduces it's effectivity and efficiency.

To effectively adopt this pattern of development, land use control and zoning mechanisms will have to be enforced. This must be complemented with the development of an efficient road network within the growth center for internal circulation and the definition of its expansion patterns. The growth center's link to the rest of the barangays within the municipality is an effective and efficient communication / transportation network.

5.2.4 PLAND Area Development

This strategy, in line with decentralization, stresses the development of four identified growth points strategically located within the municipality. These areas are aimed at creating points suitable and conducive for employment, commercial, social and agricultural activities and supplemented by facilities and infrastructure for various settlements. This pattern will provide improved access to services through the development of the four major growth points.

The strategy envisions the conglomeration of the 42 barangays into four clusters, with each cluster having an identified growth center. These four clusters are to be linked by a network of roads thus enhancing mobility within the whole municipality and promoting a more participative development in a largely rural/agricultural setting.

Certain growth points (II, III and IV) have development focusing on the depressed areas; this exhibits a special appeal when socio-political, rather than economic, factors are given key consideration in planning.

VI. PLAND AS THE PREFERRED DEVELOPMENT SCHEME

6.1 Rationale for the PLAND

The four development schemes discussed in the previous chapter were formulated and designed by the planning team based on the analysis of data and information, and in consultation with representatives of various sectors of the community during the planning process. It took into consideration the physical, socio-economic, environmental and administrative aspects of each development scheme.

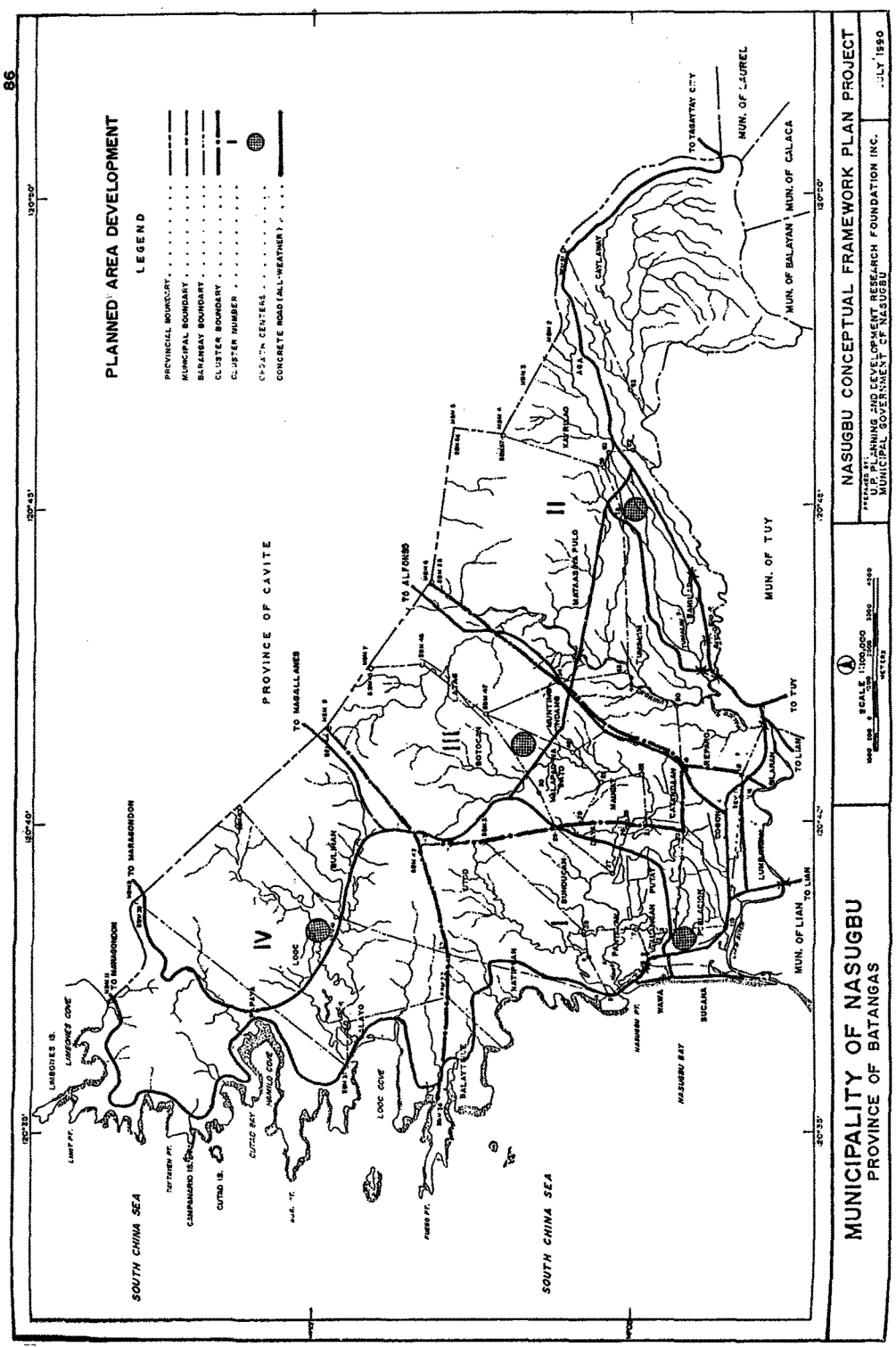
The alternative development schemes were officially presented to the local government officials, representatives of the various line agencies operating in the municipality, as well as of the private sector. After lengthy discussions on the advantages/disadvantages of each scheme, the group recommended PLAND (Planned Area for New Development) as the suitable development scheme for the municipality.

6.2 Delineation of PLAND Area

Contiguous barangays were clustered together to form a PLAND on the basis of population, dominant economic activity, topography, and homegeneity in general. As a result, the following areas were delineated as PLANDs:

PLAND I:		**PLAND II:**
Balaytigue	Putat	Aga
Bucana	Poblacion	Banilad
Bunducan	Talangan	Bilaran
Cogonan	Utod	Caylaway
Dayap	Wawa	Cayrilao
Lumbangan		Mataas na Pulo
Natipuan		Reparo
Pantalan		Tumalim

PLAND III:		**PLAND IV:**
Butucan	Maugat	Bulihan
Catandaan	Munting Indang	Calayo
Latag		Looc
Malapad na Bato		Papaya


PLANNED AREA DEVELOPMENT
LEGEND
PROVINCIAL BOUNDARY
MUNICIPAL BOUNDARY
BARANGAY BOUNDARY
CLUSTER BOUNDARY
CLUSTER NUMBER
GROWTH CENTERS
CONCRETE ROAD (ALL-WEATHER)
PROVINCE OF CAVITE
TO MARAGONDON
TO MABALANES
TO ALFONSO
TO TAGAYTAY CITY
MUN. OF LAUREL
MUN. OF BALAYAN
MUN. OF CALACA
MUN. OF TUY
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I
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6.3 Major Roles of PLAND Area

6.3.1 PLAND I

With the poblacion as its center, PLAND I shall serve as the leading urban zone of Nasugbu. As such, the central business district, from which major goods and commodities shall be distributed, will be located in this area. Government services and urban functions (e.g., health, police, fire protection, education) shall also be centrally administered and delivered from this area, although smaller service points will be made available as well in other barangays of the municipality. PLAND I will likewise serve as the main residential area of Nasugbu.

6.3.2 PLAND II

PLAND II shall be the leading agro-industrial zone of Nasugbu. Consistent with the overall thrusts of the proposed framework plan for the municipality, emphasis will be given to the delineation of specific sites for employment-generating, agro-related industrial activities in order to provide forward linkage to agricultural products. As a complementary activity, agricultural production will likewise be enhanced jn this area through the cultivation and development of additional land for agricultural crops. Additional sites will also be designated in this area for residential purposes, mainly for government employees and industrial workers.

6.3.3 PLAND III

PLAND III has been identified as having substantial agricultural land resources which are especially suitable for rice and corn production. This area will, therefore, be designated as the leading agricultural zone of Nasugbu. In the light of the municipality's deficiency in rice and corn, the development and cultivation of additional agricultural land for the production of these staples will be concentrated in this area. To the extent feasible, additional irrigation facilities will likewise be constructed in appropriate sites.

6.3.4 PLAND IV

PLAND IV is especially noted for its tourism potentials. It will, therefore, be designated as the leading tourism zone of the municipality. The development of tourism in this area is particularly opportune in view of the approved construction of the highway along the coast which will improve access to Nasugbu from other parts of Batangas and the province of Cavite. Efforts will, therefore, be exerted in developing the various sand beaches and coves along the coast, as well as improve the various tourist facilities in the municipality.

6.4 Population Projections

Following the delineation of the barangays under each PLAND, Table 4 provides the population projections for each PLAND in five-year intervals up to the year 2015.

Table 4. Actual and Projected Population and Density by PLAND Area Nasugbu, 1990 - 2015

PLAND AREA	1990	1995	2000	2005	2010	2015	Total Land Area
PLAND I							6449.00
Population	42346.00	47677.54	53679.67	60438.24	68047.52	76614.70	
Density	6.57	7.39	8.32	9.37	10.55	11.88	
PLAND II							8074.00
Population	18637.00	20983.48	23625.09	26599.62	29948.51	33719.08	
Density	2.31	2.60	2.93	3.29	3.71	4.18	
PLAND III							5062.00
Population	7206.00	8113.26	9134.65	10284.75	11579.62	13037.49	
Density	1.42	1.60	1.80	2.03	2.29	2.58	
PLAND IV							8048.00
Population	7273.00	8188.70	9219.58	10380.37	11687.28	13158.71	
Density	0.90	1.02	1.15	1.29	1.45	1.64	
TOTAL							27633.00
Population	75462.00	84962.98	95658.99	107702.98	121262.93	136529.97	
Density	2.73	3.07	3.46	3.90	4.39	4.94	

VII. PLANNING GUIDELINES AND RECOMMENDATIONS

7.1 Development Principles

a) The principle of social equity shall underlie the social, economic, and physical development of Nasugbu. Consistent with its principle, social and economic policies shall be intended to uplift the socio-

economic conditions of the poor, bring about a more equitable distribution of wealth, and promote a better quality of life for everyone. In physical terms, social equity shall be translated into accessibility. Physical development shall, therefore, seek to promote accessibility particularly in those areas which are far from the center. It shall also endeavour to arrive at a more equitable distribution of physical facilities in all areas to promote faster delivery of services.

b) Although development is intended for all, special attention shall be given to the poor. The interest of the poor shall not be sacrificed to serve the interests of others. The poor shall not be placed in a worse condition than they already are at any time during and after the implementation of the Plan.

c) Development shall also be geared towards a more rational distribution of population to avoid over-urbanization and the problems attendant to it.

d) The environment is an invaluable resource. Development efforts shall, therefore, be guided by the goal of preserving the quality of the environment. The short-and long-term destruction of the ecosystem can never be justified, no matter how great the immediate benefits which may be derived.

7.2 Social Services Sector

In the pursuit of equity in the social sector, social services facilities shall be made accessible to every resident of Nasugbu. To achieve this end, basic social services facilities shall be made available on the level of the Planned Area for New Development (PLAND).

a) An elementary school shall serve each barangay and a public high school shall be located centrally in each PLAND to serve all barangays belonging to it. As these high schools are constructed, the rooms which are now being used for secondary education shall revert to their originally intended use. Tertiary education shall continue to be made available largely in the Poblacion for the duration of the planning period.

b) The police station shall remain in the Poblacion. Sub-stations shall, however, be located in each PLAND according to existing standards. PLAND I shall follow the standard of one policeman for every 500 population for semi-urbanized areas and PLANDs II, III, and IV shall follow the standard of one policeman for every 1,000 population.

c) The fire station shall remain in the Poblacion but a sub-station shall be located in each of the three PLANDs where a firetruck / fire fighting equipment shall be permanently housed.

d) A centrally located open-space for recreational and other related activities of all ages and family groups shall be delineated in each PLAND. It shall contain facilities for both active and passive recreation and a center for special events like festivals, holiday celebrations and community affairs. The facilities shall include play courts, open spaces for informal play/games, and a park area for sitting. In addition, preservation/restoration areas consisting of natural environment areas or historical/cultural sites shall be identified for each PLAND to enrich the socio-cultural life of the residence.

e) The coverage of the existing RHUs shall be made to correspond to the PLAND. A medical facility shall be made available in each PLAND where medical personnel can make regular visits. At the very lest, a nurse shall be available at all times in this facility, assisted by a midwife, particularly in cases where medical facilities and services are not readily available within the limits of the PLAND.

f) An interdenominational chapel shall be located in each PLAND for religious services.

g) Adequate housing shall be made available for all income groups by the private sector, the government, or jointly by both. Housing / financing packages shall be prepared to meet the special needs of the poor.

7.2 Land use and the Economic Sector

In the light of the essentially agricultural base of Nasugbu's economy, efforts must be exerted in enhancing agricultural productivity, with particular emphasis on the achievement of self-sufficiency in rice production. As shown in the

preceding analysis, Nasugbu has a large deficiency in rice production which is ironic for a municipality which has wide tracts of uncultivated agricultural lands suitable for rice production, as well as large bodies of water which can be tapped for irrigation purposes. Although two major irrigation projects are currently in the pipeline, these would be insufficient to develop the full agricultural potential of the municipality. Achievement of this policy would thus entail a two-pronged effort:

a) the development of uncultivated agricultural land for rice production, especially in PLAND Area II, III, and IV.

b) placing under irrigation existing ricelands which are currently non-irrigated. Irrigation facilities are particularly needed in PLAND Area III.

A total of approximately 6899.40 hectares situated in PLAND units II, III and IV are to be utilized for rice production purposes.

Land allocated for sugarcane production has the priority in terms of area outlay due to the fact that the sugar industry has been the major source of livelihood for the municipality in the past and will continue to be so until the period when the municipality shall have developed to its full potential. Predominantly situated in PLAND areas I and II, it has a total of 6894.90 hectares.

Table 5. Proposed Land Use for Nasugbu, 1990

Land Use	Area (has.)
PLAND Units	297.9
Agricultural Areas	
Rice	6899.4
Corn	1316.0
Sugar	6984.9
Vegetable / Citrus	1188.0
Coconut	1948.0
Bamboo	319.5
Forests	7405.8
Fishponds	342.9
Tourism Zone	801.9
Industrial Zone	126.7
TOTAL	27633.0

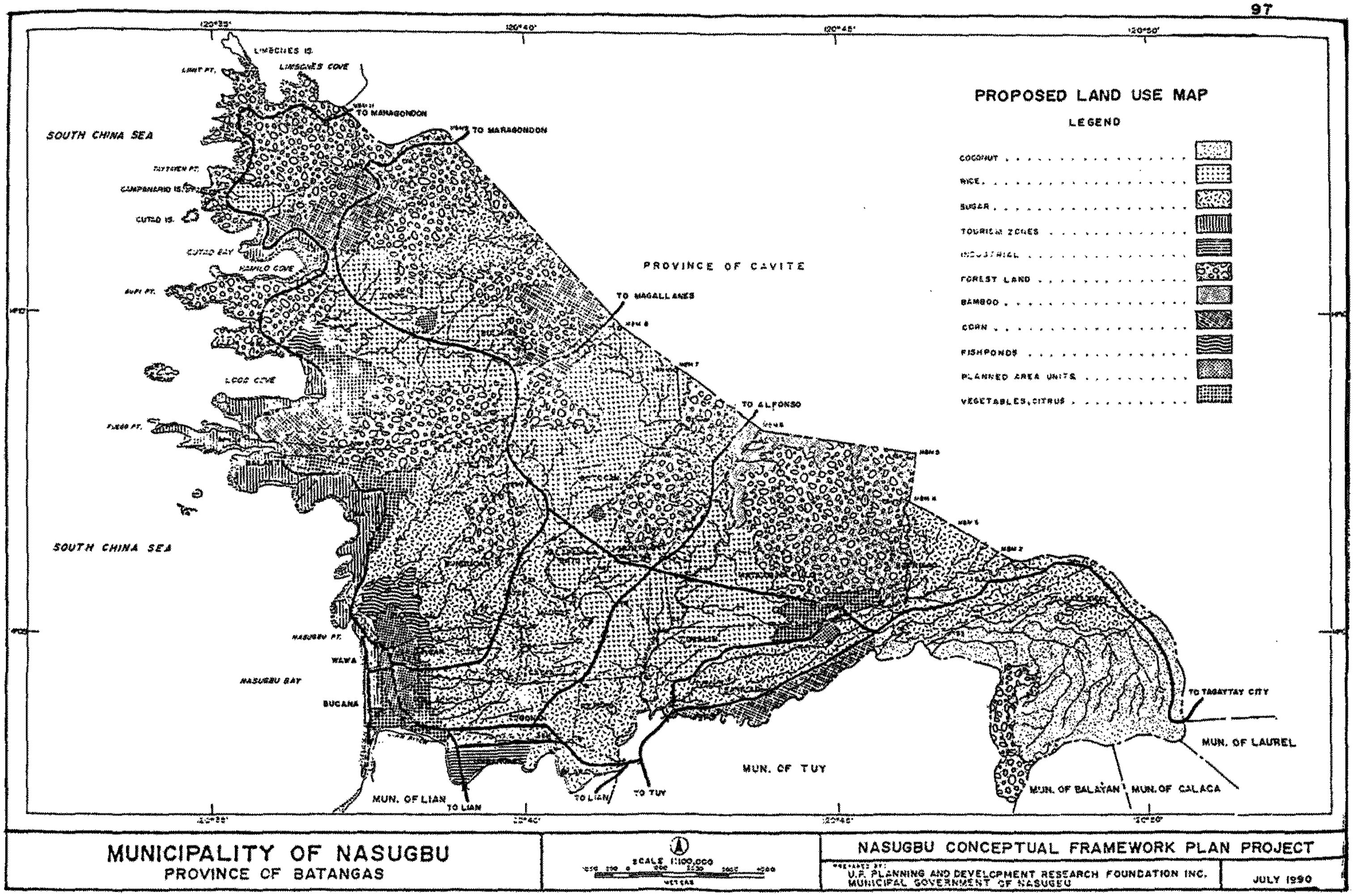
As a supplement, areas devoted to corn, vegetables, citrus and coconut have been incorporated to further enhance the municipality in self-sufficiency in the area where food staples are concerned. Land allocated for corn is about 1316 hectares, situated in PLAND areas II and IV; for vegetables and citrus, land allocation is about 1188 hectares, situated in PLAND areas I and IV; while for coconut plantations, it is about 1948 hectares, predominantly situated in PLAND area II.

Also in line with the predominantly agricultural base of the town's economy, and consistent with the overall thrusts of the provincial and regional development plans, efforts in the establishment of agro-related industries must similarly be intensified. Except for two agri-business concerns in the municipality (all focused in PLAND area I), industrial and manufacturing activities in the municipality are negligible. Agro-related industries that are particularly appropriate for Nasugbu would include those related to the development of the town's tourist industry.

As implied above, the municipality's tourism potential must also be fully developed. In particular, the sand beaches and coves along the coastline in PLAND Area IV must be declared as a tourism zone. Such a policy guideline is particularly significant in the light of the approved construction of the highway along the coast which would make the proposed tourism zone more accessible from the poblacion and the province of Cavite.

Mountainous and rugged areas allocated for forest and nature reserves total approximately 7405.80 hectares scattered in PLAND areas II, III and IV. It is envisioned that the lumber supply which is to come from these forests are to be strictly regulated and monitored for local (municipal) use only, so as to preserve the municipality's fast dwindling forests for future generations. Areas already denuded are to be declared as rehabilitation/sanctuary areas until such a time as regeneration has taken place. As a supplement, land allocated for the propagation of bamboo, which is indigenous in the locality, has been conceived with an approximate area of 319.50 hectares situated in PLAND II. It is deemed that this will supply the local needs for bamboo as well as augmenting the overall lumber supply for various purposes.

A total of 297.90 hectares has been allocated for four PLAND unit centers. Strategically located, each center shall be comprised of settlement/residential areas and the various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PROPOSED LAND USE MAP
LEGEND
COCONUT
RICE
SUGAR
TOURISM ZONES
FOREST LAND
BAMBOO
CORN
FISHPONDS
PLANNED AREA UNITS
VEGETABLES, CITRUS
SOUTH CHINA SEA
PROVINCE OF CAVITE
TO MARAGONDON
TO MAGALLANES
TO ALFONSO
TO TAGAYTAY CITY
MUN. OF LAUREL
MUN. OF BALAYAN
MUN. OF CALACA
MUN. OF TUY
TO TUY
TO LIAN
MUN. OF LIAN
NASUGBU BAY
WAWA
BUCANA
MUNICIPALITY OF NASUGBU
PROVINCE OF BATANGAS
SCALE 1:100,000
NASUGBU CONCEPTUAL FRAMEWORK PLAN PROJECT
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MUNICIPAL GOVERNMENT OF NASUGBU
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support facilities and infrastructure needed for the different day to day activities and based on demographic projections up to the year 2015.

Efforts must similarly be exerted in improving the fishing industry in Nasugbu. The municipality has rich fishing grounds and aquatic resources. Ironically, however, fish production in the municipality has declined in recent years due to such problems as increasing population of rivers, illegal fishing practices, etc. The municipal government and other concerned agencies must obviously take immediate action against these problems in order to arrest the declining trend of fish production in Nasugbu.

7.3 Transportation / Road Network

Critical to the success of the Land Use Plan is the Transportation Plan, particularly the road network which will serve as the vital component linking the PLAND area units associated with the different land uses.

Already in the pipeline is the construction of the Poblacion-Dayap-Looc road (PDL) which will connect the municipality with Maragondon, Cavite. Another is the coastal road, the Poblacion-Balaytigue-Papaya road (PBP) which will also exit at Maragondon. It is imperative that these roads be constructed as all-weather concrete roads.

The upgrading of the existing National Highway and municipal roads to all-weather concrete roads is also highly recommended, with the opening of additional entry / exit points at Magallanes via Bulihan, and Alfonso via Latag. These links are envisioned to hasten the development of tourism, and trade and commerce with the adjacent municipalities in the nearby province of Cavite.

A strategic and vital road linking PDL with the Cogonan-Catandaan-Latag (CCL) road and the National Highway is also envisioned which will traverse and thereby provide access to five other barangays.

It is also important to integrate other infrastructure and utilities which must develop alongside the road network development such as drainage, sewerage, communications, water and power.

Again, it is essential to remember that these proposed infrastructure are vital cogs in providing opportunities to those willing to treck the path to development. After all, access remain as the key to the process of development of the municipality, or any area for that matter.

7.4 Identification / Proposed Programs

To support and complement the development thrust of Nasugbu, the following programs and projects are being proposed.

Table 6. Proposed Programs and Projects for Nasugbu

SECTOR	PROGRAMS / PROJECTS	PROJECT SITES	SOURCE OF FUNDS	TARGET DATE OF COMPLETION
Economic	Construction of irrigation facilities	PLAND III, IV	NIA	2000
	Improvement of production technology	PLAND I	DA, DOST	1995
	Expansion of areas planted to rice, vegetable, and corn	PLAND II, III, IV	DA, NIA	1995
	Income-generating agro-related projects (e.g. poultry, fishing, etc.)	PLAND IV	DA, DOST, Municipal Government	1995
	Dev't of tourism potentials (e.g. upgrading of beach and resort facilities)	PLAND IV	DOT and Private Entities	1995
Social	Construction / Rehabilitation of health station / center(s)	PLAND IV	Municipal Government	1995
	Construction / Repair of classrooms	PLAND I-IV	DECS	2015
	Construction of dwelling units	PLAND I-IV	Private Entities	2015
	Provision of the following services and facilities: o Power supply o Water system o Playground	PLAND I-IV	BATALEC, MWSS, Municipal Government	2015
Transportation Network	Upgrading of nat'l and barangay roads	PLAND I-IV	DPWH	
	Construction of all-weather roads	PLAND I-IV	DPWH	2015

COMPREHENSIVE LAND USE PLANNING PROCESS IN THE PHILIPPINES

SURP Research Staff

Land use planners must have taken their cues from Republic Act No. 7160 and Executive Order No. 72 in responding to the government's call of preparing a land use plan for every city and municipality.

Land use planning in general involves the rational allocation of spatial resource for various uses (residential, agricultural, institutional, parks and recreational, industrial, etc.) to minimize non-conforming and conflicting uses and maximize its utilization for the greater majority.

Techniques and methodologies being adopted by land use planners differ but majority of the development planning practitioners (according to Prof. E. M. Serote) adopt the general planning process as described below:

1) *Data Collection and Inventory* refers to the preparation of the Physical and Socio-Economic Profile. Thematic maps that are available in national agencies and municipal offices are compiled.

2) *Inter- and Intra-Area Analysis* enable the planners to comprehend the study area both in its entirety and in terms of its component parts, i.e., sectorally and spatially. This is done on one hand by comparing the municipality with a larger geographical unit of which it is a part. On the other hand, the municipality can be closely studied by subdividing it into small units say, barangays. If there are too many barangays, they may be grouped into fewer areas on the basis of certain meaningful set of criteria.

   To systematize this process, a statistical compendium should be prepared. The matrix allows the analysts to compare several areas in terms of their performance vis-à-vis a given indicator in one comprehensive format. The indicators are chosen in such a way that the analysts will comprehend reality in three dimensions: sectoral, spatial and temporal.

   The output of this step in the process is a summary of socio-economic constraints and bottlenecks (equity issues), possible conflicts arising from overlapping uses of, interests on, and claims over land resources (decision zones), and demand-supply situation of lands available for future urban expansion.

3) *Goals / Objectives Setting* aims to crystallize the aspirations of the people into a coherent statement that reflects their long-term vision or an end-state scenario that will guide and organize their present and future actions. This vision statement may be derived directly from the people through public consultations, from the pronouncements of elected officials, from relevant national policies, and from the result of the analysis of the area.

4) *Generation of Alternative Spatial Strategies* is the process whereby various forms or patterns of distributing the future population over the town's territory are explored. This is done by taking into consideration the presence of physical and policy constraints that put a limit to where human settlements could be located, on one hand, and the ease or difficulty of modifying the existing locational pattern as shaped by the past, on the other. For any given municipality, there could be several spatial patterns that could be adopted but all of these can be reduced to a few stereotypes ranging from extreme concentration to extreme dispersion and anything in between.

5) *Evaluation and Selection of Preferred Strategy* is undertaken from the range of possibilities one pattern or a combination of a few patterns is chosen using any of the techniques such as cost-benefit analysis, planning balance sheet, goal achievement matrix, or simple checklist of criteria.

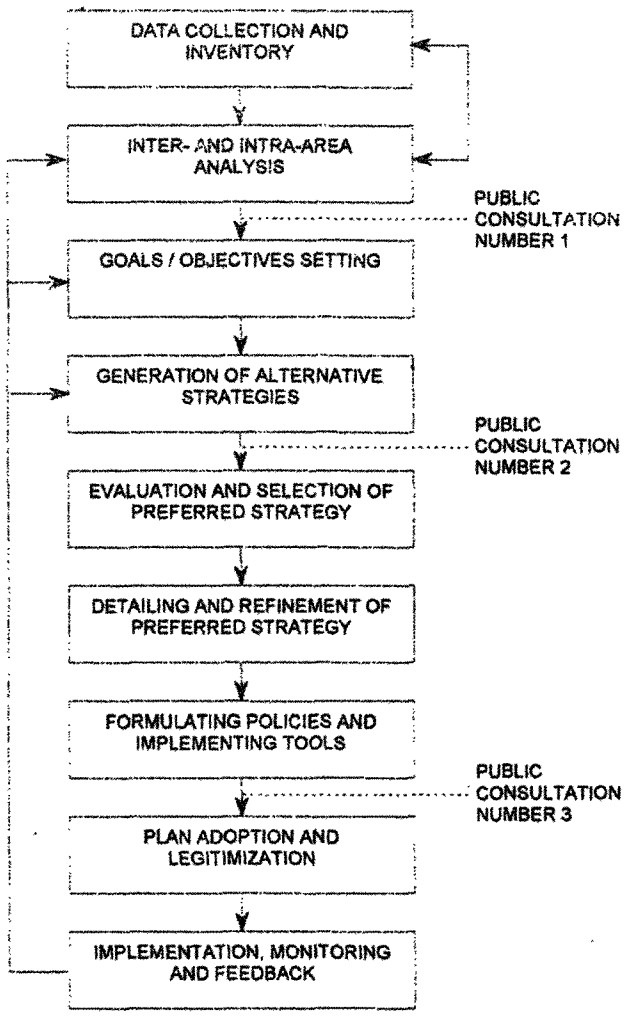
6) *Detailing of the Chosen Strategy* will now become the organizing concept for the long-term physical development of the municipality. This puts together the various ideas and proposals that had surfaced in the earlier process of analysis, projections, scenario building, and evaluation. The schematic diagram that accompanied the selected alternative strategy is put into a firm spatial shape that will guide and control the location of infrastructure projects, the direction and intensity of urban development, and the location of special action areas.

7) *Formulating Policies and Implementation Tools* completes the preparation of the plan document. Policies touching on settlements, infrastructure, and land use to guide the future development of various sections of the municipality are formulated. The instruments necessary to implement the plan such as sectoral planning and programming, regulatory measures, and the like are specified.

8) *Plan Adoption and Legitimization* is necessary to bind the local government to a commitment to implement the plan. If the required subprocess of public consultation and approval by the higher-level legislative bodies are followed, the adoption by the local legislative council amounts to a social contract between the people and their political leaders.

9) *Implementation, Monitoring and Feedback* is no longer a part of the planning process, but it is an essential link to the next cycle of planning. The feedback information from monitoring the implementation of programs and projects forms part of the database for plan revision, amendment, or replanning.

THE GENERAL PLANNING PROCESS



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