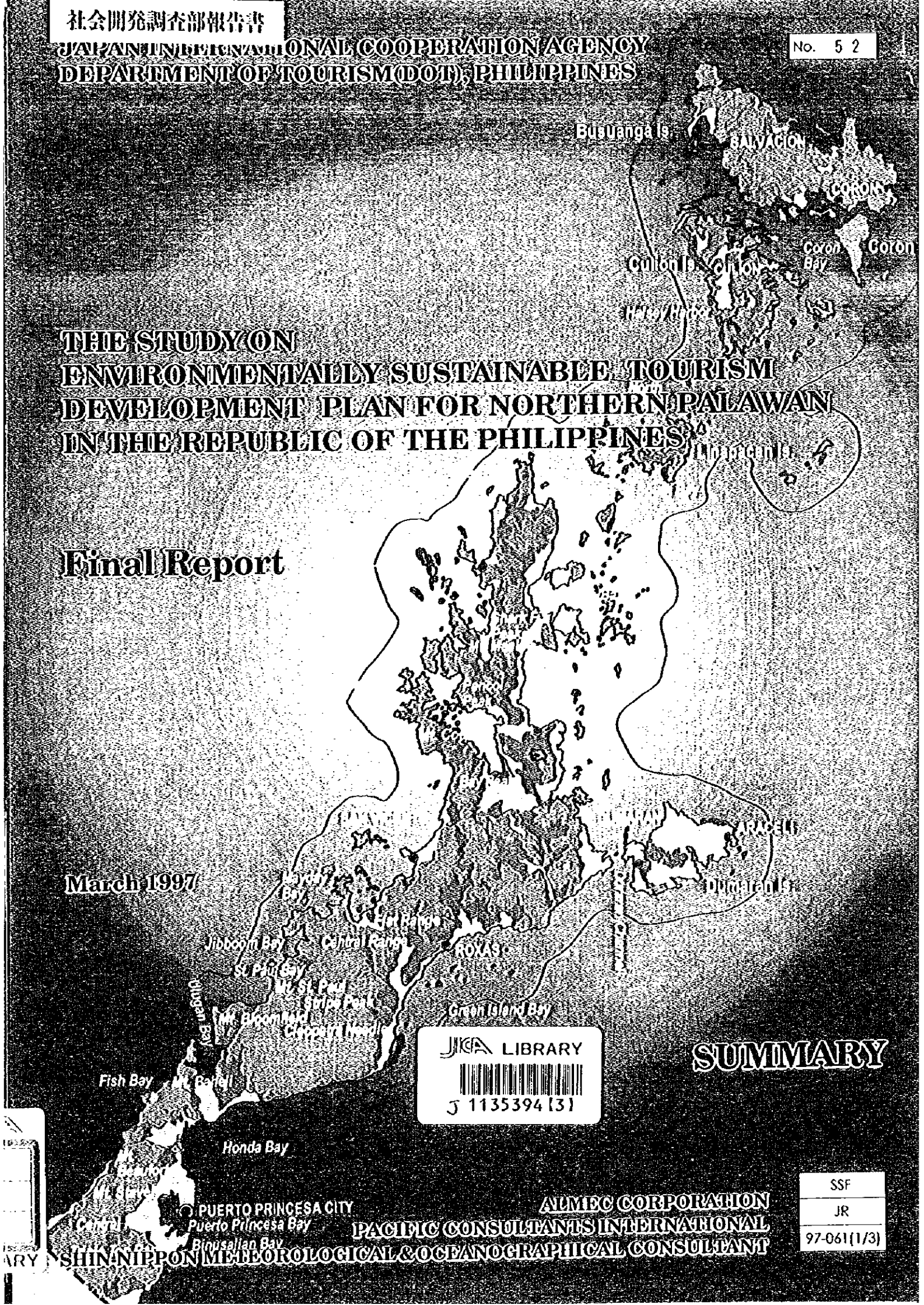
JAPAN INTERNATIONAL COOPERATION AGENCY
DEPARTMENT OF TOURISM (DOT), PHILIPPINES

THE STUDY ON ENVIRONMENTALLY SUSTAINABLE TOURISM DEVELOPMENT PLAN FOR NORTHERN PALAWAN IN THE REPUBLIC OF THE PHILIPPINES

Final Report

March 1997



SUMMARY

ALMEC CORPORATION
PACIFIC CONSULTANTS INTERNATIONAL
SHIN NIPPON METEOROLOGICAL & OCEANOGRAPHICAL CONSULTANT

The exchange rate used in the report is

J. Yen 107 = US$1 = Philippine Peso 24.80
J. Yen 1 = Philippine Peso 0.2318
(average during FY 1995-1996)

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PREFACE

In response to a request from the Government of the Republic of the Philippines, the Government of Japan decided to conduct a Study on Environmentally Sustainable Tourism Development Plan for Northern Palawan and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent a Study Team to the Philippines between December 1995 to December 1996. The Study Team was headed by Dr. Shizuo IWATA and composed of members of ALMEC Corporation, Pacific Consultants International, and Shin-Nippon Meteorological and Oceanographical Consultant Co., Ltd. At the same time, the Advisory Committee headed by Mr. Toshihiro KAMIYA, Director, Tourism and Recreation Division, Department of Tourism, Ministry of Transport, Japan was organized to review the study and provide the team with necessary advice.

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

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

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

March 1997

Kimio FUJITA
President
Japan International Cooperation Agency

March 1997

Mr. Kimio FUJITA
President
Japan International Cooperation Agency

Dear Mr. Fujita:

Letter of Transmittal

We are pleased to submit herewith the report on the Study on Environmentally Sustainable Tourism Development Plan for Northern Palawan in the Republic of the Philippines. The report is composed of three volumes, namely, Summary, Main Text and Appendix.

This report embodies all major findings, study results and recommendations on the Master Plan for Northern Palawan and detailed studies for the two case study areas of Busuanga West and El Nido North. The Master Plan has proven that tourism development, if properly done, can greatly contribute to conservation and rehabilitation of natural and social environments and, at the same time, enhancement of socio-economy in Northern Palawan. Case studies have also confirmed the feasibility of undertaking tourism development in a sustainable manner in specific areas in Northern Palawan.

It is recommended that proposed projects would be implemented, wherein environmental management should be firmly integrated with the proposed tourism development and local communities be fully involved in this mechanism.

We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, Ministry of Transportation as well as the Department of Tourism and other authorities concerned of the Republic of the Philippines for the close cooperation and assistance extended to us during the study.

Very truly yours,

Shizuo IWATA
Team Leader
The Study on Environmentally Sustainable
Tourism Development Plan for Northern
Palawan in the Republic of the Philippines

EXECUTIVE SUMMARY

1 Study Background and Objectives

- In an effort to integrate the rapidly increasing tourism activity in the area with the concerns for the preservation of the highly sensitive ecosystems of Northern Palawan, the Philippine Government requested the Government of Japan, through the Japan International Cooperation Agency (JICA) to conduct a study on environmentally sustainable tourism development. This study covers the capital city of Puerto Princesa, the mainland municipalities of Roxas, San Vicente, Taytay and El Nido, as well as the island municipalities of Busuanga, Coron, Culion, Linapacan, Araceli and Dumaran.

- The study's main goal is to find ways and means to shift from old style tourism to sustainable tourism: a kind of tourism that successfully links and integrates the concerns and goals for the improvement of the environment, socio-economy and tourism. More specifically, the study aims to determine if competitive tourism can be developed while environments are conserved and the local socio-economy is enhanced. The outputs of the study include:

  (1) a Master Plan for the entire study area to direct the on-going and future tourism and other development activities in order to contribute to sustainable development; and

  (2) more detailed case studies for selected areas to assess specifically the feasibility of physical and management frameworks on sustainable tourism development.

- The study covered the following work:

  (1) Analysis of existing data and information on environment, socio-economy and tourism;
  (2) Conduct of supplemental surveys, including aerial photo taking, terrestrial and marine environment, indigenous cultural communities, socio-economy of local communities, and tourism market;
  (3) Formulation of Master Plan;
  (4) Evaluation of sustainable tourism development in Northern Palawan;
  (5) Selection of case study areas: Busuanga West and El Nido North;
  (6) Conduct of more detailed supplemental surveys, including aerial photo taking, terrestrial and marine environment, and socio-economy of local communities.
  (7) Case studies on Busuanga West and El Nido North to verify the feasibility of sustainable tourism development in specific areas; and
  (8) Conclusion and recommendations.

2. Socioeconomic Development and Environmental Conditions

- The study area with a total of 8,400 sq.km. of land and 351 thousand population in 1995 is characterized by high population growth and high incidence of poverty. The former is attributed to high in-migration, while the latter, to low agricultural productivity and lack of employment opportunities. Infrastructure development in the study area is far behind. Transportation infrastructure has not been properly developed. Municipal centers are not connected by reliable roads and, often, during the rainy season, are totally cut-off making movement within the study area very difficult. Availability of telephone, piped water supply, electricity, toilet facility and garbage collection is also low. Common problems perceived by people in the area are livelihood, lack of jobs, lack of roads, lack of medical services, lack of power, lack of water, etc. Meanwhile, an effective regional development plan and framework for Northern Palawan do not exist.

- Biologically, Northern Palawan is considered rich and diversified with numerous endemic species unique to the island. Key ecosystems to be preserved include mossy forest and old growth forest, unique ecosystems with biological significance, including forest over ultrabasic rock, forest over limestone, mangrove forest, good corals, as well as endangered species such as Calamian deer, Philippine cockatoo, Palawan peacock, Palawan porcupine, sea turtle, dugong, etc.

- The results of different environmental surveys comprehensively conducted in the study for the first time indicate that the natural environment in Northern Palawan has deteriorated much more than had been anticipated before the commencement of the study. Activities and factors which adversely affect the environment in Northern Palawan include the following:

  - increasing population pressure in ecologically fragile areas;
  - illegal activities, such as kaingin (slash and burn agriculture), illegal logging, dynamite and cyanide fishing; etc.;
  - lack of alternative employment/economic opportunities to curb illegal economic activities;
  - inadequate infrastructure development, e.g. road development, without any workable safeguard against environmental damage;
  - inadequate environmental control/management system and practice; and
  - limited resources for environmental conservation.

  The process of environmental degradation involves many interactive factors not only of environment but also of socio-economy. This is the reason why the study looked into the environmental issues in an integral manner with tourism and socio-economy to find out ways to revert the vicious cycle.

- Environmental administration in Palawan is at two levels: one is the national level led by the Department of Natural Resources and Environment (DENR) and the other, the provincial level, by the Palawan Council for Sustainable

Development (PCSD), which oversees the implementation of the Strategic Environmental Plan (SEP) for Palawan[1/]. Among the goals of SEP, there are two key areas relative to this study: one is to establish an Environmentally Critical Area Network (ECAN) for ensuring protection of vulnerable areas and to implement positive development planning by intensified use of the Environmental Impact Assessment (EIA), and to provide for control of development activities harmful to the environment. Although municipalities are required to prepare an ECAN Zoning plan[2/], to date, only a few of them have submitted their preliminary ones. EIA procedure has also not been so adequately applied due to varied reasons that poorly planned and constructed projects have often become causes of environmental problems.

3. Tourism Development and Potentials

- Tourism in Northern Palawan is still limited. The current level of tourism demand is approximately 54,000 in 1995 comprising 27,000 foreign and 27,000 domestic tourists, or a share in the country's total of only 1.3%, 1.5%, and 1.1% of 4.3 million, 1.8 million, and 2.5 million, respectively. Present developments are mostly limited to small-scale accommodations and resorts in some beaches, except in Puerto Princesa City and adjoining areas. In 1995, there were 1,084 rooms (mostly economy class) in Northern Palawan of which 580 (or 54% of the total) are located in Puerto Princesa City.

- Northern Palawan's tourism resources are characterized as rich terrestrial, marine and cultural environments which provide ample opportunities for sightseeing, beach holidays, marine sports, adventures, etc. Northern Palawan has a number of world class tourism resources, such as the underground river in St. Paul National Park, karst terrain and lakes in Coron Island etc. In general, the southern part (Puerto Princesa and adjoining areas) is enriched with superior terrestrial tourism resources, while the northern part (mainland north and Calamian Islands), with marine resources, although varied tourism resources are widely distributed over Northern Palawan.

- Tourism demand in Northern Palawan, according to an interview survey conducted in the study, is characterized as comprising the USA, Japan, Asia, and Europe as its major market sharing almost 90% of the total demand. For average foreign tourists, the purpose of travel is mostly pleasure and, more specifically, beach holiday; length of stay is 5.5 days; total expenditure is US$2,480.

1/ The SEP aims to improve the quality of life of the people of Palawan through the use of complementary activities of development and conservation that protect life-support ecosystem and rehabilitate exploited areas to allow future generations to sustain development growth.

2/ This is considered as a statutory land use zoning which incorporates environmental conservation aspects into conventional land use zoning. ECAN areas are classified into three components: terrestrial, coastal/marine, and tribal ancestral lands. These are further subdivided into three zones: core zone, buffer zone, (further comprising restricted use, controlled use, and traditional use), and multiple/manipulative use area.

However, domestic tourists are significantly different from foreign tourists. The total number of foreign and domestic tourists have been estimated at 250,000 and 150,000 for year 2010, respectively. The share of Northern Palawan is expected to increase to 4.7% and 2.9% of the country's foreign and domestic tourist arrivals by 2010, respectively.

- Problems and constraints the current tourism are facing include degradation of environment, lack of infrastructure, lack of tourism information system, lack of effective investment/development guidelines, absence of integrating mechanism between tourism, socio-economy of local communities, and so on.

4. Tourism Development Goals and Strategies

- Northern Palawan is the ideal setting for environmentally sustainable tourism development. Its rich terrestrial, marine and cultural endowments can provide limitless and exciting tourism possibilities and opportunities. However, the environment, which is the key resource both for livelihood and tourism in the area, has been deteriorating quickly. It is for this reason that the following goals have been identified for tourism development in Northern Palawan:

  (1) Tourism should become a strategic means of promoting sustainable development with its effective integration with the environment and the local socio-economy.
  (2) It should also become a primary industry of Northern Palawan.
  (3) Tourism should contribute to the enhancement of the overall image of Philippine tourism, thus inducing tourist arrivals to the country.

- In order to achieve these tourism development goals, the following strategic measures must be considered and undertaken:

  (1) A diversity of high quality destinations with clear appealing images must be developed. Focus should be placed on high quality marine resorts, complimented with tourism resources and activities.
  (2) An integrated transport system must be put in place. Accessibility at international, inter-regional and intra-regional levels is a key to the success of tourism development in the Northern Palawan area. Its archipelagic nature also requires an effective multi-modal system of air, land and sea transportation.
  (3) Tourism should shoulder environmental costs equitably through direct and indirect contributions, fees, and charges.
  (4) Tourism should be integrated with the local socio-economy as much as possible. Participation of communities from planning to implementation and management stages is important
  (5) Role-sharing between public and private sectors and the effective introduction of external investment are necessary.

5. Environmental Management Plan

- Environmental management is the sole basis for sustainable tourism development and socioeconomic development in Northern Palawan. Since there was no effective ECAN Zoning formulated in Northern Palawan, Environmental Management Area classification has been done to provide a basis for formulating the tourism development plan wherein the proposed Environmental Management Area classification basically corresponds to that of ECAN Zoning (refer to Figure 3.1 in Summary Text). The results indicate that most parts of Northern Palawan will be covered by Preservation Area[3/] and Conservation Area[4/] and small areas be left for development, therefore, tourism development as well as infrastructure development should be carefully undertaken in Northern Palawan.

- In order to restore and conserve the environment in Northern Palawan, a number of measures and actions should be taken immediately. They include the following:

  (1) Rehabilitation of inadequately implemented infrastructure, especially roads;
  (2) Strengthening of control measures against illegal/harmful activities, particularly illegal fishing, illegal cutting of trees, and kaingin (slash and burn);
  (3) Restoration of damaged terrestrial marine environment, including reforestation, closure of inadequately constructed logging roads, prevention of siltation, slope protection, etc.;
  (4) Conservation of identified superior terrestrial ecosystems;
  (5) Conservation of marine environment with focus on coral reef, seagrass beds, mangrove forest and marine wildlife, especially the dugong and sea turtle; and
  (6) Remedy work for the old mercury mining site and jetty constructed from its surplus soil.

6. Tourism Development Structure Plan

- Structure plans have been prepared for four tourism clusters: Calamian, Taytay/El Nido, Roxas/San Vicente, and Puerto Princesa clusters. The structure plans aim to delineate the physical development direction and structure in an integral manner with Environmental Management Area and regional development framework. Key aspects considered in plan formulation are:

  (1) Tourism Cluster Development: to encourage area integration and distinguish the area characteristics from each other.

  (2) Integrated Tourism Network: to integrate the area effectively with international, regional, and local network through strategic multi-modal transportation network building.

4/ Basically no human touch except for research and environmental management purpose.
5/ Functions as buffer for Preservation Area and activities will be restricted.

(3) Strategic Allocation of Accommodation Facilities: to maximize cost/ effectiveness of investments. Accommodation facilities will be gradually shifted from economy to de luxe class and be more concentrated in areas with larger competitive power in international market.

- A critical issue for tourism development in Northern Palawan is the development of infrastructure. The area is large and potential development areas are widely distributed. On the other hand, all kinds of infrastructure are substantially lacking. The tourism sector can afford to shoulder infrastructure for their own development, but will have difficulties to develop external access and regional infrastructure to a significant extent within its capability. This is a particular problem in transportation development which normally requires large capital cost with low financial return.

- For tourism in Northern Palawan, air transport should play a more active role in providing direct international services and more integrated local circulation. For this, all municipalities should be provided with adequate airports. Ports are also important, especially for local circulation and integration of tourism activity areas with each other. Roads will be limited mainly to access to the airport/port, and local circulation. Water supply may become another critical issue in Northern Palawan. An exercise done in the study indicated that the tourism sector would require only 3% of the total water demand in 2010. Water development should be looked into from an overall regional development viewpoint wherein the tourism sector should contribute an equitable portion of the cost. Coordinated and integrated development of socioeconomic infrastructure between the tourism sector and regional development sector should be the common approach to solving this issue adequately.

- Administrative framework to implement a sustainable tourism development needs to be more clearly established. Sustainable tourism development can only be achieved through joint and coordinated efforts of relevant organizations which are to cover varied aspects including policy setting, planning, financing, land acquisition, implementation, operation and management, tourism promotion, investment promotion, local industry promotion, human resource development, coordination with environmental management and so on. For this, key areas to be considered are:

  (i) coordination among central governments and, especially, between central government and local governments;
  (ii) role-sharing between public and private sectors; and
  (iii) involvement of local communities.

  For a specific sustainable tourism development project in Northern Palawan, it is proposed that the public sector take the lead in development by creating a project office under a responsible agency, such as the Department of Tourism (DOT), the activities of which are to be supervised by a "tourism development committee" comprising relevant agencies and organizations including representatives of stakeholders.

- The Master Plan has been evaluated from the economic financial, social and environmental viewpoints. The resultant EIRR is as high as 26%, wherein the largest benefit source is mostly tourist expenditure and, partly, improved environmental conservation. However, the economic benefits may leak to outside the study area unless proper measures are taken so that local resources, such as human resource, services, and products, can be utilized and local communities are involved to a maximum extent. Financially, the key issue is to what extent tourism could and should contribute to environmental management and regional infrastructure development, though tourism, being a major consumer of environment, could contribute considerably but not entirely. Introduction of environmental fees/taxes may be an acceptable way for tourists to shoulder environmental costs directly. Socially, communities are willing to welcome tourism development, according to the socioeconomic survey and the focused group discussion. However, they should be fully involved in the process of development and operation. The decision on ICCs' participation to the tourism and tourism-related industries is left to the community members themselves. Environmentally, the proposed tourism development would not adversely affect the environment. However, a set of guidelines prepared in the study should be adequately applied and strict Environmental Impact Assessment be enforced beforehand.

7. Case Studies for Busuanga West and El Nido North

- For Busuanga West and El Nido North, case studies have been undertaken to formulate more detailed tourism development plans in integration with environmental management plan and preliminary land use plan to determine the viability of sustainable tourism development in specific areas. The plans show that proposed developments can create quality tourism destinations that are highly competitive in the international market, and contribute to environmental conservation/restoration, improvement of regional infrastructure and enhancement of local socio-economy.

- The proposed tourism developments are feasible from the national economic viewpoint, though an adequate mechanism should be worked out to distribute the benefits equitably. Financially, if development costs of regional infrastructure, including airport, roads, power, water supply, waste disposal system, etc., and environmental management costs are properly shared between tourism investors and public sector, the proposed tourism developments are considered financially viable. Social acceptance can be obtained with provision of proper opportunities and facilities to involve local communities. Adverse environmental effects are not foreseen in the proposed development as long as the developments are implemented and managed properly in accordance with EIA and the guidelines.

8. Guidelines

- A set of guidelines has been prepared with particular regard to (1) infrastructure/ tourism facilities development which further comprise guidelines on architecture/building, landscaping, environment, and resort area planning; (2) activities in environmentally critical areas; and (3) investment and management. These guidelines which are to be further elaborated intend to provide sound basis to guide, monitor, and control various activities in the area.

9. Conclusion and Recommendations

- It is concluded that tourism development in Northern Palawan can provide a good opportunity to promote sustainable development. However, for successful implementation, the following conditions should be met:
  (1) Environmental management system should function effectively. ECAN Zoning (statutory land use plan) must be prepared and enforced. EIA procedure and environmental monitoring be properly and strictly applied;
  (2) Public sector takes the initiative on development;
  (3) Local manpower be developed to capture the benefits of tourism development; and
  (4) Local government and communities are involved in the process of planning, investment, operation, and management.
- Toward the implementation of the proposed development, it is recommended to consider the following:
  (1) Strengthening of PCSD which should function as a central arm of environmental management for Northern Palawan in close coordination with DENR. Priority areas for this include the establishment of updated environmental data, conduct of scientific research, provision of necessary equipment and facilities for environmental planning, training of manpower, further elaboration of ECAN Zoning criteria and planning procedure, etc;
  (2) Strengthening of enforcement function currently being undertaken by provincial/municipal governments in terms of manpower, facilities and equipment;
  (3) Formulation of regional development plan integrated with ECAN Zoning, wherein proposed tourism development plans are also effectively integrated; and
  (4) For priority development areas, including case study areas, ECAN Zoning should be immediately prepared and acted upon.
- While the formulation of ECAN Zoning and establishment of more effective environmental management system, including strengthening of PCSD, are the minimum preconditions to tourism development in Northern Palawan, a realistic financing mechanism for non- or less profitable undertaking such as environmental restoration/conservation and regional infrastructure development should be worked out. Creation of a new funding source, such as environmental fee/tax, introduction of ODA funding, etc., will be effective options.

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1. INTRODUCTION

Study Background

- Northern Palawan is considered one of the last frontiers of the Philippines, rich with precious marine, terrestrial and social environments. In the past, underdevelopment and under-population have been the major reasons for the generally intact environment of Palawan. However, conditions started to change in the late 1970s when in-migration pressure and logging activities became so significant that forest cover was reduced from 90% to 50% in subsequent decades. The first attempt to integrate environment with regional development was the Strategic Environmental Plan (SEP) which was completed in 1985 and enacted as Republic Act No. 7611 only in 1992. The governance, implementation, and policy direction of SEP is carried out by the Palawan Council for Sustainable Development (PCSD), which was organized under the Office of the President. It is only recently that an environmental management institution has been built, although it has yet to be strengthened in order to become more effective. Under these circumstances, tourism has become a focal point. Inasmuch as a number of studies and plans have been made, the integration of tourism development with environmental conservation and local socioeconomic development has not yet been clearly set forth.

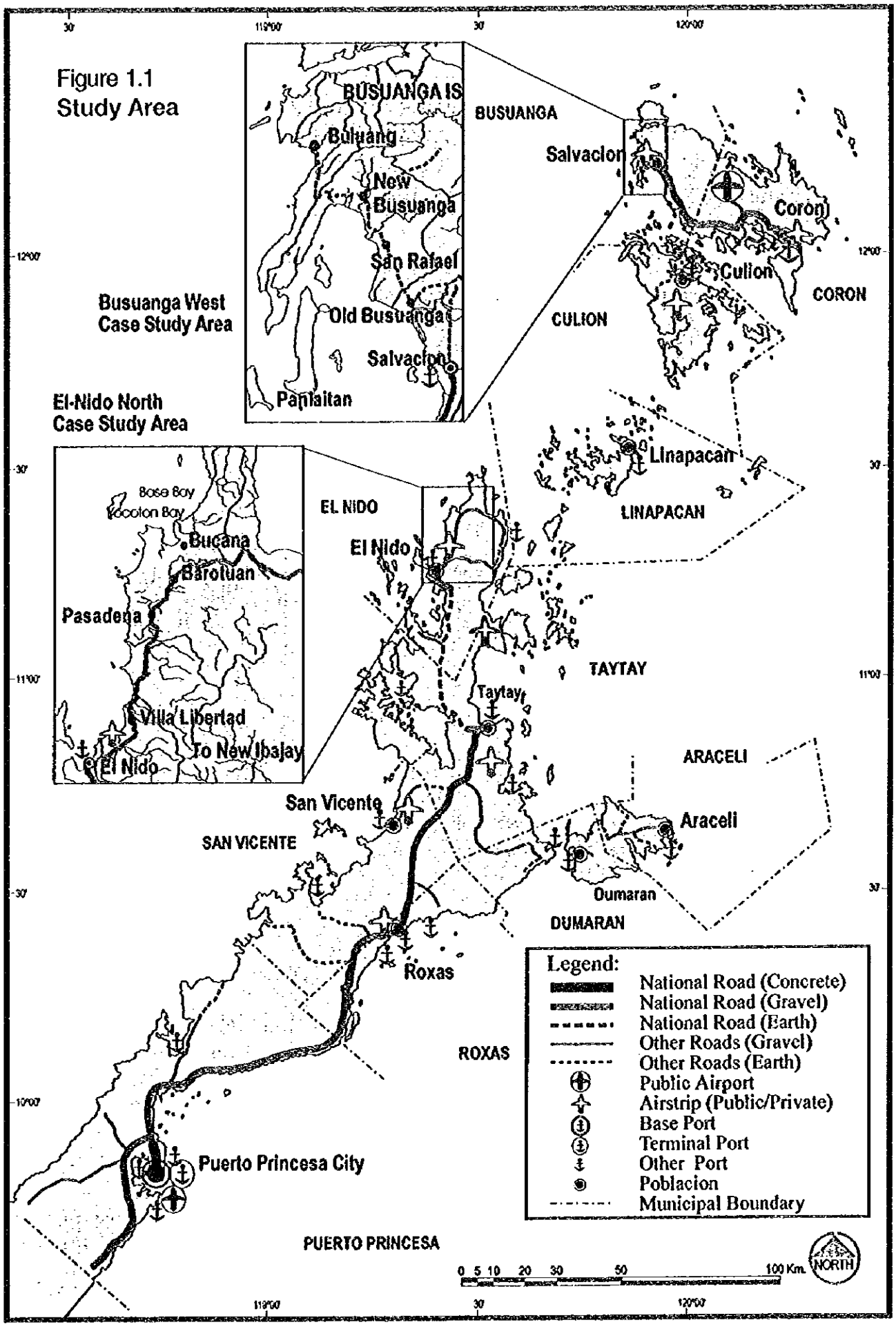
Study Objectives

- The primary objective is to formulate an effective physical and management framework for sustainable tourism development in Northern Palawan. It is intended that the proposed tourism development will contribute to conserve/restore the environment and improve local socioeconomic conditions now and in the future, while competitive tourism development opportunities in international and domestic markets are ensured. A Master Plan study produced an overall sustainable tourism development plan for the entire Northern Palawan region, while a detailed study determined the feasibility of sustainable tourism development in two case study areas selected by the Steering Committee based on the Master Plan study.

Study Area

- The study area is located in the northern half of Palawan which is one of the island provinces of Region IV. The area for the Master Plan study covers the city of Puerto Princesa (excluding the Napsan area) and the ten (10) municipalities of Roxas, San Vicente, Taytay, El Nido, Dumaran, Araceli, Linapacan, Culion, Busuanga, and Coron, while the areas for case study include Busuanga West and El Nido North (refer to Figure 1.1).

  The study area extends roughly 300 km northeast to southwest covering 8,400 km^2 with a population of 350 thousand (1995 census).



Source: Study Team

2. SOCIOECONOMIC DEVELOPMENT, ENVIRONMENT, AND TOURISM IN NORTHERN PALAWAN

2.1 Information Sources and Supplemental Surveys

Available Information

- Existing environmental data and information for Northern Palawan are very limited. For terrestrial environment, the vegetation maps (1:250,000) prepared by Japan Forest Technical Association (JAFTA) in 1992 based on satellite data, were the latest and most comprehensive. Scientific information on fauna and flora is also limited. Information on marine environment, particularly on coral reef areas, is almost non-existent except for some survey reports undertaken for area-specific projects. Regarding indigenous peoples and cultural communities, information is also limited to those of the census, some unpublished documents of the Office of Southern Cultural Communities (OSCC) and to the National Museum. Area-wise, information is hardly available at all.

- Topographic maps which can provide an important basis for consolidation of relevant environmental, socioeconomic and physical information for analysis and planning are also limited to 1:50,000 scale, prepared based on aerial photographs taken in the 1940s to the 1950s, although the maps cover the entire study area.

- Spatial information was also gathered from the National Mapping Resource Information Authority (NAMRIA), the Bureau of Soils, and the Land Management Division of the Department of Environment and Natural Resources (DENR). The National Statistics Office and the Provincial Government were the main sources of data on demography and economic activities. Development data and information were collected mainly from the Department of Transportation and Communications (DOTC), National Economic Development Authority (NEDA), and the Provincial and Municipal Governments of Palawan.

- Data on tourism in the Philippines relevant to the study were culled from the Regional Travel Survey - Region IV conducted by the University of the Philippines - Asian Institute of Tourism (UP-AIT), and furnished by the tourism offices of El Nido and Puerto Princesa, while reports of the World Tourism Organization provided data on the trend of tourism worldwide. The Situation Report, published by the DOT-Region IV, was a source of information on lodging/accommodation, tourist attractions and facilities. Available Policy-related documents included the Tourism Master Plan (1991, UNDP, WTO), Northern Palawan Tourism Project (1993, Puerto Princesa City).

Supplemental Surveys Conducted

- In order to supplement data gaps, local consultants were subcontracted to undertake a number of surveys including : (1) Marine Environment Survey, (2) Terrestrial Environment Survey, (3) Social Survey (pertaining to indigenous

minority groups), (4) Socioeconomic Household Survey and Focused Group Discussions, and (5) Tourism Market Survey (refer to Table 2.1).

- Additional supplemental surveys were also conducted in the selected case study areas of El Nido North and Busuanga West, as follows: (1) Aerial Photography, (2) Marine Environment Survey, (3) Terrestrial Environment Survey, and (4) Social Environment Survey. The survey items for the Marine, Terrestrial, and Social Surveys were similar to those covered in the Master Plan stage, but with a more in-depth planning and analysis.

- In addition to the surveys mentioned, two video shows were produced. The first video presentation showed the current environmental condition and issues on Northern Palawan, while the second video on the study area focused on development plans as explained in the Master Plan stage of the study.

Table 2.1
Supplemental Surveys Conducted

Type of Survey	Survey Method/Coverage	Form of Processed Data
A. Environment		
1. Marine Environment		
1) Aerial Survey	- Ocular survey by experts[1/] - Video shooting from the air and its analysis[1/]	- Coral distribution/ evaluation map[1/] - Coastal land form map - Seaweed/seagrass community distribution maps[1/]
2) Field/Diving	- Underwater video shooting - Belt-transect[2/]	- Dugong & turtle distribution[1/] - Visual evidence of siltation and dynamite fishing - Sea bottom geomorphology - List of Magaro-benthic animals - List of reef-associated fish (case study areas)
3) Ocean Current	-Case study areas	- Digital data[2/]
4) Water Quality	- Samples in selected sites	- Testing results
2. Terrestrial Environment		
1) Aerial Survey	- Ocular survey by experts - Video shooting	- Vegetation/land use map -
2) Field Survey	- Ground verification	- List and distribution of valuable/ endangered species
3. Socio-cultural Environment	-Barangay captains and IP leaders of selected areas in the main	- Distribution map of indigenous peoples
1) Field Interview Survey		- Report with photographs
B. Socioeconomic Survey		
1) Household Interview Survey	- Initial testing survey in El Nido and Taytay - 1,647 HHs in the study area	- Report with tabulated data - Report with tabulated data
2) Focused Group Discussion	- 10 municipalities and one city	- Reports by municipality
C. Tourism Market Survey	- Northern Palawan and Manila	- Report with tabulated data

Source: Study Team
1/ including El Nido North and Busuanga West case study areas
2/ El Nido North and Busuanga West case study areas only

2.2 Socioeconomic Conditions and Development Direction

Socioeconomic Profile

- The study area is characterized by high population growth and high incidence of poverty. The former is attributed to high migration, while the latter to low agricultural productivity and lack of employment opportunities. However, the situation varies by municipality. Population growth rate is relatively high in San Vicente, Taytay, and El Nido, and low in Busuanga, Coron, and Linapacan. The average annual household income of Coron is the highest (P78,100), followed by Taytay (P47,600), while the lowest group includes El Nido (P21,700), Roxas (P26,900), San Vicente (P29,000), and Culion (P29,000), among other municipalities. The highest poverty incidence rates are in El Nido (75% of the households are below the poverty threshold) and Taytay (62%). High unemployment rates are found in Busuanga (24%), Dumaran (21%), El Nido (18%), and San Vicente (17%). (Refer to Table 2.2)

Availability of Infrastructure

- Infrastructure development in the study area is far behind in terms of telephone availability, piped water supply, electricity, toilet facility, and garbage collection which are 0.6/100 persons, 30%, 29%, 52% and 7% of households, respectively. Puerto Princesa City is relatively better provided with these services, while other municipalities seriously suffer from lack of adequate infrastructure. El Nido, Roxas, Araceli, Taytay, Dumaran and Linapacan are among those municipalities with the worst infrastructure (refer to Table 2.3).

- Transportation infrastructure has not been properly developed. Municipal centers are not connected by reliable roads and often are totally cut-off during the rainy season. Although there are a number of road projects being implemented or are in the pipeline, progress is slow and standards are inadequate (refer to Figure 1.1).

- People's perception and assessment of existing infrastructure and services vary by area (refer to Table 2.4), although the common problems in the study area are livelihood/lack of jobs, lack of roads, lack of medical services, lack of power, and lack of water. Among municipalities, these problems are felt the most in Culion and Araceli. External access is either via expensive air transport or infrequent sea transport. Regular air transport services are available only to/from Puerto Princesa, while a limited number of areas including Busuanga/Coron, El Nido, Taytay, Roxas are served only by expensive and small-capacity chartered flights. Sea transport services are available for Puerto Princesa-Manila (5 trips weekly), Manila-Coron (twice weekly), and Puerto Princesa-Cuyo-Iloilo (6 trips a month.). Internal movement is even more difficult due to the absolute lack of facilities and lack of inter-modal integration.

Table 2.2
Socioeconomic Profile of Northern Palawan

Municipality	Land Area: sq km.	Population		Population Growth: %/yr.		Urban Population		Household Income (1992)		Employment (1992)	
		1990	1995	1980-1990	1990-1995	1990 % to Total	1980-90 Growth %/yr	Average: P/Year	% Under Poverty Level	Labor Force	Unemployment Rate: %
Busuanga	393	11,007	15,843	0.6	7.6	10.6	-	33,224	59.5	2,290	24.3
Coron	1,214	33,228	27,040	2.8	-	58.6	5.1	78,061	44.4	9,310	9.4
Culion	-	[1/]	14,100	-	-	-	-	29,598	-	-	-
Linapacan	155	5,835	7,269	2.8	4.5	28.2	3.8	-	-	1,095	1.8
El Nido	465	18,832	21,948	4.7	3.1	13.2	5.1	21,708	72.8	5,616	17.6
Taytay	1,391	38,435	47,095	5.3	4.1	23.2	17.9	47,634	61.5	10,380	9.3
Araceli	179	8,708	10,556	3.7	3.9	26.8	2.1	37,410	48.1	2,325	9.3
Dumaran	435	12,624	13,980	4.2	2.1	7.9	-	34,129	43.7	3,898	21.0
Roxas	1,220	36,604	44,370	3.9	3.9	22.0	3.6	26,558	56.4	10,743	12.1
San Vicente	843	17,795	19,449	5.8	1.8	48.3	22.3	29,014	50.0	4,401	17.4
Puerto Princesa	2,107	92,147	129,557	4.3	7.1	51.3	3.4	33,183	-	24,283	6.7
Study Area Total	8,401	275,215	351,207	4.1	5.0	66.7	5.5	32,235	55.2	74,341	10.7

Source: Provincial Socioeconomic Profile, NSO
[1/] 1990 population of Culion is included with that of Coron.

Table 2.3
Availability of Selected Socioeconomic Infrastructure
in Northern Palawan

Municipality	1995 Telephone Availability		1993 Piped Water Supply Coverage (%)	1990 Electricity Supply Coverage (%)	1990 Toilet Facility Coverage (%)	1990 Garbage Collection Coverage (%)
	No. of Lines	No./ 100 population				
Busuanga	2	0.02	13.7	15.0	37.7	0.0
Coron	18	0.05	27.6	23.7	29.0	0.5
Culion	-	-	-	-	-	-
Linapacan	2	0.03	18.3	7.4	37.0	1.1
El Nido	3	0.02	7.5	8.4	62.3	1.3
Taytay	5	0.01	9.3	10.0	42.4	1.2
Araceli	1	0.01	3.4	7.4	59.9	1.4
Dumaran	2	0.02	20.1	2.3	53.3	0.8
Roxas	12	0.03	7.5	7.1	49.2	0.3
San Vicente	10	0.06	12.9	20.2	57.7	2.0
Puerto Princesa	3,000	3.26	27.4	60.0	65.0	19.1
Study Area Total	3,055	0.0068	29.8	28.5	52.4	7.0

Source: National Statistics Office
Water Supply, Sewerage, and Sanitation Development Plans, 1984-2010

Table 2.4
Serious Problems Perceived by Residents

Services	Bus.	Coron	Culion	Lin.	E.N.	Taytay	Araceli	Dum.	Roxas	S.V.	P.P	Study Area
Livelihood/Lack of Jobs	56	73	94	29	64	30	79	48	25	59	54	51
Marine Resource Damage	16	71	69	76	25	37	73	35	5	1	6	23
Deforestation	1	58	40	4	5	26	70	6	3	0	5	14
Lack of Agri. Facilities	9	44	86	30	10	4	77	15	38	25	6	20
Lack of Medical Services	26	47	77	91	45	43	84	42	41	58	30	42
Poor School Facilities	4	37	67	15	3	6	43	30	19	33	8	16
Waste Disposal	1	30	29	46	22	35	48	24	4	12	10	18
Lack of Power	26	31	76	49	34	33	46	34	17	50	32	33
Lack of Roads	19	35	85	56	44	41	38	86	66	78	43	50
Lack of Transp. Facilities	5	29	79	34	18	6	67	32	9	33	18	21
Lack of Water	25	14	68	43	26	2	32	50	33	39	22	25
Lack of Public Information	5	36	85	16	12	6	78	12	6	6	7	14
Peace and Order	2	11	37	7	7	3	24	5	1	6	6	7
Squatters	0	22	30	2	3	2	39	1	1	0	5	7
Migration Problems	1	31	63	0	1	5	63	5	0	0	3	9
Political Leadership	2	7	63	13	9	4	22	6	1	5	4	7

Source: Socioeconomic Survey, Study Team, 1996
Legend: perceived as a serious problem (≥ 50)
perceived as a problem (25 - 49)

Regional Development Framework

- While an effective regional development plan and framework for Northern Palawan do not exist, a socioeconomic and infrastructure development framework on which the tourism development plan is formulated has been summarized as shown in Table 2.5. Population and labor force will increase by 186,000 and 138,000 between 1995 and 2010, respectively. While the targeted income level is intended to increase from the current P13,000 per capita to P36,000 per capita, which is more or less the current average of Region IV, regional economy will have to be expanded significantly.

Table 2.5
Socioeconomic and Infrastructure Development Framework
for Northern Palawan

Item	1995	2010
1. Population	347,000	533,000 1/
2. Labor Force	194,300	332,000 1/
3. GRDP : P billion	4.5	19.2
4. Per Capita GRDP : P	13,000	36,000 1/
5. Water Supply Ratio :	Urban: 45	Urban: 96 2/
% of population coverage	Rural: 51	Rural: 93 2/
6. Telecommunication: No. of connected barangays	Poblacion only	100 %
7. Power Supply Ratio: % of Household Covered	37	90
8. Garbage Collection Ratio: % barangays covered	7	75 3/

Source: Study Team
1/ estimated based on the Regional Medium Term development Plan
2/ estimated based on Water Supply, Sewerage and Sanitation Development Plan, 1994-2010, Palawan Province
3/ assumed

- The support and promotion of the target economic development, should be associated with the expansion and improvement of socioeconomic infrastructure. Municipal centers and major socioeconomic centers should be connected by hierarchically-developed all-weather roads. Basic infrastructure, including power, water supply, telecommunication and others, should also be adequately provided. The financial requirement to meet this goal is estimated at P6.2 billion (refer to Table 2.6).

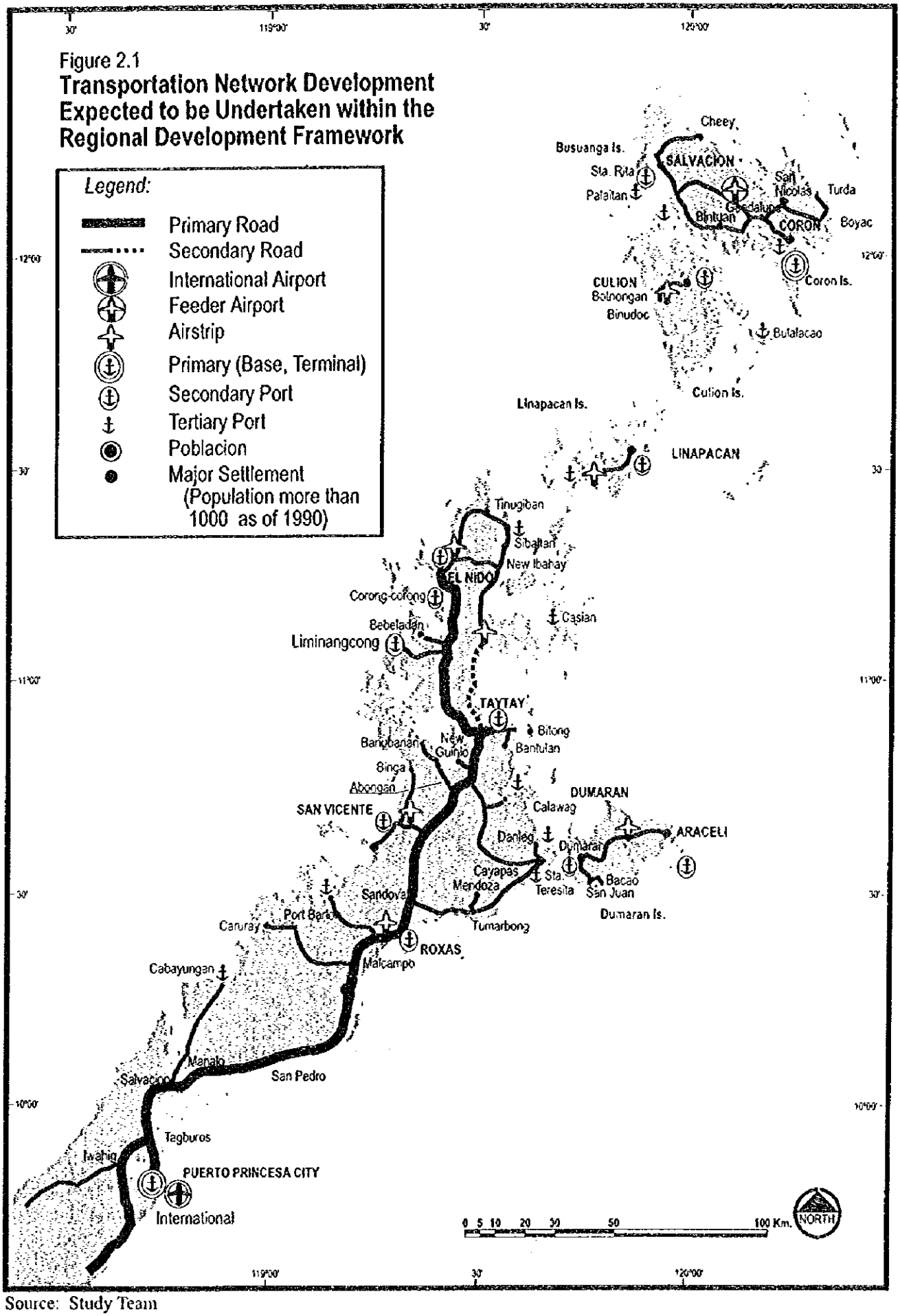
Table 2.6
Estimated Financial Requirement for Infrastructure Development,1/ 1997-2010

Sector	P million
Roads	4,120
Airport/airstrip	1,200
Ports	160
Water supply	730
Total	6,210

Source: Study Team
1/includes selected infrastructure only

Figure 2.1

Transportation Network Development Expected to be Undertaken within the Regional Development Framework



Source: Study Team

2.3 Existing Environment

Update of Environmental Data

- Environmental conditions in Northern Palawan have not been adequately assessed largely due to the lack of updated scientific data, and the fact that understanding of existing situation and policy decision varies by agency or by person. Although the importance of environmental conservation is well recognized, there are cases wherein certain actions seem contradictory. A major contribution of this study is the preparation of environmental data in a comprehensive manner through different supplemental surveys. With this, overall environmental conditions of Northern Palawan have been made clear and assessed in a more scientific manner, although more detailed continuous surveys and research work are necessary to investigate specific environments or areas.

Environmental Degradation in Northern Palawan

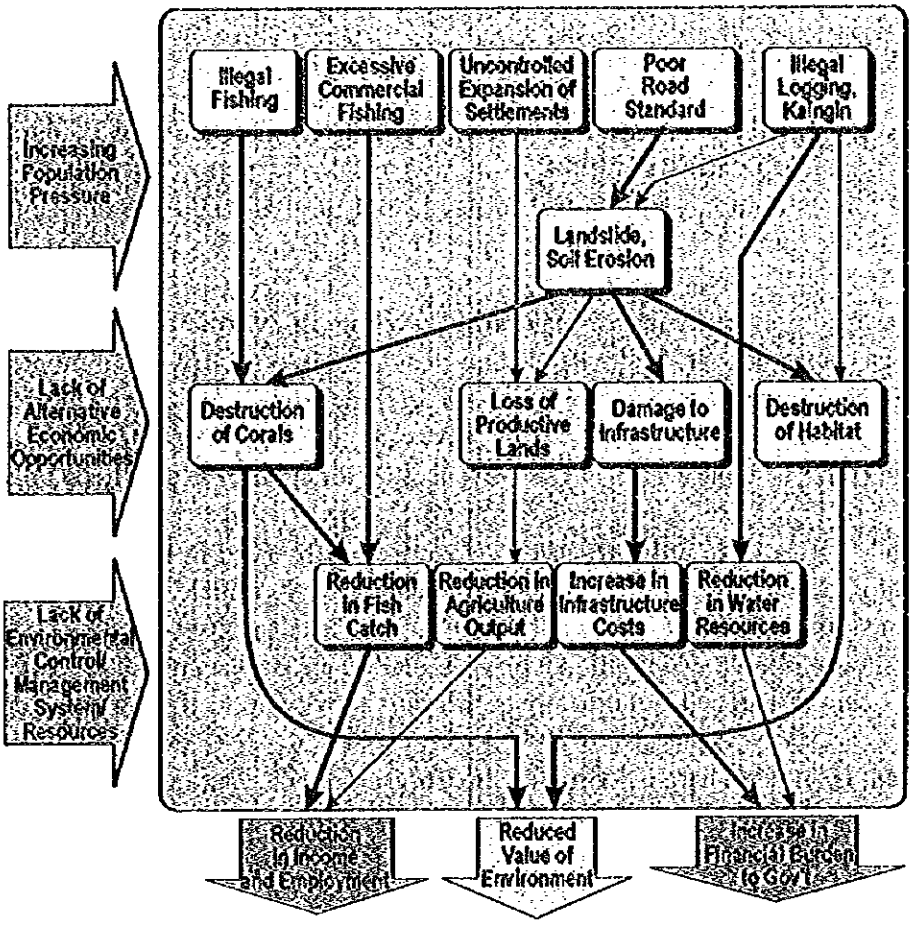
- The results of different environmental surveys indicate that the natural environment in Northern Palawan has deteriorated much more than had been anticipated before the commencement of the study. Activities and factors which adversely affect the environment in Northern Palawan include the following:

  - increasing population pressure in ecologically fragile areas;
  - illegal activities such as kaingin (slash and burn agriculture), illegal logging, dynamite and cyanide fishing, etc.;
  - lack of alternative employment/economic opportunities to curb illegal economic activities;
  - inadequate infrastructure development, e.g. road development, without any workable safeguard against environmental damage;
  - inadequate environmental control/management system and practice; and
  - limited resources for environmental conservation.

- The most critical activity responsible for the present environmental situation in Northern Palawan is deforestation which is compounded by the associated illegal activities enumerated above. Inadequately constructed infrastructure, such as roads, often bring about soil erosion, excessive run-off, and landslides. The impact is not confined to land but also to the sea due to the flow of eroded soil causing extensive damage to valuable corals even if only during the last several years. A degraded environment affects communities in terms of decreased productivity in agriculture/fishing and Government in terms of increased financial/administrative costs. While ecosystems can be damaged very quickly, the recovery period is long.

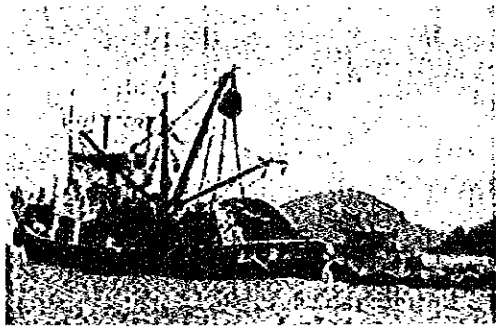
- The process of environmental degradation involves many interactive factors, not only of environment but also of socio-economy (refer to Figure 2.2). This is the reason why the study looked into the environmental issues in an integral manner with environment and socio-economy to find out ways to revert the vicious cycle.

Figure 2.2
Mechanism of Environmental Degradation and Its Impact in Northern Palawan



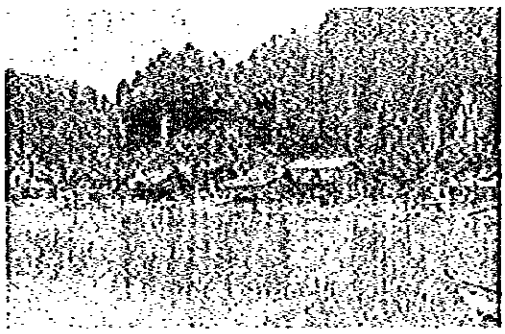
Source: Study Team

Coral reef destroyed by dynamite fishing

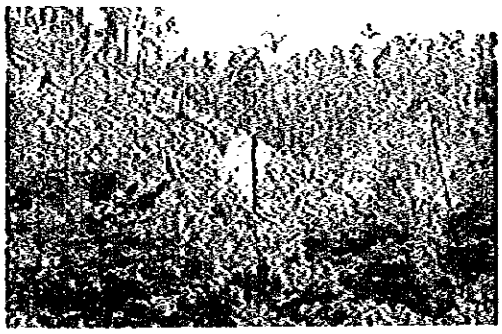


Trawl-fishing boat

Poor drainage channel



Illegal settlement



Kaingin (San Vicente)

Terrestrial Ecosystem

- Biologically, Northern Palawan is considered rich and diversified with numerous endemic species unique to the island. Palawan was originally almost entirely covered by thick primary forests until large areas had to be cleared to give way to roads, settlements, farms, fishponds, etc. due to rapid urbanization. At present, only few areas remain forested.

- There are six major types of natural vegetation in Northern Palawan: (1) lowland evergreen rainforest; (2) lowland semi-deciduous forest; (3) submontane forest; (4) forest over ultrabasic rocks; (5) forest over limestone; and (6) mangrove/ nipa forest. Occurrence of vegetation types was surveyed and key vegetation areas identified and analyzed (refer to Figure 2.3). The current situation by area is briefly as follows:

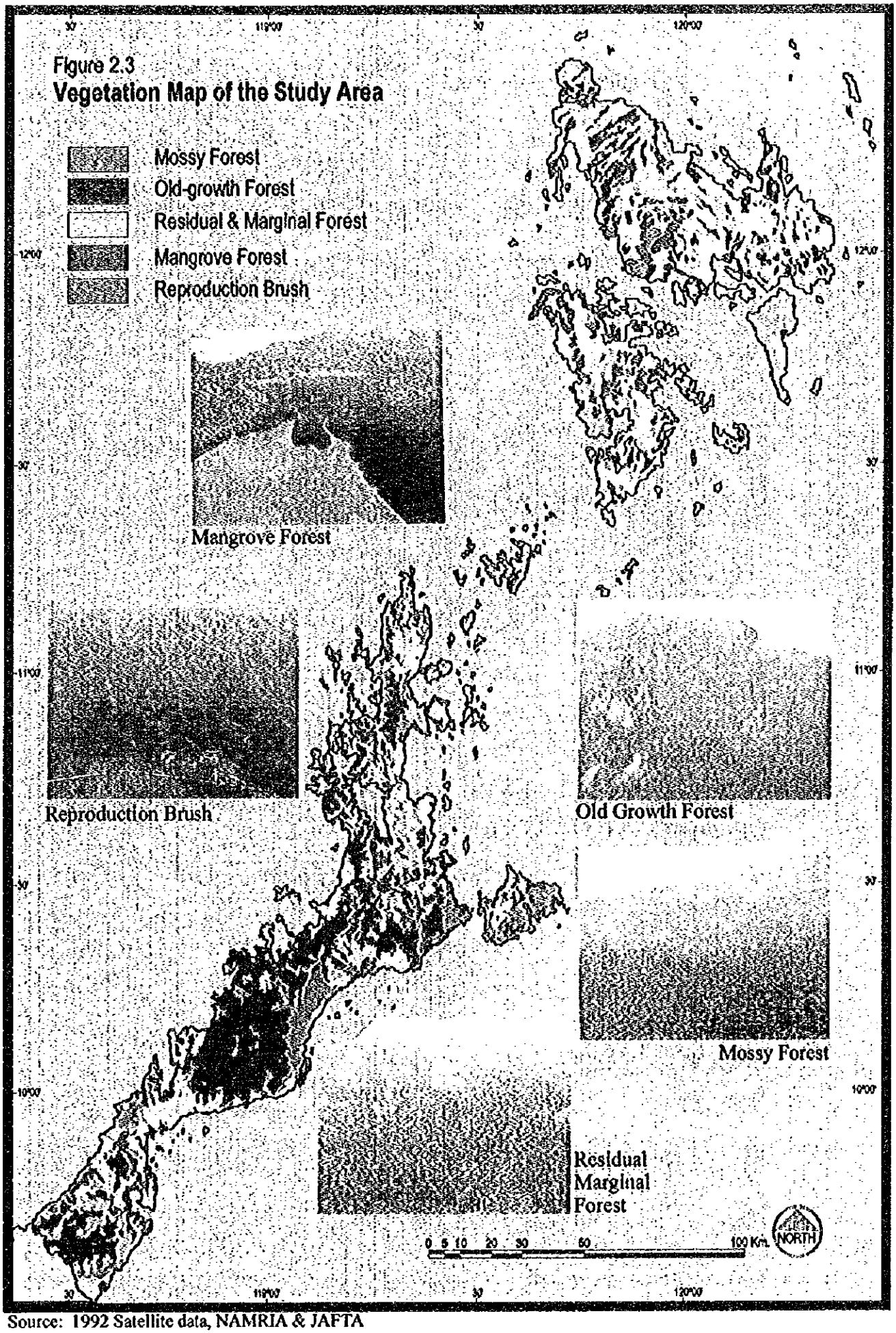
  Mainland: Relatively well-preserved vegetation is observed in Irawan, Iwahig and St. Paul National Park adjacent to Cleopatra Needle and Mt. Bloomfield. Better secondary growth on steep slopes in Irawan Valley at low elevation was also observed which indicates that the present law enforcement is effective. Vegetation in Barbacan Range, Mt. Llian and Big Peak is being threatened significantly by *kaingin* activity up to the high ridge.

  Dumaran Island: There is virtually no forest cover. But a well-developed mangrove forest is noted along the bays and river mouths in contrast to the general condition of the forest within the main island.

  Calamian Islands: Small patches of secondary growth and remnants or regenerating forest are found in most areas. In Coron Island, there is an almost intact limestone forest. Forest vegetation in the islands of Busuanga, Culion and Linapacan are in critical condition. The mangrove forest located between the islands of Calauit and Busuanga is found to be well-developed and preserved.

- Findings from aerial observation of terrestrial ecosystem are summarized as follows. Intensive and extensive landslides in the following areas: on the hill forest of the west slope of Pagdanan Range, Central Range of San Vicente, hills along the Langogan River, the eastern slope of the Sharp Peak and Dome Peak, Barbacan Range, the eastern hills of Central Range, Mt. Baring and Taradungan, Mt. Ynantagung, the mountains of El Nido, and steep slopes near the coastline of Mt. Baring and Taradungan. Fishpond preparations in mangrove forests and *kaingin* in San Vicente, Honda Bay, Ulugan Bay, and Malampaya Sound.

- Terrestrial ecosystem was assessed by area on the basis of the analysis of secondary data and limited supplemental surveys. Main ecosystems were rated on five scales; Intact (original area covers 90 to 100%), Good (70 to 90%), Fair (50 to 70%), Threatened (30 to 50%), Endangered (10 to 30%) and Extinct (less than 10%). None are categorized under "Intact," while the ecosystems under "Good" include limestone (Karst) forest and (brackish) water lakes in Coron, submontane forests in Iwahig and Irawan Valley, limestone forest in St. Paul's Bay and Apulit Island. On the other hand, many lowland evergreen rainforest and brackish water swamps are either "Endangered" or "Threatened." (refer to Table 2.7).



Source: 1992 Satellite data, NAMRIA & JAFTA

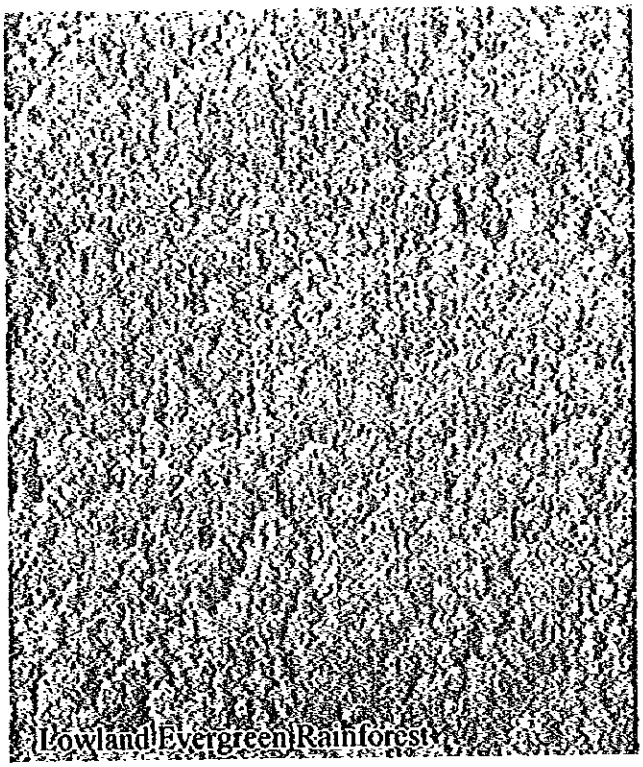
Table 2.7
Preliminary Assessment of Ecosystems in the Study Area

Island	Location	Ecosystem	Rating
Busuanga		• Lowland Evergreen Rainforest • Mangrove Forest	E T
Coron		• Limestone (Karst) Forest • (Brackish Water Lakes) • Cave	G G F
Culion		• Lowland Evergreen Rainforest • Mangrove Forest	E T
Linapacan		• Lowland Evergreen Rainforest • Mangrove Forest	E T
Dumaran		• Lowland Evergreen Rainforest • Mangrove Forest	EX F
Mainland	Iwahig (Mt. Stavely, Anepahan Peak, Central Peak, Village and Triple Top Range	• Lowland Evergreen Rainforest • Lowland Semi-deciduous Rainforest • Submontane Forest	F F G
	Irawan Valley, Mt Beaufort Thumb Peak, Mt. Herschel and Mt. Airy	• Lowland Evergreen Rainforest • Lowland Semi-deciduous Rainforest • Submontane Forest • Ultrabasic Forest (forest on heavy-metal-rich soil)	F F G T
	Puerto Princesa Bay	• Brackish Water Swamp	E
	Honda Bay	• Brackish Water Swamp	T
	Ulugan Bay	• Brackish Water Swamp	E
	St. Paul's Bay	• Lowland Evergreen Rainforest • Limestone Forest (Karst Forest) • Coastal Forest • Cave	F G T F
	Mt. Bloomfield	• Ultrabasic Forest (stunted pole forest on heavy-metal-rich soil)	F
	Barbacan Range	• Lowland Evergreen Rainforest	E
	Pagdanan, Central Range and Flat Range	• Lowland Evergreen Rainforest	E
	Lake Manguao	• Lowland Evergreen Forest (Lake Margin, Stream Valley, High Forests) • Fresh Water Lake/Swamp Ecosystem	E E
	Mt. Copoas	• Lowland Evergreen Forest • Submontane Forest	E T
	Silanga	• Limestone Forest	E
	Apulit Island	• Limestone Forest (forest over limestone)	G
	Malampaya Sound	• Brackish Water Ecosystem	E

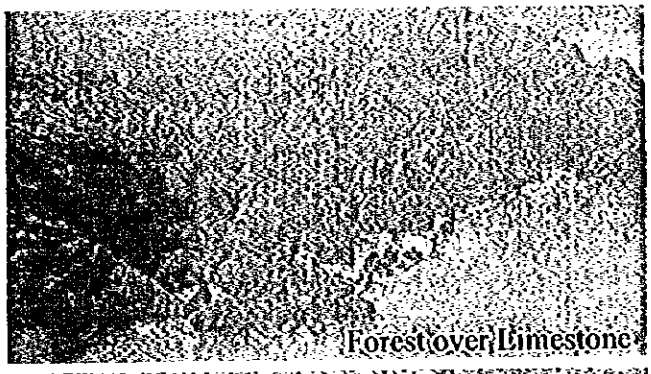
Source: Study Team

Legend:

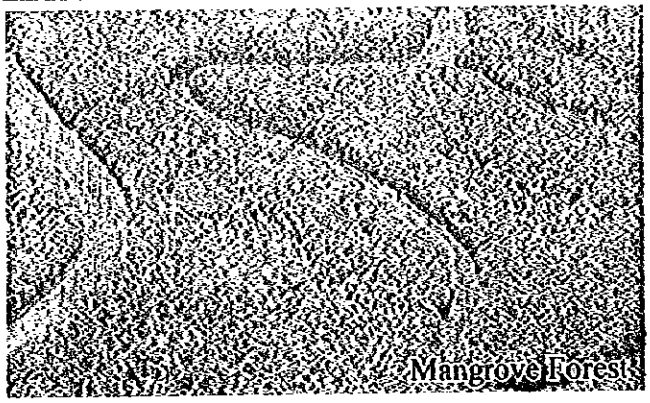
I : Intact (90 - 100% of original area); G : Good (70 - 89%); F : Fair (50 - 69%); T : Threatened (30 - 49%); E : Endangered (10 - 29%); EX : Extinct (less than 10%)



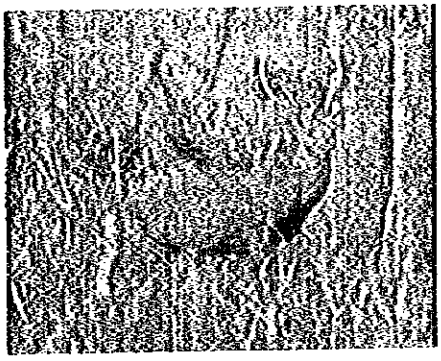
Lowland Evergreen Rainforest



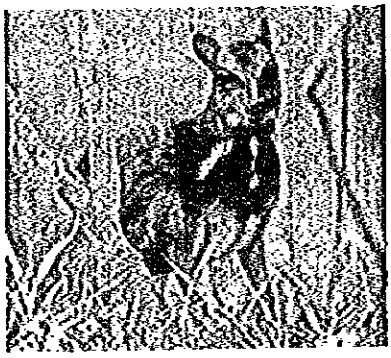
Forest over Limestone



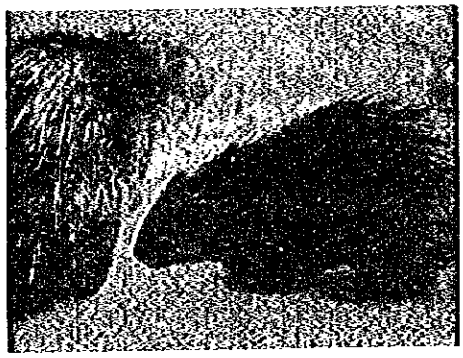
Mangrove Forest



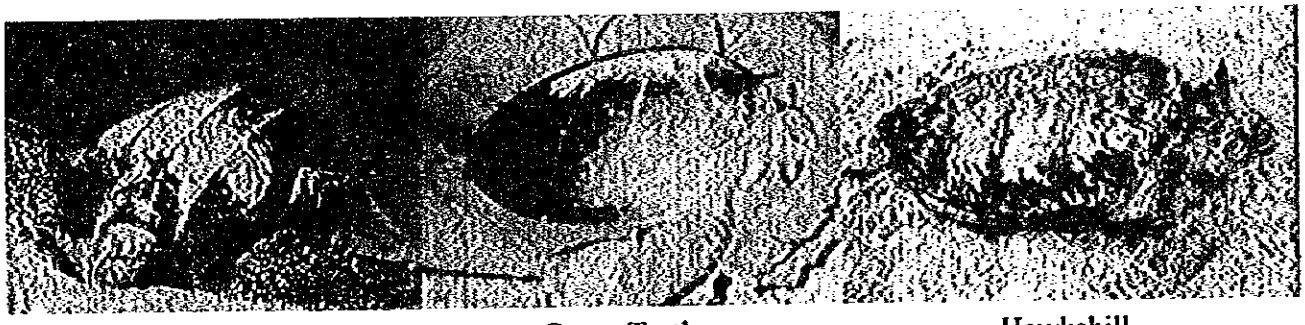
Calamian Deer



Mouse Deer



Palawan Porcupine



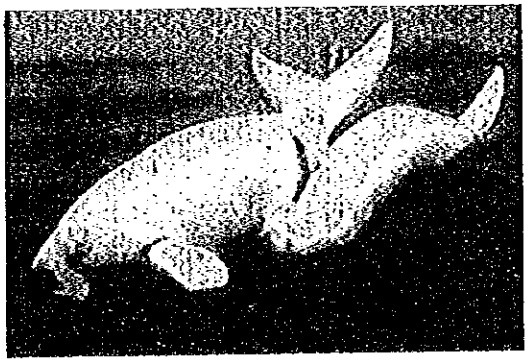
Leatherback

Green Turtle

Hawksbill

Philippine Cockatoo

Palawan Peacock



Dugong

Marine Ecosystem

- Coral reef was evaluated according to five ranks in terms of healthiness of the coral community as follows: (refer to Figure 2.4):

  Rank A: Excellent (healthy coral community). No indication of disturbance.
  Rank B: Good (fairly healthy coral community). Some indication of disturbance.
  Rank C:Fair (disturbed). Estimated dead coral cover of 25% - 75%.
  Rank D.: Poor (severely disturbed). Estimated dead coral of more than 75%.
  Rank E: Bad (almost destroyed and covered with seaweed).

- The coral reef has been degraded in most parts of the study area. The dead corals and sargasso growing on the reef cover largely the shallow reef area, which seems to be very difficult to restore even if some countermeasures against solid discharge are undertaken immediately. The northeastern part of the study area still has healthy coral reef, although dynamite fishing poses a threat. Reef-associated communities seem to be degrading due to the deterioration of coral reef areas and the increase of pressure from fishing activities. A huge amount of land soil has been brought into the seacoast area. The most probable cause is the logging road formation which generates turbid water with high concentration of soil particles during rainfall. Sea water temperature is very stable, approximately 29°C throughout the year, which ensures rapid growth of coral reefs.

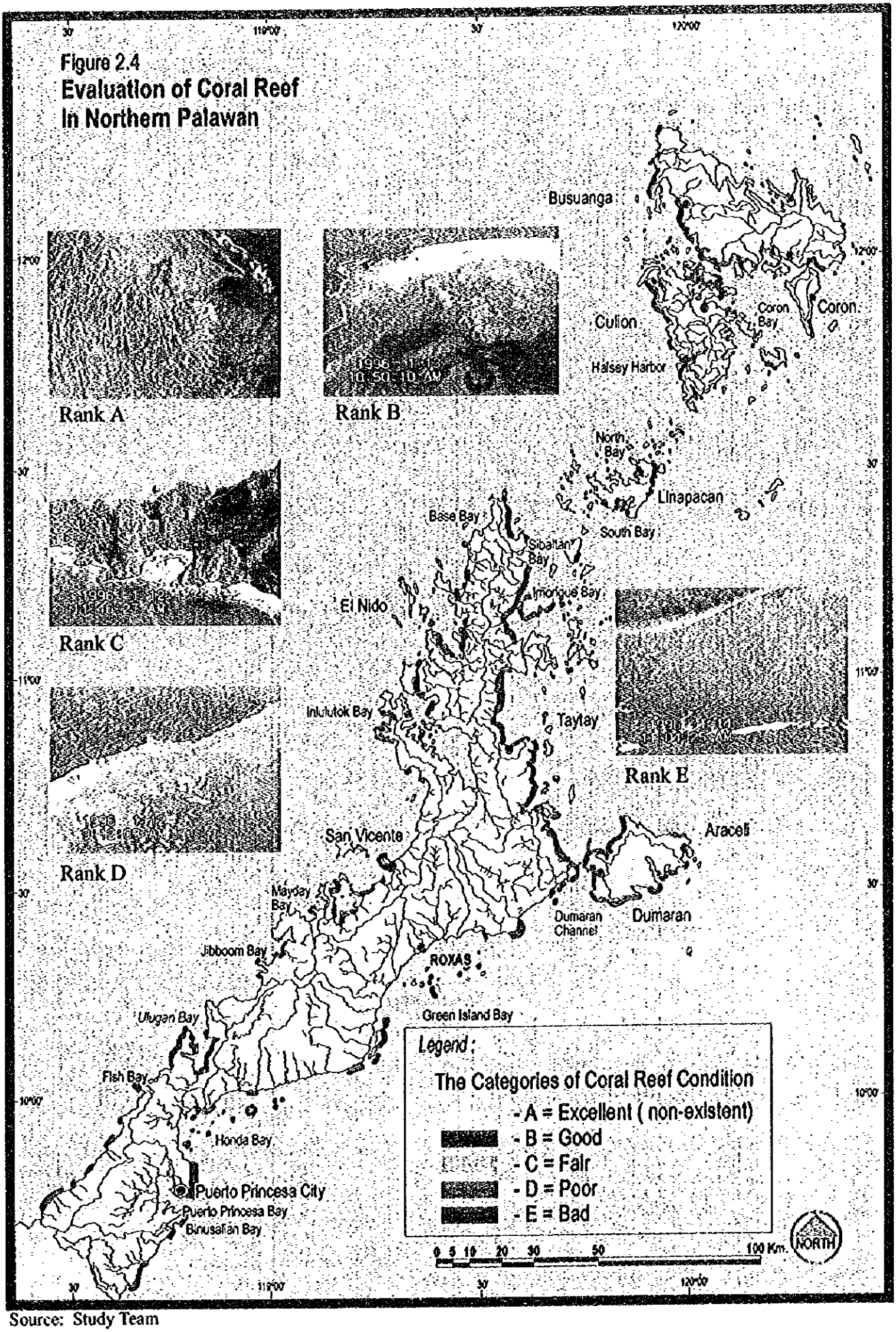
- Reef-associated fishes were investigated through diving surveys and the use of secondary data. There are 407 reef-associated species belonging to 44 families identified from nine (9) selected areas in Northern Palawan coastal waters. Abundance of fish species seemed to be low, compared to other coral reef regions, such as the Great Barrier Reef and Okinawa Islands.

- There is no severe water pollution at present in the coastal area of Northern Palawan, except for Honda Bay where mercury contamination was reported due to mine tailings from the soil used for the reclaimed area.

- Except for beaches, almost all coastlines are the habitats of seaweed, which attach and grow on stable substrates, such as rocks, gravel and coral reef. The sargasso is the most abundant group in the study area. Dugongs feed on seagrass beds which develop on the shallow sandy area at the bottom of the sea. There are only few seagrass beds in the west coast of the mainland.

- Mangrove plays an important role in coastal marine ecosystem. Roots of mangrove consolidate the soil so as to protect the marine environment from nuisance due to turbid water dispersion. Furthermore, mangrove forest provides many kinds of organisms with habitats and nursery grounds. Shoreline of the northeastern part of main island is dominated by mangrove vegetation.

Figure 2.4
Evaluation of Coral Reef In Northern Palawan



Source: Study Team

Figure 2.5
Distribution of Mangrove Forest

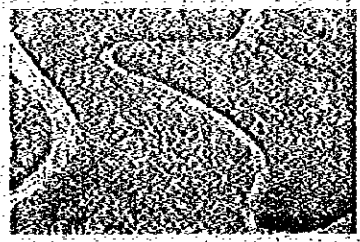
Legend:

QUALITY Area (Ha.)	ALMOST INTACT	DISTURBED	SEVERELY DISTURBED
1000			
500-1000			
0-500			

to be preserved (primary importance)
to be preserved (secondary importance)
can be used but with environmental consideration

Mangrove Forest Preservation Area (Calauit Island)

Other Mangrove Forest Areas (Sharks Fin Bay)



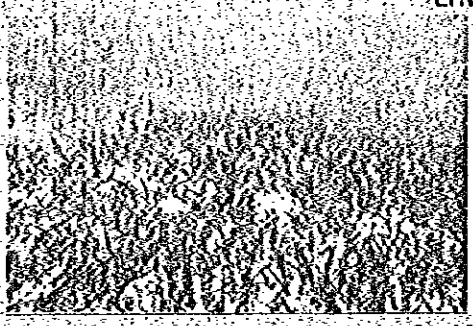
Mangrove Forest Conservation Area (Dumaran Island)

Busuanga Is.
Culion Is.
Coron Is.
Coron Bay
Halsey Harbor
North Bay
Linapacan Is.
South Bay
Base Bay
Shaitan Bay
Imorigue Bay
EL NIDO
Shark Fin Bay
Inlulutok Bay
TAYTAY
SAN VICENTE
DUMARAN
ARACELI
Dumaran Is.
Dumaran Channel
Mayday Bay
Jibboom Bay
ROXAS
Green Island Bay
Ulugan Bay
Fish Bay
Honda Bay
PUERTO PRINCESA CITY
Puerto Princesa Bay
Binusalan Bay
0 5 10 20 30 50 100 Km.
NORTH

Source: Study Team

Figure 2.6
Distribution of Seagrass Beds, Identified Dugong Sightings, and Sea Turtle Nesting Areas

Observation of Seaweeds:
Busuanga, 1996.9.14



Busuanga
Culion
Coron Bay
Coron
Halsey Harbor
North Bay
Linapacan
South Bay
Base Bay
Sibaltan Bay
Imorigue Bay
El Nido
Taytay
Araceli
San Vicente
Mayday Bay
Dumaran Channel
Dumaran
Jibboom Bay
ROXAS
Ulugan Bay
Green Island Bay
Fish Bay
Honda Bay
Puerto Princesa City
Puerto Princesa Bay
Binusalan Bay

Legend:
- Seagrass Beds
- Sargasso Beds
- Turtle Nesting Area
- Dugong Sightings

0 5 10 20 30 50 100 Km.
NORTH

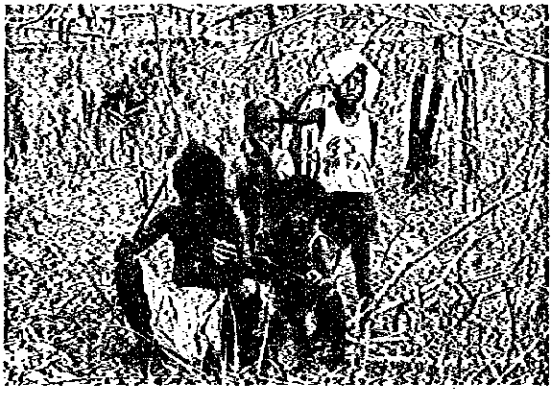
Source: Study Team

Social Environment (Indigenous Peoples and Cultural Settlements)

- Sixty-four (64) local mother-tongue groups exist in the study area of which nine are indigenous to Palawan. The population of the nine groups account for 40% of the total 1990 population, while the remaining 60% are migrants from various regions. Taking into account the current situation, the "Bataks" and "Tagbanuas" are considered to be covered in this study. Bataks still live semi-nomadic lives and stay in temporary settlements, which make it difficult to pinpoint their location. However, they are mostly found in Puerto Princesa City and in the municipality of Roxas. Tagbanuas are widely distributed along the coast of most of the municipalities except Araceli and Linapacan (refer to Figure 2.7).

- Historically, the indigenous people (or ethnic minorities) are placed outside the land tenure system, not only in Palawan province but also throughout the Philippines. The first mention of land tenure right of the tribal people (ethnic minorities) appeared in the 1987 Constitution. It took five more years for the Department of Environment and Natural Resources (DENR) to issue the administrative order for the identification of "ancestral land claims." DENR further issued the administrative order of the "Rules and Regulation for the Identification, Delineation and Recognition of Ancestral Land and Domain Claims" in 1993. Here, the "ancestral domain" is defined as "all lands and natural resources occupied or possessed by indigenous cultural communities, by themselves or through their ancestors, communally or individually, in accordance with their customs and traditions since time immemorial, continuously up to the present time except when interrupted by war, force majeure, or displacement by force, deceit or stealth. It includes all adjacent areas generally belonging to them and which are necessary to ensure their economic, social, and cultural welfare."

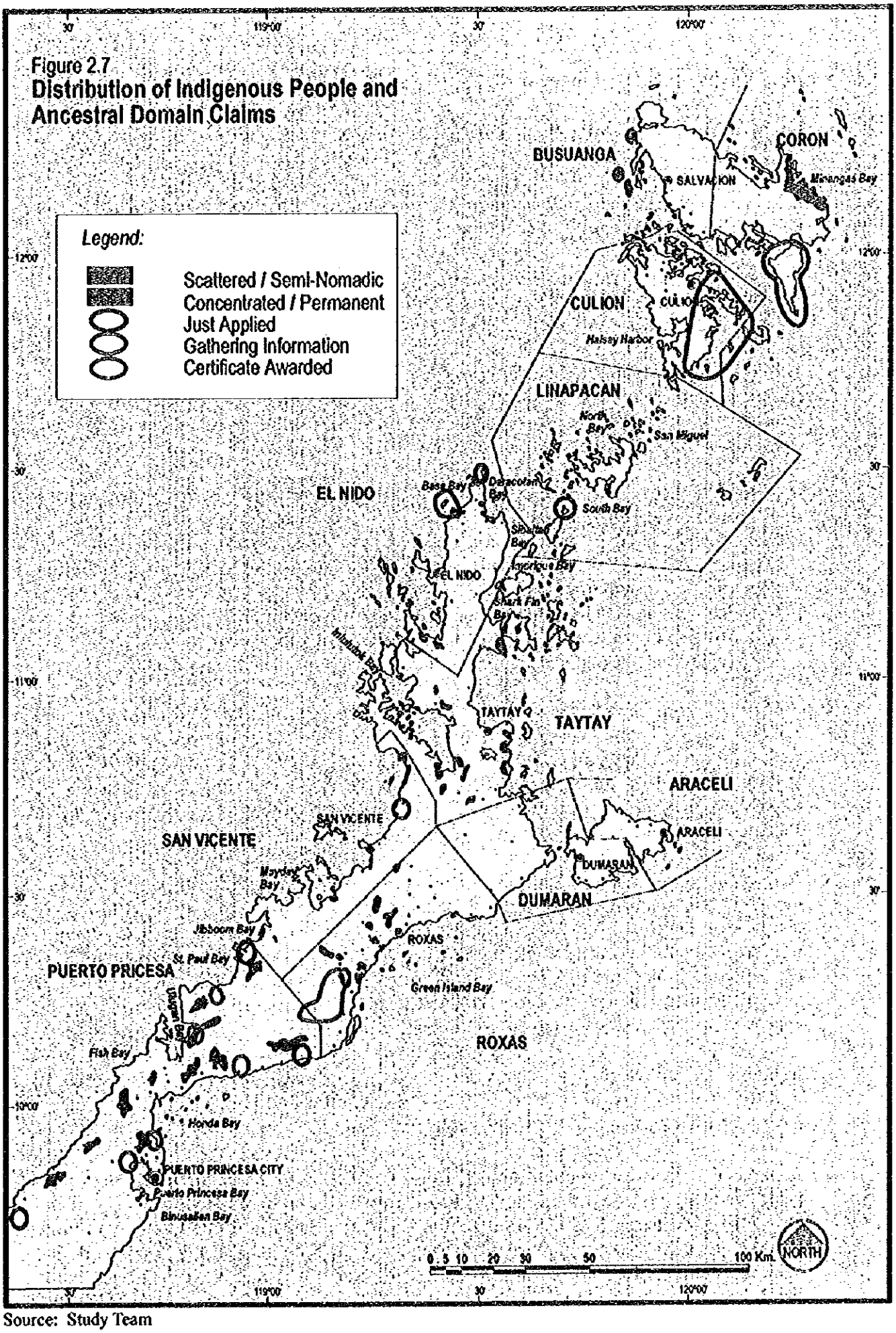
- At present, 18 ancestral domain claims are under process in Palawan of which 14 are located in the study area. When these ancestral domains are "claimed," DENR then surveys and validates the claims. This does not mean the certification of land tenure rights but rather giving indigenous peoples the moral right and some kind of legal weapon to protect their important areas. Due consideration must be given the ancestral domain area for a harmonious co-existence of both the majority group and the minority group, as well as the natural environment. With regard to the proposed tourism, there will be opportunities for the indigenous cultural communities (ICCs) to participate depending upon the way and extent they would like to.



Tagbanua family. (Kayasan, Bgy. Tagabinet, PPC.)

Bataks in festival. (Kayasan, Bgy. Tagabinet, PPC.)

Figure 2.7
Distribution of Indigenous People and Ancestral Domain Claims



Source: Study Team