

Chapter 8

Institutional Supporting Plan

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8.1 Overview

Management Unit Plans is core plan in the master plan based on management area and management targets (see Chapter 7). Institutional Supporting Plan deals with commonly seen management issues among Management Unit Plan including government administration, capability building, and promotion of environmental management awareness for implementation of coastal management, and aims to increase ability of implementation. Institutional Supporting Plan provides support to Management Unit Plan in terms of:

- Institutions and Legislations Plan;
- Coastal Information System Plan;
- Human Resources Development Plan;
- Education and Enlightenment Plan; and
- Financial Plan.

Institutional and Legislative Plan clarifies roles of related agencies for coastal management, and provides an administrative framework for coastal management system in North Sulawesi. Information is essential to an effective management planning and implementation as a management tool. Coastal Information System Plan shows what information is required, and how information is collected and utilized as a system. In terms of people, there are two plans including “Human Resources Development” and “Education and Enlightenment.” Human Resources Development Plan aims at capability building for local government in coastal management. Environmental and management awareness of people and the private sector is promoted through education and enlightenment. Ensuring financial sources is also essential to any administrations. Financial plan presents ideas of alternative sources for sustainable coastal management implementation.

8.2 Institutions and Legislations Plan

8.2.1 Management Issues on Institutions and Legislations

(1) Scope of Management

Management targets for Institutions and Legislations Plan cover all institutions and regulations related to coastal management. This section deals with all levels of government agencies including central and local governments. Provincial government, municipal and regency governments are the ones of particular concern.

(2) Problems Related with Institutions and Legislations

Coastal management in North Sulawesi is still poor, because this is a newly introduced concept and administrative field. Local governments have not prepared any planning yet so that implementation of coastal management has not started at the present. It should be emphasized that coastal management needs to have a comprehensive and integrated policy, because issues existing in the area varies and are very complex. There are the following problems of coastal management related to institutions and legislations:

- there are administrative conflicts among central, provincial, municipal and regency governments regarding coastal management such as overlapping roles, variance and unclear responsibilities of institutions and regulations under decentralization;
- establishment of regulations are not coordinated among central and local government agencies;
- there is no coordination among related government agencies at the same administrative level;
- local governments do not have enough capability for coastal management; and
- high government officials lack consciousness of coastal management due to lack of incentive.

(3) Management Issues

Based on management problems in the aspect of institutions and legislations, the following issues to address are identified for achievement of appropriate institution and legislation system for coastal management:

- to clarify roles of government agencies for coastal management such as central, provincial, municipal and regency governments;
- to coordinate central and local governments, and integrate related institutions and regulations to eliminate discrepancies in order to make proper institutional and legislative structures for coastal management;

- to build capability of government agencies human resources especially provincial, municipal and regency governments; and
- to promote coastal management consciousness in decision makers and high government officials in order to give priority to coastal management.

8.2.2 Strategic Approaches to Institutions and Legislations Plan

The objective of Institutional and Legislative plan is “to achieve appropriate institutional and legislative system for implementable and acceptable coastal management.” In order to achieve this objective, the following strategic approach should be taken in coastal management plan:

- to clarify responsibility in coastal management among government agencies under decentralization policy;
- to restructure institutional and legislative structure or system for integrated coastal management by clarifying the legislative hierarchy; and
- to build capability of local government human resources.

8.2.3 Proposed Functions and Roles of Related Agencies for Coastal Management under Decentralization Policy.

According to “Regional Governance, Law No. 22, 1990” and “The Fiscal Balance between the Central Government and Regional Government, Law No. 25, 1999,” administrative functions and roles are being transferred to local governments from central governments under Indonesian decentralization policy. Proposed functions and roles of related agencies for coastal management are as shown in Table 8.1 and as follows:

In principle, central government agencies provide national policy, regulations and guidelines for the whole nation. For instance, the Provincial Government formulates regional coastal management plan, regulations and guidelines based on national policy. Provincial Government also should coordinate with among municipalities and regencies in the area. Municipal/Regency governments have a responsibility for implementation of coastal management so that they formulate action plans based on provincial coastal management policy, plan and guidelines. It is difficult, however, that municipal/regency governments manage at community level. Hence, municipal/regency governments support and promote Community based Coastal Management, and village government makes plan and implement the plan in their area.

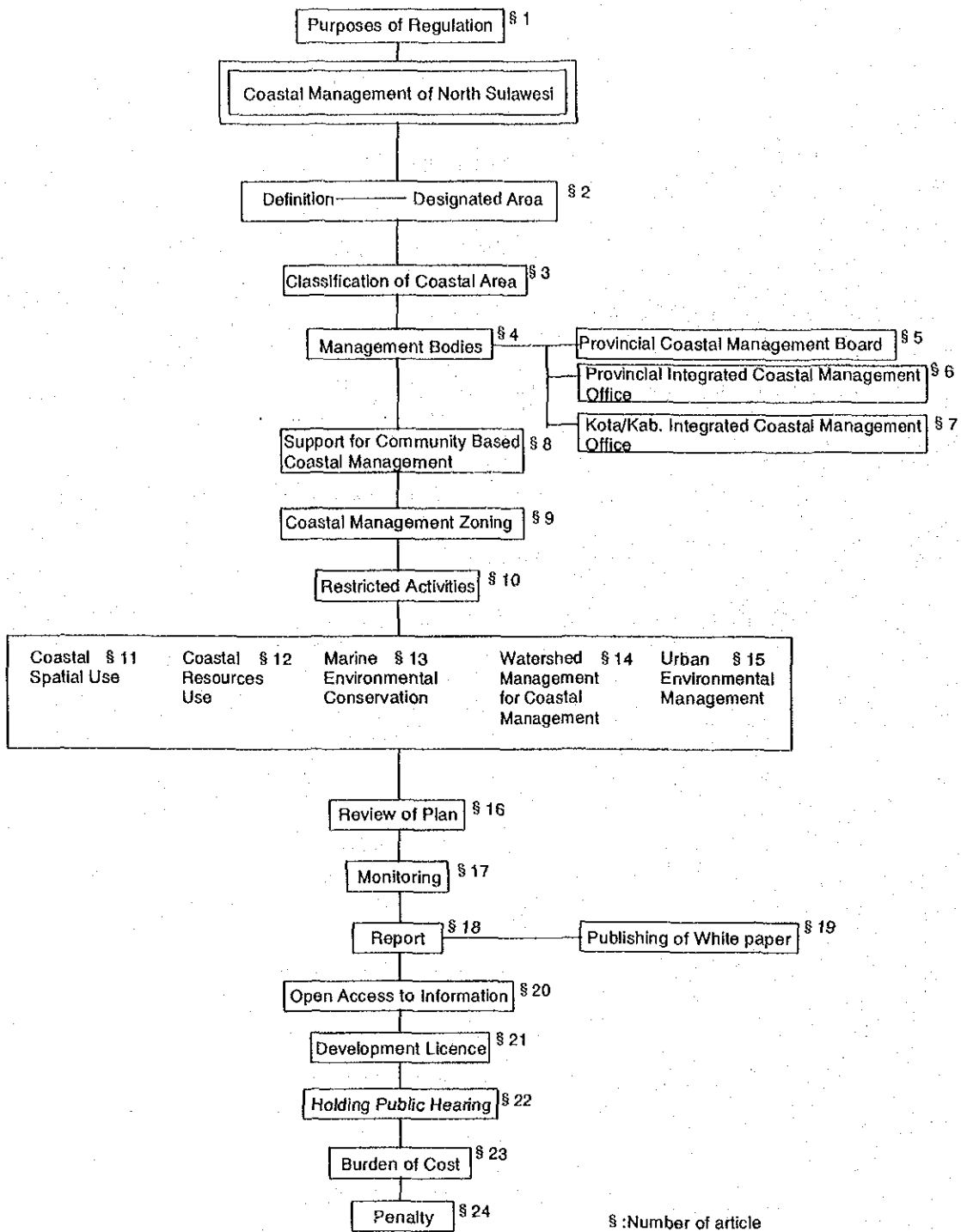
Table 8.1 Proposed Functions of Each Government Agency for Coastal Management

Government Agencies	Roles	Functions of Coastal Management
Central Governments	<ul style="list-style-type: none"> • policy making • formulation of national plan • formulation of guidelines 	<ul style="list-style-type: none"> • establishment of national coastal management policy • establishment of national laws and regulations related to coastal management • formulation of technical guidelines including management zoning for coastal management • supporting capability building for local governments • human resources development • enlightenment and dissemination for conservation of coastal environment nationwide • coordination between provincial governments and central government agencies • research and development
Provincial Governments	<ul style="list-style-type: none"> • formulation of provincial coastal management plan • coordination among municipal and regency governments 	<ul style="list-style-type: none"> • formulation of provincial coastal management plan and guidelines • planning of coastal management zoning • establishment of Provincial Protected Areas • provision of technical support for municipal and regency governments • operation of coastal information system • monitoring and assessment of coastal conditions • issuance of coastal resources utilization license / permit within 3 – 12 miles • endorsement of coastal development license and permit for municipality and regency • monitoring and evaluation of programs/projects related to coastal management • evaluation and endorsement for BAPPEDA of EIA • human resources development
Municipal and Regency Governments	<ul style="list-style-type: none"> • formulation of action plan • implementation of coastal management plan 	<ul style="list-style-type: none"> • formulation of coastal management action plan • formulation of coastal use plan at municipal and regency levels • implementation of coastal management zoning • implementation of provincial protected areas management • monitoring of coastal management at municipal and regency levels • coordination among villagers for spatial and resources use
Village Governments	<ul style="list-style-type: none"> • planning and implementation of CBCM, coordination among villagers 	<ul style="list-style-type: none"> • formulation of community coastal management plan • planning and implementation of community-based coastal management • registration of non-motorized fishing boat

Source: JICA Study Team

8.2.4 The Needs for Provincial Coastal Management Basic Regulation

The Study Team proposes “Provincial Regulation on Management and Sustainable Development of Coastal Area and Resources in North Sulawesi” for proper coastal management as a basic law. It is also necessary that some implementing regulations should be established and some unnecessary implementation regulations should be set aside. The Provincial Coastal Management Basic Regulation should stipulate all activities related to coastal management at provincial level. Other related regulations such as implementing regulations and ordinances established by the province, municipalities/regencies, and villages should be based on the Provincial Coastal Management Basic Regulation in order to make ensuring unified coastal management policy and measures. Proposed composition of articles of Provincial Coastal Management Basic Regulation is shown in Figure 8.1.



Source: JICA Study Team

Figure 8.1 Structure of Provincial Coastal Management Basic Regulation

8.2.5 The Needs for Unified Coastal Management Organizations at Provincial and Municipal/Regency Levels (PICMO, KICMOs)

At present, coastal area use is controlled by sector-base, so that management of coastal areas is confusing and not effectively done due to overlapping or non-designation of responsibilities among agencies.

Unified organization for coastal management is greatly needed in order to properly coordinate and implement coastal management. The Provincial Coastal Management Committee and the Provincial Integrated Coastal Management Office (PICMO) are proposed to be established at provincial level by the Study. The Study Team also proposes the establishment at every municipality and regency (*Kabupaten and Kota*) of a Municipal/Regency Integrated Coastal Management Office (KICMO). Objectives of Committee and PICMO/KICMOs are as follows:

(1) Establishment of Provincial Coastal Management Committee

The Study Team proposed the establishment of Provincial Coastal Management Committee under the Governor as a coordination and consultative body. Based on the proposal from the Study Team, Provincial Coastal Resources Management Committee was established by North Sulawesi Provincial Governor Decree No. 200, 2001

Functions of Proposed Provincial Coastal Management Committee are:

- to make policy for provincial coastal management;
- to consult coastal management policy for the Governor;
- to coordinate coastal management policy with related policies; and
- to evaluate provincial government performance.

(2) Establishment of Provincial Integrated Coastal Management Office (PICMO)

Establishment of Provincial Integrated Coastal Management Offices (PICMO) is proposed in order to:

- conserve coastal environment and promote regional development through sustainable coastal resource use;
- construct coastal management structure to minimize institutional and sectoral conflicts;
- promote impartial coastal development based on the potentiality of provincial coastal areas; and
- provide benefit for people through sustainable use of coastal areas.

Proposed roles of PICMO are shown in Table 8.2.

Table 8.2 Roles of Provincial and Municipal/Regency Integrated Coastal Management Office

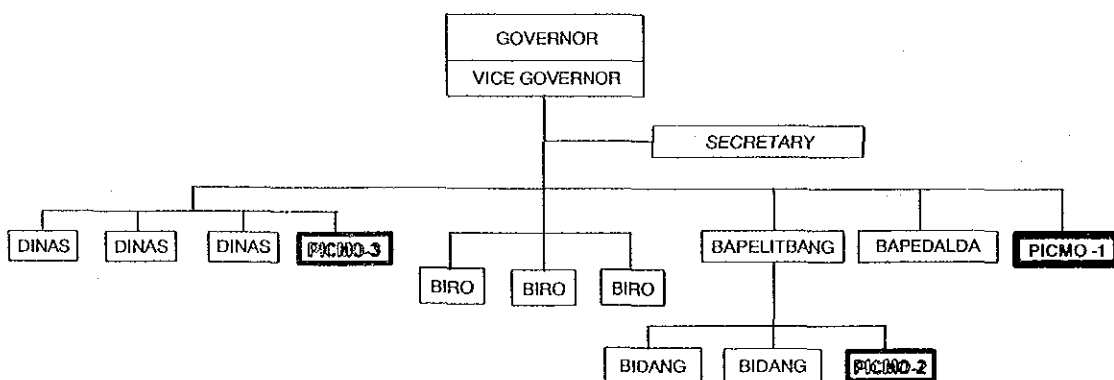
- to formulate an integrated provincial coastal management plan
- to establish guidelines for coastal management
- to establish environmental standards at provincial level
- to monitor coastal conditions
- to endorse AMDAL for coastal development projects to BAPEDALDA
- to monitor coastal development projects
- to coordinate among related agencies for coastal management at provincial and municipal/regency levels
- to review development plans from developers and/or other government permits such as business permit and occupancy permit, and to issue development permit and/or license to developers and government agencies
- to conduct an enlightenment program

Source: JICA Study Team

PICMO have several options to be located at different levels as follows:

- Alternative -1 (PICMO-1): Board level (Badan) – (the same as BAPELITBANG and BAPPEDA)
- Alternative -2 (PICMO-2): Division level under BAPELITBANG (Bidan)
- Alternative -3 (PICMO-3): Department (Dinas) Level

Figure 8.2 shows several alternative status of PICMO. There are several advantages and disadvantages to each status as shown in Table 8.3. These options were discussed at each municipal/regency meeting, and Provincial and National Steering Committee Meetings. Alternative-1 is recommended as suitable for coastal management in North Sulawesi as presented in Table 8.3 and the above discussions.



Source: JICA Study Team

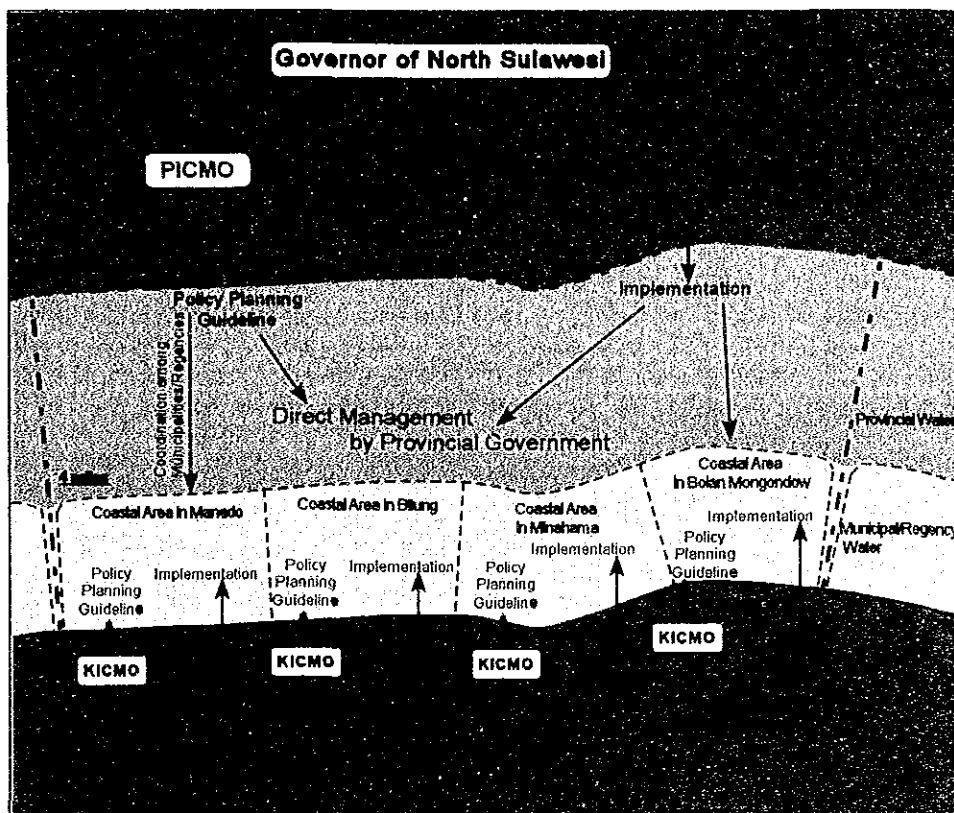
Figure 8.2 Alternative Status of Provincial Integrated Coastal Management Office

Table 8.3 Options for Establishment of PICMO

Status	Advantages	Disadvantage
Alternative-1 (PICMO-1) Board level (<i>Badan</i>)	<ul style="list-style-type: none"> • Technical support from planning to implementation can be provided to the Governor. • Plan can be formulated. • Projects can be implemented. 	<ul style="list-style-type: none"> • Functions could conflict with that of BAPELITBANG.
Alternative-2 (PICMO-2) Division level under BAPELITBANG (<i>Bidan</i>)	<ul style="list-style-type: none"> • Administrative tasks of related agencies can be coordinated. • Plans can be formulated. 	<ul style="list-style-type: none"> • Projects cannot be implemented.
Alternative-3 (PICMO-3) Department (<i>Dinas</i>) Level	<ul style="list-style-type: none"> • Projects can be implemented. 	<ul style="list-style-type: none"> • Sectoral coordination is difficult. • Plans cannot be formulated.

Source: JICA Study Team

Figure 8.3 shows the positions of PICMO and KICMOS (Municipal/Regency Integrated Coastal Management Offices), which are proposed in the following section, in the government's organizational structure.



Source: JICA Study Team

Figure 8.3 Positions of PICMO and KICMO in the Administrative Structure

8.3 Coastal Information System Plan

8.3.1 Management Issues on Coastal Information System Plan

(1) Scope of Management

Coastal information system is needed for Management Unit Plans such as coastal resource use, coastal spatial use, urban environment, watershed and coastal ecosystem conservation and marine wildlife conservation. Information and data flow such as collection, arrangement, analysis and transmission/release of information and data is dealt with in information system.

(2) Problems related with Coastal Information System

Valid and good quality data and Information is essential to an effective coastal management, however, the reality in the area is that information is not utilized well and effectively for coastal management. Sectoral management such as fishery, forest and others do not even use data and information for planning and implementation stage for several reasons. First, all necessary information is not identified nor used, thus its value in management cannot be recognized; lack of experience in data utilization is one of the constraints as well. As a result, the necessary information is not accumulated in an agency nor a useful information network is established, and necessary information for coastal management is unavailable. This is a vicious spiral generated. Problems regarding coastal information system are summarized as follows:

- coastal information is not utilized because the value of good and valid information has not been recognized for coastal management;
- experiences to utilize information for coastal management is lacking;
- many of necessary information is lacking for coastal management because these necessary data and information is not identified; and
- information system does not exist such as collection, arrangement, analysis and transmission/release in an agency nor among related agencies.

(3) Management Issues

Based on management problems in the aspect of coastal information system, the following issues to address are identified for establishment of appropriate coastal information system for coastal management:

- to clarify necessary data and information regarding coastal management;
- to develop a mindset for coastal management to be based on valid information, and have skill for valuation of information; and
- to establish reliable and reasonable information system for coastal management among related agencies.

8.3.2 Strategic Approach to Coastal Information System Plan

Scientific and well-grounded information and data are indispensable for coastal management including planning, enforcement and evaluation. It is possible for just anybody to point out coastal environmental problems, but at the same time, is difficult to show any evidence. Rumors cannot be a basis for valid and effective management. In order to establish a proper coastal management system, the following strategic approaches should be taken in coastal management plan:

- to develop necessary systematized information structure for coastal management including information collection, arrangement, analysis and transmission and release; and
- to strengthen government capability for coastal information management.

8.3.3 Necessary Information and Data for Coastal Management

It can be said that provincial and municipal/regency governments have not started to manage coastal water well, and the lack of necessary information is one of the reasons. It is required that scientific information including natural environment and socioeconomic situations should be collected and used for rational and effective management.

Table 8.4 shows necessary information on coastal management by each management unit. This information is used for policymaking, regulation establishment, planning, survey/monitoring, construction of structures, evaluation, and issues of license.

Table 8.4 Necessary Basic Information for Coastal Management

Categories	Items
Spatial Use Management	<ul style="list-style-type: none"> • shoreline type and changes in coastline • coastal use, infrastructure • beach erosion and sedimentation
Coastal Resources Management	<ul style="list-style-type: none"> • environmental conditions (shoreline forms, sea beds conditions, currents, tidal level and current, wave, water quality, coral reef seagrass beds, mangrove forest, nekton, benthos) • weather conditions • types and preservation of coastal resources • catch of fishes in weight by fish, by area, by fishing method, and fishing conditions • location of fishing ground, environmental conditions of fishing ground • fishing methods and gears • no. of fishing boats (type, size, with or without engine) • location of set-nets and facilities fishery • location and production of mariculture • location and production of fishpond/shrimp ponds • number and structure of fishery workers • socio-economic conditions of household of fisherman
Marine Wildlife Conservation	<ul style="list-style-type: none"> • number of endangered species • location and environmental conditions of habitats (nesting beach, spawning)
Watershed Management	<ul style="list-style-type: none"> • land use and vegetation • pollution sources (point and non-point sources) • watershed system, amount of rainwater, river water volume
Urban Environmental Management	<ul style="list-style-type: none"> • pollution sources (point and non-point sources, volume and quality) • coastal use, infrastructure

Source: JICA Study Team

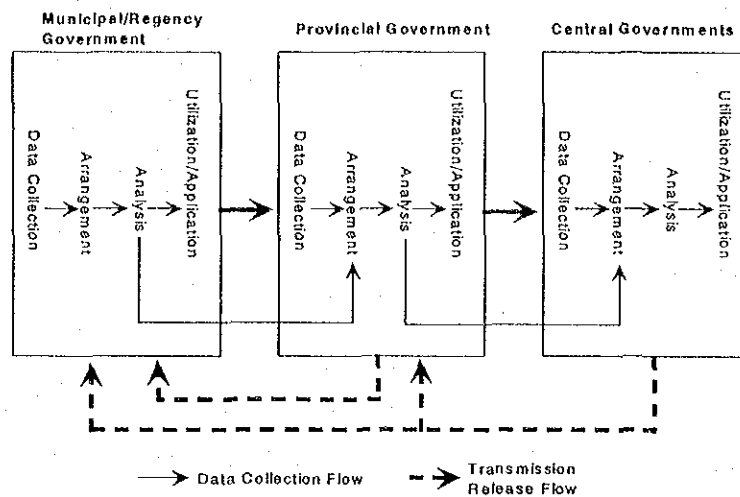
8.3.4 Structuring of Coastal Information System

(1) Construction of Necessary Information System

The procedure to establish coastal information system can be summarized as follows:

- clarify necessary data/information regarding coastal management;
- make simple and clear formats to collect data/information;
- set up a mechanism to collect and compile data/information in an agency and among agencies;
- have skills to analyze, valuate the data/information; and
- then, use and apply.

The coastal information system consists of collection, compilation, arrangement and transmission/release of data and information. Proposed coastal management information flow is shown in Figure 8.4.



Source: JICA Study Team

Figure 8.4 Coastal Information Flow

Each government agency collects information on its own administrative areas and fields based on standardized methods. In municipality/regency, collected information by related municipal/regency agencies such as Municipal/Regency Fishery Office, Municipal/Regency Forest Office is transmitted to KICMOs which are responsible bodies for coastal management at municipal/regency level. KICMOs compile and integrate collected information and data into standardized data format. The municipal/regency information is used for administration purpose; the data is also transmitted to PICMO. PICMO also collects necessary information from related provincial agencies. This information and data from provincial governments and the information from KICMO are integrated into the Provincial Coastal Information System. PICMO also transmits their information to central government (DKP).

a) Data Collection

Provincial and municipal/regency governments will collect necessary information for the coastal management based on the Coastal Management Information Guideline to be formulated by Provincial Coastal Information Center, PICMO and KICMOs for securing of quality of information. The guidelines should prescribe the following:

- information will be collected under stipulated accuracy level based on Coastal Management Information Guidelines;
- collected data will be input by stipulated data format; and
- provincial Coastal Information Center will check collected information and data which are under stipulated quality.

b) Arrangement

Collected information will be arranged and input to the Coastal GIS by Provincial Coastal Information Center under PICMO.

c) Analysis

Coastal information is analyzed by related agencies for coastal management.

d) Utilization/Application

Analyzed information can be used for coastal management policy, design plans, education and for enlightenment materials by related agencies.

e) Transmission and Release

The information for provincial coastal management can be provided to related agencies, academic institutions and private sector. It is possible that PICMO levies charge on data supply, the same as with meteorological data. Collected charge is used as maintenance of Coastal GIS. The following media can be used for transmission of information and data.

- GIS data file;
- Other data files and output chart;
- Image data (Aerial photograph, field survey photographs, video etc.); and
- Others (Bulletin board, circular notice, Internet homepage etc.)

(2) The Needs for Provincial Coastal Information Center

From the viewpoint of whole North Sulawesi Province, multiple investments were done when plural agencies collect and arrange similar information for different purposes. Thereupon, standardization of information management and creating a certain agency to be a core of information network will lead to sharing of information and also sharing the cost of information arrangement among related agencies

To manage coastal area rationally and effectively, information needs to be appropriate. As "8.3.4 Structuring of Coastal Information System" explains, data collection, arrangement, analysis and utilization and application and transmission need to be managed as a system.

In the master plan, establishment of Provincial Coastal Information Center is proposed. It is required that Provincial Coastal Management Basic Regulation prescribe Coastal

Information Center under PICMO, which has a responsibility to manage coastal information. Municipal/regency government agencies should also transmit necessary information on provincial coastal management to PICMO.

a) Organization of Information Center

Provincial Coastal Information Center is composed of 4 sections as shown in Table 8.5.

Table 8.5 Functions of Provincial Coastal Information Center by Section

Data Collection & Analysis Section	GIS operation Section	Information Services	Administration Section
<ul style="list-style-type: none"> • to prepare data format for data collection and survey • to collect information and data regarding coastal management. • to conduct survey • to analyze coastal information • to control quality of information 	<ul style="list-style-type: none"> • to maintain and operate coastal GIS • to input data to coastal GIS • to manage equipment of GIS and others 	<ul style="list-style-type: none"> • to manage library • to publish data book, statistical book • to provide information on coastal management to related agencies 	<ul style="list-style-type: none"> • to manage building and facilities

Source: JICA Study Team

b) Necessary human resources for operation of Coastal Information Center

Necessary human resources for operation of Provincial Coastal Information Center is as follows:

Data Collection & Analysis Section (1 person)

A person who can analyze the coastal environment and resources, and socioeconomic data.

GIS operation Section (4 persons)

System engineer: 1 person

Database management specialist: 1 person

Database operators: 2 persons

Information Services: (3 persons)

Persons who have knowledge of information arrangement, management, library business and others, to act as Information Specialist.

Administration Section (2 persons)

Persons who manage and administrate Provincial Information Center

c) Necessary facilities and Equipment

The following facilities and equipment are required for establishment and operation of Provincial Information Center:

Table 8.6 Office Building (1)

Items	Floor Space	Requirement
Data Collection & Analysis Section	10m ²	
GIS Operation Section	32m ²	with air conditioner
Information Services	16m ²	
Administration Section	16m ²	
Computer Room (Sever Room)	10m ²	with air conditioner
Library	60m ²	with air conditioner
Meeting Room	24m ²	
Total	168 m²	

Source: JICA Study Team

Table 8.6 Basic Configurations of Software (2)

Items	Software
GIS	ARCINFO, Arcview, Mapinfo .etc
Database	Excel, Access .etc
Image processing	ERDAS.etc
Analysis	SPSS, Spatial Analysis .etc

Source: JICA Study Team

Table 8.6 Basic Configurations of Hardware (3)

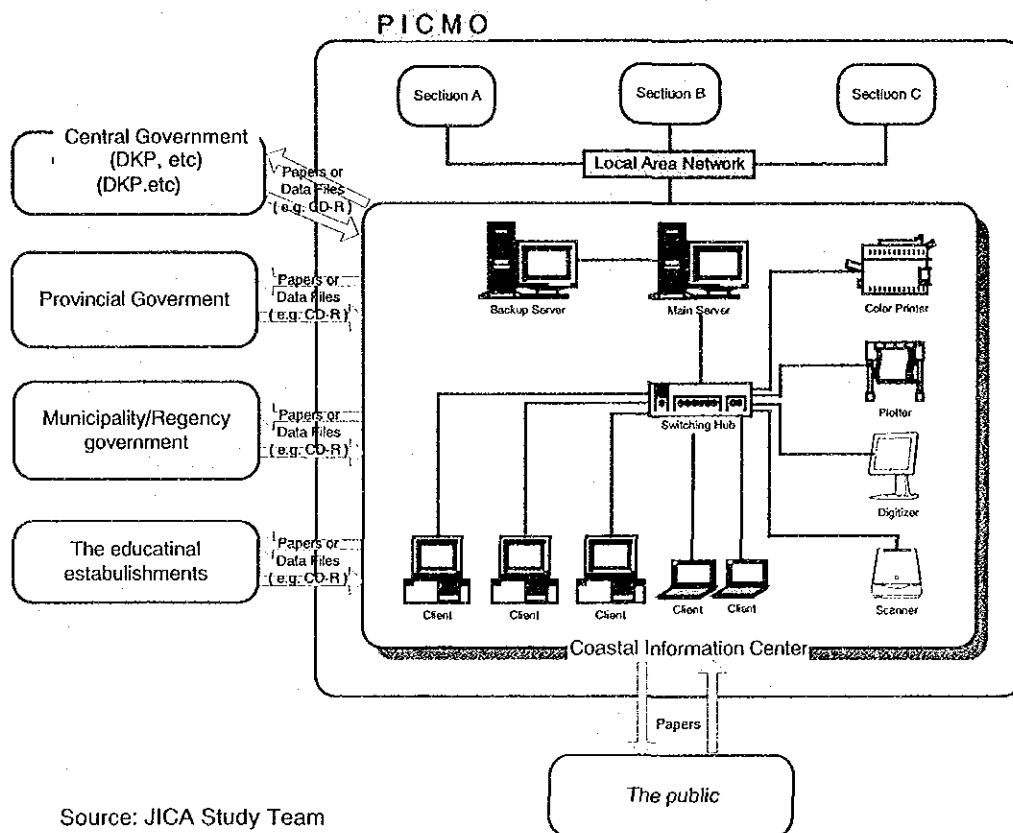
Items	Quantities	Section
PC Server (Main, Backup)	2 units	Computer Room
PC Client	11 units	1 unit about 1 staff
Color Printer (A-3 size)	1 unit	Common
Laser Printer (A-3 size)	1 unit	Common
Color Plotter (A-0 size)	1 unit	GIS Operation Section
Color Copy (A-3 size)	1 unit	Common
Scanner (A-3 size)	1 unit	GIS Operation Section
Digitizer (A-0 size)	1 unit	Data Collection & Analysis Section
LAN related equipment	1 set	Common
Uninterruptible power supply & Voltage regulator	2 sets	Computer Room and GIS operation Section

Source: JICA Study Team

(3) Provision of Coastal Information to the Public

Coastal information needs to be provided to academic institutions, communities, the private sector, and NGOs in order to support their activities. The information includes not only data on coastal conditions but also management policy, government activities, and dissemination purposes. Coastal information should be disseminated through white paper, government publication, and official gazettes.

The current situation of information network for coastal management in North Sulawesi is not appropriate at present due to the constraints of data storage and telephone network of Manado. In the future, Coastal Information Network among related agencies will be established when the center will have enough data and information, and telephone communication is improved. Figure 8.5 shows the future image of Coastal Information Network of North Sulawesi.



Source: JICA Study Team

Figure 8.5 Future Image for Coastal Information Network in North Sulawesi

8.3.5 Maintenance of Coastal GIS for Coastal Management

The Study Team developed Coastal GIS through the Study. It is necessary that database be updated in order to reflect the latest situations to planning, monitoring, and other purposes.

(1) Procedure for Update of Information

The update process of coastal GIS is shown below:

- Related agencies should collect information and data under stipulated frequency and quality based on Provincial Coastal Information Guidelines; and
- GIS operation section should submit the updated information and data to Provincial Coastal Information Center.

(2) Quality Inspection of Coastal GIS

Provincial Coastal Information Center should inspect the Coastal GIS regularly based on ISO/TC211, with regard to the following:

- traceability
- logic consistency
- attribute accuracy
- positional precision
- time accuracy

8.3.6 Human Resources Development for Coastal Information System

This aims to develop and improve human resources for coastal information especially local government staffs. The following skills should be developed for Coastal GIS operation:

- information and data collection;
- data maintenance in database;
- operation of Coastal GIS; and
- analysis of coastal information for coastal management.

8.4 Human Resources Development Plan

8.4.1 Management Issues on Human Resources Development

(1) Scope of Management

Management targets for human resource development plan are staff members of local government agencies such as provincial, municipal and regency governments in charge of coastal management. The number of skilled human resources seems not enough at present time. Coastal management skills include planning, implementation, monitoring, evaluation and research.

(2) Problems Related with Human Resources Development

Under the decentralization policy, most of governmental functions and roles have been transferred to local governments from central government agencies. Although it is just a beginning of the new era, local government is not performing very well due to shortage of competent staff and many other reasons as well. Increasing the number of human resources and building their capacity are absolutely urgent agenda for local governments to be able to carry out their roles efficiently. Problems regarding human resources are summarized as follows:

- government staff lacks competence to provide good service regarding coastal management;
- government staff cannot perform to expectations because their educational background or experience is different from their job description;
- government staff is not provided enough on-the-job and in-house trainings.

(3) Management Issues

Based on management problems in the aspect of human resources, the following issues to address are identified for achieving the improvement of capability for coastal management”:

- to increase the number of skilled government officers in coastal management;
- to improve and develop government capability for coastal management especially local governments by building the capacity of government officers .

8.4.2 Strategic Approaches for Human Resource Development Plan

The objective of human resource development plan is “to achieve improvement of capability for coastal management.” In order to attain this objective, the following strategic approaches should be taken in coastal management plan:

- to promote/appoint persons who have appropriate background to the right positions;
- to improve internal government human resources through on-the-job and in-house trainings; and
- to appoint external human resources as local government staff such as those in local universities and central governments.

8.4.3 Requirement of Local Government Staff for Coastal Management

It is correct to say that the coastal management is comprehensive administration. It covers wide physical areas, various sectors and many and various stakeholders. Therefore, implementing agencies, specific provincial government and municipal/regency governments should have wide-range administrative territory, and strong coordination ability. Therefore, government officers require wide-range knowledge and skills for coastal management.

Basic knowledge for coastal management includes knowledge of laws, government institutions, and natural science and socioeconomy. Table 8.7 shows necessary specialties for any government staff of province and municipality/regency by management unit. The educational level required is university graduate.

Table 8.7 Necessary Specialties for Government Staff of PICMO

Management Units	Major Specialties
Coastal Information Center	GIS Information management Statistics
Coastal Spatial Use	Land use planning/Spatial Planning Geography Physical oceanography Coastal engineering/Hydrology Resources use
Coastal Resources Use Management	Resources management Fishery/Marine biology Forestry/Botany
Urban Environmental Management	Urban planning Coastal engineering Pollution control Sanitary engineering
Watershed Management	Land use planning Agriculture/Soil engineering Forestry Civil engineering/River engineering
Coastal Ecosystem & Marine Wildlife Conservation Management	Ecology Zoology/Aquatic animals/Fishes/Marine biology/ Marine Wildlife Coastal botany/plankton, seagrass Protected Area management Marine wildlife conservation/conservation biology

Source: JICA Study Team

8.4.4 Capability Building of Local Governments

(1) Local Government Staff Training

It was mentioned that the coastal management requires an integrated or comprehensive administration in the various fields, so that current administrative ability of local governments to implement the master plan seems low due to the lack of competent human resources. It would not be an exaggeration to say that the success of coastal management of North Sulawesi would depend on securing competent government staff.

However, administrative capability of local governments is not enough. Capability building of coastal management is the most important and urgent issue. Therefore, local government officers require training. Training for local government officers consists of on-the-job training and off-the-job training. Both types of training are used based on objectives of training.

On-the-job training

On-the-job training for coastal management has never been practiced, because coastal management is a new field of governmental responsibility. On-the-job training is very effective training tool. It can be proposed that governments provide job opportunity to their staff.

Off-the-job training

Off-the-job training includes seminars, training courses and symposia. Off-the-job training provides opportunity to restructure knowledge and skills for government staff. Establishment of Local Government Training Center is proposed in the following section.

(2) Establishment of Local Government Training Center

It was already mentioned that capability of local government staff should be developed due to decentralization of government functions. Establishment of Local Government Training Center is proposed in order to build up local government capability.

Targets of training at the Center are:

- local government staffs including those in provincial and municipal/regency government agencies;
- village administration officers; and EOs (Extension officers) are proposed in “7.3.4 Sustainable Fishery Resource Use Management”;

- members of NGOs, NPOs, and cooperatives involved in local governance.

Local government staffs will be trained at the Center on the following:

- management system;
- coastal management technology;
- coastal management planning including participatory planning;
- community mobilization;
- local legislations; and
- local financial administration.

8.4.5 Substantial Education Curriculum of Local Universities

Academic institutions have a function of providing human resources to local government agencies for coastal management. In North Sulawesi, there are several universities such as:

- Sam Ratulangi State University;
- De La Salle University Manado;
- Fishery Academy (DKP); and
- Institute of Technology Minahasa (private university)

Coastal management courses in local university should be strengthened for coastal management administration. Related coastal management courses such as regional and city planning, resources management, water pollution, biology, environmental science, fishery, information science and other related courses (see Table 8.7) are strengthened in universities through the following activities:

- development of textbooks;
- allocation of facilities and equipment; and
- improvement of library.

8.4.6 Expanding of Extension Officers for CBM

Community Based Coastal Management takes a strategy to use Extension Officers (EOs) as catalyst to introduce coastal management to coastal communities in the master plan. The EOs are the peripheral worker in the coastal management and needs to be produced by government input. The CBCM planned in the master plan needs at least one EO from each village and at least one outsider EO in one district. Therefore, at least 180 EOs from

villages and 25 from outside of villages by district (*kecamatan*) are needed. The outsider EOs can be government officers, NGO members, and other related personnel

In the master plan, an EO Training Center is planned to produce such required number of extension officers. Such Training Center is to be located in each municipality/regency, with Manado and Bitung having one Training Center each and Minahasa and Bolaang Mongondow regencies with at least three centers in different locations because of their size. In addition, the center is to be used for communication between and among communities and government offices.

The tasks and contents of training for EOs are summarized as follows

Table 8.8 Task and Contents of Training (1)

1. Task	Contents
Collecting Data	<ul style="list-style-type: none"> ● baseline survey ● monitoring
Facilitator	<ul style="list-style-type: none"> ● formulate "Management Group" for coastal management ● coordinate for making a village master plan for coastal management
Mediator	<ul style="list-style-type: none"> ● between village and other organizations such as JICA, KYF, District offices, and other villages
Educator	<ul style="list-style-type: none"> ● for environment (resources, management, utilization)
Reporter	<ul style="list-style-type: none"> ● reporting/documentation of village activities, problems, solutions, etc.

Source: JICA Study Team

Table 8.8 Task and Contents of Training (2)

2. Training	Training contents	Trainers
General Issues	<ul style="list-style-type: none"> ● law and regulations ● community development planning ● communication techniques 	BAPPEDA, BAPEDALDA PMD, BAPPEDA UNSRAT, Proyek Pesisir
Specific Issues	<ul style="list-style-type: none"> ● concept of Integrated Coastal Management : ICM ● marine environment and resources ● environment, sanitation and health ● reporting/documentation ● participatory rural appraisal 	Proyek Pesisir & Univ. of Rhode Island UNSRAT and Dinas Perikanan Dinas Perikanan PMD NGO (Kelola)

Source: JICA Study Team

8.5 Education and Enlightenment Plan

8.5.1 Management Issues on Education and Enlightenment Plan

(1) Scope of Management

This section is divided into two aspects such as “education” and “enlightenment.” Targets for “education” are schoolchildren and junior high school students. Targets for “enlightenment” are public people. Table 8.9 shows the comparison of targets for education and enlightenment. It is expected that through education and enlightenment plan proper knowledge, change of attitude, and practice of sustainable coastal resource use (KAP) would be achieved. Targets of education such as schoolchildren have neither misunderstanding nor prejudice yet at their age compared with adults, and younger age is like a blank paper to absorb new ideas.

Table 8.9 Targets for Education and Enlightenment in Coastal Management

	Education	Enlightenment
Target	<u>Specific targets</u> Schoolchildren Junior high school students	<u>No specific target</u> Coastal users (Adults)
Place	<u>Institutional base</u> Elementary schools Junior high schools * Including ex-curriculum education outside schools	<u>Not specified</u>
Intention	systematic approach from basics	topic base information dissemination

Source: JICA Study Team

(2) Problems related with Education and Enlightenment

First problem seem in the area of education/enlightenment is that there has been very little effort made in the area up to date. Especially the efforts to raise awareness of coastal management problems for community people are almost not existent except in areas covered by projects and programs funded by external assistance funds. Another problem is that government efforts to disseminate laws and regulations against exploitation of coastal resources and area do not exist. People only hear the rumor of what they should not do but do not know the reasons behind the prohibition. Therefore, it is difficult for people to follow the government laws and regulations

School education is in better situation but needs to emphasize more on the coastal subject. The curriculum needs to be oriented more to local coastal situation. The problems identified in the school education are: 1) the concentration on the lessons in classrooms, 2)

the lack of natural science background of schoolteachers, and 3) the non-involvement of local area resource persons.

Because these efforts to give right information and knowledge to the public and schoolchildren is weak, the knowledge on coastal area is not enough. Better quality and frequent education/enlightenment are needed not only to attain good knowledge but also to change people's perception, behavior and attitude.

(3) Management Issues

There are management issues to address in order to solve the problems mentioned above. The following issues to address can be identified for achievement of effective education and enlightenment in coastal management:

- to promote proper knowledge, change of lifestyle and attitude, and practice of sustainable coastal resource to community people; and
- to educate new generation effectively.

8.5.2 Strategic Approach to Education and Enlightenment

The objective of education and enlightenment is "to achieve effective communication to the people". In order to attain this objective, the following strategic approaches should be taken in coastal management plan:

Education

- to enhance knowledge about the coastal area such as conditions, problems, necessary measures for environmental conservation and others through reinforcement of community based curriculum and extracurriculum; and
- to develop education and enlightenment materials suited for the geographical and socio-economic conditions of North Sulawesi.

Enlightenment

- to make effective approaches of awareness raising activities to the various stakeholders in the coastal area; and
- to improve the quality of communication.

8.5.3 Strengthening of Education for Coastal Management

In order to strengthen the school environmental education for coastal management, the following three approaches should be considered.

(1) Revision of the Curriculum of Environmental Education Potential of the Sea (*Potensi kelautan*)

a) Rationale

Because the current curriculum does not contain the opportunity for the children to get to know directly the coastal area, the local curriculum "*Potensi Kelautan*" (potential of the sea) should be revised according to the local situation, and extra curriculum to observe the sites should be included in the curriculum of environmental education. The current one way cramming teaching method used in Indonesia, rarely using teaching materials, is not effective to learn natural science which is closely related with people's livelihood.

b) Methods

The Study Team recommends the development of the local curriculum, especially the subject "*Potensi Kelautan*," by the above-mentioned (*) Curriculum Planning Team and experts/trainers of Provincial Education Office and related agencies.

* The Curriculum Planning Team has already been organized by 20 members who were selected from teachers of elementary/secondary schools and education officers in North Sulawesi, and worked for improving the local curriculum.

The Curriculum Planning Team and experts/trainers will organize the curriculum development workshop and will develop/revise teaching materials and textbooks, depending on newly developed curriculum at the same time.

c) Contents of revision

The current state of education regarding environment in primary/secondary schools is as follows:

- Grade 1 to 4: no independent subject, only mentioned partially in other subjects such as science, social studies, etc.
- Grade 5 to 6: The subject exists, but the classes rarely exist, because of absence of the textbook
- Grade 7 to 9: The subject and textbook exist. However, the contents are too broad and advanced for students/teachers. Some students cannot afford to buy textbook. Sometimes, there are no classes.

It is recommended that contents of curriculum be revised based on levels of grade which required certain knowledge. Table 8.10 shows the contents of revision of curriculum of "*Potensi Kelautan*."

Table 8.10 Proposed Contents of Revision of Curriculum of "Potensi Kelautan"

Grade	Purpose and Aim	Proposed Contents
1 to 2	<ul style="list-style-type: none"> ● to lay the foundation of children getting to know the coastal resources/environment. <p>(Teaching materials are not suited for characteristics of North Sulawesi and do not interest pupils in these 2 grades, for example, tigers, elephants and other animals not found in North Sulawesi. This is the first step to accomplishment of localized education.)</p>	<p>Familiarization with coastal life</p> <ul style="list-style-type: none"> ● to learn the alphabet and spelling with learning the name of sea life that is popular in North Sulawesi. ● its teaching materials will be drawn with pictures of those sea lives.
3 to 6	<ul style="list-style-type: none"> ● to observe the familiar environment to study basic coastal biology by extracurricular classes. <p>(Pupils who live in the coastal area are not always knowledgeable about coastal environment and marine life, because the school education is only carried out in the classroom.)</p>	<p>Knowledge of environment</p> <ul style="list-style-type: none"> ● to observe sea and coastal life ● to acknowledge the existence and importance of coral and its ecology ● to understand the symbiotic relationship between coral and fish, and other life. (Cradles, Hiding places, and so on)
	<ul style="list-style-type: none"> ● to look into their own villages to study the basic relationship between coastal ecosystem and human activity. <p>(The pupils will know how deeply their lives are indebted to the coastal environment, and how deeply their lives affect the coastal environment.)</p>	<p>Knowledge on people's life in coastal area</p> <ul style="list-style-type: none"> ● to study how the people use the coastal resources/environment to understand it. ● to study how the people's life and production activity affect the coastal resources/environment to understand it ● to understand what the destruction of coral reefs like dynamite fishing bring to the coastal resources/environment.
7 to 9	<ul style="list-style-type: none"> ● to understand the coastal ecosystem as a basis of natural science. <p>(The result of coastal observations in primary schools will be developed to a higher-grade 'Science'.)</p> <ul style="list-style-type: none"> ● to understand the reasons and influences of deterioration of the coastal resources/environment as a basis of natural science and social science. <p>(The students consider scientifically the cause of the coastal environmental problems and environmental impact by the human activities on not only coastal area but also inland area.)</p>	<p>Knowledge of coastal environment</p> <ul style="list-style-type: none"> ● to understand how the coral reefs are formed. ● to observe the structure and role of the coastal environment like coral reefs, sea grass zone, sandy zone and mangrove forest to understand it. ● to understand the circulation of the water through the river, the sea, vapor and rainfall affecting the coastal environment.
	<ul style="list-style-type: none"> ● the students try to find the solution by themselves. <p>(Even though the conclusion is a little crude, it should be drawn up by the students themselves.)</p>	<p>Problem Solving Capacity</p> <ul style="list-style-type: none"> ● to consider how to reduce the negative impact of people's life and production activity to the coastal environment, and how to realize the sustainable use of the coastal resources.

Source: JICA Study Team

d) Implementation Agencies

Responsibility of this education lies with the Directorate of Primary /Junior Secondary Education and Education for the Handicapped in the Department of Education under Province.

Existing Curriculum Planning Team and experts/trainers of Provincial and municipal/regency Education Office and related agencies (especially PICMO/KICMO, universities) will carry out practical work.

(2) Improvement of Abilities of School Teachers

a) Rationale

Most of teachers are not competent to teach about the ecology and biology of sea and coastal area, because they do not have proper knowledge of coastal environment and educational background on natural science. In-service training for teachers on *coastal ecology and biology in accordance with the new curriculum and teaching methods* should be done together with the revision of curriculum.

b) Targets

Teachers who teach the subject for coastal management in the elementary and junior high schools in the remote coastal communities will be the first priority target group. The second target group will consist of the school masters/principals of same schools. There are 400 elementary schools (SD/MI) and 80 junior high schools (SLTP/MTs) in 192 coastal communities.

After that the targets will be expanded to the teachers in the coastal urban area, depending on the budget. There are 350 elementary schools (SD/MI) and 100 junior high schools (SLTP/MTs) in Manado and Bitung.

c) Contents of training

According to the target group, the contents will be distinguished as follows.

Table 8.11 Training for Ordinary Teachers (1)

Aims and Items	Contents
to enhance the knowledge about coastal area <ul style="list-style-type: none"> ● present state and problems of coastal area in North Sulawesi ● coastal creatures and eco-system ● coastal resources and human activity ● defining coastal management ● coastal management and schools ● coastal management and life in communities ● defining community based coastal management (CBCM) ● coastal management and children 	<ul style="list-style-type: none"> ● an introduction why coastal management is necessary ● interdependence of coastal lives ● interrelationship between human activity and environment ● an introduction to coastal management ● roles of schools in coastal management ● relationship between people's life and coastal management ● an introduction to CBCM ● kinds of roles children can fill in coastal management
to promote the interactive teaching methods <ul style="list-style-type: none"> ● teaching method for natural observation ● teaching method for study in the community ● teaching method for presentation ● teaching method for discussion 	<ul style="list-style-type: none"> ● how to guide pupils/students in their field observation ● how to guide pupils/students in their active social survey ● how to guide pupils/students in their mutual communication

Source: JICA Study Team

Not only lectures but workshop with role-playing and practical training will be given to explain the above-mentioned items.

Table 8.11 Training for Schoolmasters and Principals (2)

Aims and Items	Contents
to enhance the knowledge about coastal area <ul style="list-style-type: none"> ● present state and problems of coastal area in North Sulawesi ● coastal creature and eco-system ● coastal resources and human activity ● defining coastal management? ● coastal management and schools ● coastal management and life in communities ● defining community-based coastal management (CBCM)? ● coastal management and children 	<ul style="list-style-type: none"> ● an introduction why coastal management is necessary ● interdependence of coastal lives ● interrelationship between human activity and environment ● an introduction to coastal management ● roles of schools in coastal management ● relationship between people's life and coastal management ● an introduction to CBCM ● kinds of roles children can fill in coastal management
to promote roles of schools in CBCM <ul style="list-style-type: none"> ● how do we construct the interactive cooperation relationship between schools and communities for coastal management? 	<ul style="list-style-type: none"> ● to discuss what they should do in CBCM.

Source: JICA Study Team

Participants will master the roles as schoolmasters/principals in coastal communities through lecture and exhaustive discussion in the workshop.

d) Form and period of the training:

Table 8.12 Period of the Training for the First Target Group* (1)

Target	1 time training course	Number of times	Total No / period
400 primary schools	50 teachers of 50 schools	8 times / year	800 teachers / 2 years
80 secondary schools	40 teachers of 20 schools	4 times / year	320 teachers / 2 years

Source: JICA Study Team

*Ordinary teachers in the remote coastal communities.

Training period will be 3 days. The training for the first target group is expected to be completed in two years, after which attention will be focused on the training of the teachers in colleges/universities.

Table 8.12 Period of the Training for the Second Target Group* (2)

Target	1 time training course	Number of times	Total No./ period
400 primary schools	100 schoolmasters of 100 schools	4 times / year	400 schoolmasters / 1 year
80 secondary schools	40 principals of 40 schools	2 times / year	80 principals / 1 year

Source: JICA Study Team

Note: Schoolmasters/principals in the remote coastal communities.

Training period will be 2 days. After completion, the training will be held for only newly appointed schoolmasters/principals.

Table 8.12 Period of the Training for the Third Target Group* (3)

Target	1 time training course	Number of times	Total No/ period
350 primary schools	45 teachers of 45 schools	8 times / year	720 teachers / 2 years
100 secondary schools	50 teachers of 25 schools	4 times / year	400 teachers / 2 years

Source: JICA Study Team

Note: Ordinary teachers in the coastal urban area.

Training period will be 3 days. After 2 years, the training will be completed and switched to the training of the teachers in colleges/universities.

e) Candidates for trainers

Candidates for trainers who have knowledge and experience of the training contents above-mentioned are as follows:

- Curriculum Planning Team in Provincial Education Office
- Directorate of Primary /Junior Secondary Education and Education for the Handicapped in the Provincial Education Office
- The person in charge of education in Provincial Education Office
- The person in charge of enlightenment in implementation section of the proposed agency for coastal management (tentatively called PICMO/KICMO)
- Provincial taskforce of enlightenment/information for coastal management (tentative)
- Teaching staff of the Faculty of Fishery and Marine Science in UNSRAT
- Experts from international aid agencies

(3) Utilization of Local Resource Persons in Communities for Environmental Education

a) Rationale

It would be very useful to utilize local resource persons such as experienced figures in coastal communities who have accumulated knowledge closely related to the environmental conditions, capacities, and impacts. The children directly learn from these resource persons in a very effective way with lots of interests.

b) Methodology

Elementary schools and junior high schools should construct interactive cooperative relationship with Community Based Management groups, if any, in communities where the schools are located.

8.5.4 Promotion of Coastal Environmental Awareness to the Stakeholders in Coastal Area

In order to promote coastal environmental awareness to the stakeholders in coastal area, the following approaches should be considered:

(1) Establishment of Sufficient and Reliable Communication and Enlightenment System among Related Agencies

a) Various levels of communication for coastal management

Activities of the targets affect the coastal environment on various levels (Propinsi, Kabpaten/Kotamadja, Kecamatan, Kululahan/Desa), and the administrative agencies that cope with them are also various. It is difficult to assemble the targets in one place that differs from the case of "Education." On the other hand, since those targets sometimes also send messages to other targets and administrative agencies on various levels, it is necessary to promote two-way communication among them too.

b) Enlightenment and information communication on community level

Though coastal management contains management on various administrative level from Province to Community, most of daily problems are solved in coastal management on community level excluding large scale developments from outside. Community people shall organize public awareness activities based on CBCM, and these will function as the permanent open facility to everybody. It will be utilized as the "open space" for enlightenment and information communication covering the community.

c) Establishment of implementation (responsible) agencies of enlightenment

Though all agencies concerned in coastal management emphasize the importance of public awareness at present, the department implementing enlightenment in communities has never existed in such agencies. Establishment of a new Provincial agency or system controlling and planning and implementing enlightenment activities is essential for such purpose. The PICMO and KICMO (see Chapter 7) has to establish the section for enlightenment that has independent staff and budget. That agency will have resources and responsibility to implement enlightenment activities and information communication on each administrative level that facilitates the open platform for mutual communication.

(2) Establishment of the Coastal Management Enlightenment Center in PICMO

An organization that controls enlightenment and information communication in unified administration is essential. An intensive organization for enlightenment/communication is necessary especially in the PICMO. The organization will intensively implement the related activities with clear responsibility, and effectively produce the enlightenment materials and distribute them to the public.

The organization will be formally established as a section of PICMO.

Its activities are as follows:

- to plan annual enlightenment activities on Provincial level;
- to produce enlightenment and PR materials, such as video programs, audio programs, posters, brochures and so on to promote coastal management;
- to collect existing audio-visual aids and printed matters for enlightenment activities and to store them in a library that will be established in the center, which will be opened to the public;
- to support the enlightenment activities by KICMO and community, for providing information/knowledge;
- to dispatch lecturers aided by audio-visual equipment and materials;
- to disseminate the CBCM as a secretariat of Extension Officers; and
- to support education concerning the coastal management implemented by Provincial Education Office or schools and to dispatch lecturers aided by A/V equipment and materials.

(3) Training for Coastal Community Leaders on Coastal Management/CBCM

a) Objectives

In order to smoothly introduce the idea of CBCM to the community, training for community leaders (decision makers) will be held to give them proper knowledge in advance. They are expected to influence the ordinary community people.

b) Methods

The targets will be Village Chiefs, Religious leaders, old villagers and so on, who are respected by many villagers in 200 coastal communities. They are key persons who can affect the acceptance of CBCM by the community people. After adoption of CBCM, they will be key persons of implementing CBCM in their communities.

The 2-day training course will be organized in such a way that it will be held 8 times within a 2-year period.

Table 8.13 Outline of Training for Coastal Community Leaders

Target	1 time training course	Number of times	Total # / period
200 coastal communities	50 community leaders of 25 communities	8 times / year	800 community leaders / 2 years

Table 8.14 Main Contents of Training for Coastal Community Leaders

Aims and Items	Contents
<p>to enhance the knowledge about coastal area</p> <ul style="list-style-type: none"> ●present state and problems of coastal area in North Sulawesi ●coastal creatures and ecosystem ●coastal resources and human activity ●defining community based coastal management (CBCM) ●public awareness ●cooperation for CBCM 	<ul style="list-style-type: none"> ●an introduction why coastal management is necessary ●interdependence of coastal lives ●interrelationship between human activity and environment ●an introduction to CBCM ●how to improve environmental awareness of the community people and how to mobilize them. ●to implement CBCM in cooperation with internal and external human resources, especially teachers in the community.

Source: JICA Study Team

They will be given the proper knowledge about CBCM to enable them to encourage and mobilize people.

c) Implementation agencies

KICMO should implement the training of coastal community leaders in cooperation with PICMO.

(4) Promotion of Awareness of Coastal Management for Officers of Related Agencies

a) Targets

- related provincial government staff excluding PICMO
- provincial decision makers such as parliament members
- Higher officials of Municipalities and Regencies in the coastal area

In order to smoothly implement the coastal management, training for decision makers and government staff will be held to give them proper knowledge in advance.

b) Methods

The targets will be officials and decision makers belonging to Province, and higher officials from about 20 coastal municipalities/regencies.

The one-day training course will be organized in such a way that it will be held 6 times within a span of 2 years.

Table 8.15 Outlines of Training on Promotion of Awareness for Government Officials

Target	1 time training course	Number of times	Total No. / period
Province and 20 coastal Kab/Kota	20 officers of Province, 20 officers of 20 coastal Kab/Kota	3 times / year	240 officers / 2 years

Table 8.16 Main Contents of Training for Promote of Awareness for Government Officers

Aims and Items	Contents
<p>To deepen the understanding about coastal management</p> <ul style="list-style-type: none"> ● Present state and problems of coastal area in North Sulawesi ● Coastal management and administration ● Defining community-based coastal management (CBCM) 	<ul style="list-style-type: none"> ● What are the causes of the problems and measures to solve them? An introduction why coastal management is necessary ● The roles of administrative officials and politicians as promoters of coastal management ● An introduction to CBCM
<p>To promote the internal cooperation</p> <ul style="list-style-type: none"> ● Public awareness ● Cooperation for coastal management 	<ul style="list-style-type: none"> ● How to promote the officials' awareness and how to mobilize administrative organizations ● Importance of inter-sectoral cooperation in local governments for sufficient implementation of coastal management

Source: JICA Study Team

The participants will be given the proper knowledge about coastal management. The session contains the present state of coastal environment and resources, and how to manage them.

The training course enhances the participants awareness of the importance of inter-sectoral and vertical cooperation in the local government, and the effectiveness of voluntary community participation in coastal management.

c) Implementation agencies

PICMO and KICMO should implement awareness programs for coastal management to related officers as soon as possible.

8.6 Financial Plan

8.6.1 Management Issues on Financial Plan

(1) Scope of Management

The financial resources for the master plan will cover in principle the newly emerging costs for implementation of management unit plans and institutional supporting plans in the master plan. However, inland-based projects/programs such as reforestation, preventive measures on land erosion, and some extension works can be covered partially by existing budget allocated on these measurements. As the reason, already existing coastal management activities implemented by the local governments would be also expected to have government budget allocations.

The estimated amount of project budget would be around US\$ 24 million excluding land based projects and sewage works up to the year 2015. The financial plan will look into the existing financial resources, the rational of the planned projects and finally the possible financial resources to run these coastal management projects/programs.

(2) Problems Related with Finances

In the fiscal year of 2001, North Sulawesi Provincial Government has suffered from the deficit of the budget which was the first budget determined under the new rules of decentralization. The major reasons for the deficit are pointed out as follows:

- 1) The new allocation mechanism of the General Allocation Grant (DAU) didn't work appropriately. Consequently the amount of North Sulawesi province received was too small for the regional needs. Therefore, 144.9 billion Rp. of the Contingency Grant has been additionally allocated to the province from the national budget. But, a sum of DAU and the Contingency Grant this year is still not enough and covers only the salaries of officials for ten months of this year. Consequently there is no budget for development from DAU this year.
- 2) Gorontalo Province was newly established and administratively separated from North Sulawesi. Accordingly additional financial needs arouse along with this movement.
- 3) Additional financial needs for salary arouse because of abolition of the regional office of the central government agency (Kanwil), because the provincial government has to pay salaries for the government employees who were transferred from the regional office to the provincial government.

The above reasons are generally regarded as temporal ones which can be solved after the transition period of a few years. The tight financial situation of the national budget, however, is most crucial to the local governments. The draft national budget for the fiscal year 2002 was presented to the Parliament on 7 September. The total amount of IDR 90.3 trillion was earmarked as transfers to the local governments as follows:

- 1) The General Allocation Grant (DAU) with IDR 66.3 trillion (+9.6 % from FY 2001)
- 2) The shared revenue from taxes and natural resources with IDR 23.3 trillion (+14.3% from FY2001)
- 3) The Special Allocation Grant (DAK) with IDR 0.8 trillion (+14.3% from FY2001)

Although the amount of the grants for the local governments was 10.8% more than in the 2001 budget, expectations that there would be a larger special allocation grant didn't materialize because of the severe financial situation of the central government. In addition, the reduced scope of central government responsibilities to the local governments may have been reflected gradually after decentralization. It may imply that the local governments will be further driven back on own financial resources. Consequently, a strong coordination board of the Master pan Fund is necessary to raise and to demarcate the fund to the various implementing agencies concerned with the coastal environmental management.

Table 8.17 shows the North Sulawesi Provincial revenues for the fiscal year 2001 and 2000.

Table 8.17 North Sulawesi Provincial Revenues for the Fiscal Year 2001 and 2000

Fiscal Year 2001 (January to December)		(Rp)	
1 Regional Income (PAD)		40,145,036,575	23.0%
a. Local taxes		34,763,105,075	19.9%
b. Toll and fee		3,814,231,500	2.2%
c. Profits from the province owned companies		690,000,000	0.4%
d. Others		877,700,000	0.5%
2 Balancing Grant (Dana Perimbangan)		134,747,552,000	77.0%
a. The shared revenue from taxes and natural resources		13,817,552,000	7.9%
b. The General Allocation Grant (DAU)		120,930,000,000	69.1%
c. The Special Allocation Grant (DAK)		0	0.0%
Total		174,892,588,575	100.0%
Fiscal Year 2000 (April to December)		(Rp)	
1 Regional Income (PAD)		20,352,000,000	13.5%
a. Local taxes		17,507,000,000	11.6%
b. Toll and fee		1,543,000,000	1.0%
c. Profits from the province owned companies		625,000,000	0.4%
d. Others		677,000,000	0.4%
2 Balancing Grant (Dana Perimbangan)		130,749,888,000	86.5%
a. The shared revenue from taxes and natural resources		6,575,000,000	4.4%
b. The Regional Routine Grant (Dana Rutin Daerah)		35,617,888,000	23.6%
c. The Regional Development Grant (Dana Pemb. Daerah)		88,557,000,000	58.6%
Total		151,101,888,000	100.0%

Source: Sulawesi Utara Province, Anggaran Pendapatan dan Belanja Daerah, Tahun Anggaran 2000 and 2001

Note: The fiscal year period was changed in 2000, which used to be from April to March, but at present from January to December. Therefore, the Fiscal Year of 2000 was only 9 months from April to December. Consequently, the data on the amounts in 2000 and 2001 can't be compared directly. Besides, specifications of the balancing grant were also modified in 2001 because of the decentralization. The above General Allocation Grant (DAU) in 2001 includes 45 billion Rp. for Gorontalo Province.

Not only the North Sulawesi provincial government, but also different levels of local governments are suffering from budget constraints after the decentralization of government system.

(3) Issues/Constraints

The issues/constraints in the finance for coastal management projects/programs are various. First, the government budgets in the whole Sulawesi decreased substantially and the perspective of finance does not look positive for quite some time in the future. Having this background of finance in the area, the environmental management is not counted as a productive activity, rather counted as money consuming. Also, the concept of coastal management is quite new to the area, so that systems, human resources, organizations and projects/programs are not established or started yet in this area. The initial cost to start coastal management in the area is quite large comparing with other sector projects/programs.

(4) Expected Finances for Environmental Management including Coastal Area

It should be a principal policy for local government to direct the small portions of development money into environmental conservation and management activities in order to prevent quick environmental deterioration from such development activities in the area. Referring to the fact that OECD countries have spent 1 to 2% of their GDP as expenditures for environmental management, the expected amount of domestic financing for the environmental management can be set up based on the above mentioned ratio, 1 to 2% of the GRDP, as guideline. The ratio may be regarded as a reasonable and feasible level of internalized environmental cost, which wouldn't give an adverse overburden to the local economy. Then, the targeted amount of finances reaches between Rp. 107.8 and Rp. 215.6 billion in the case of 1999 when the GRDP of North Sulawesi province was Rp. 10,781 billion. It may include not only the public but also the private sector's finances.

8.6.2 Rational of Coastal Management

In this section, rational of coastal management is discussed in the economic terms. First the economic value of coral reefs and other coastal resources are estimated and secondly the cost-benefit analysis of coastal management in monetary value is shown using World Bank estimations.

(1) Economic Valuation of Coral Reefs and Other Coastal Resources

Coral reefs are highly productive, diverse, and attractive ecosystems which provide a valuable range of benefits not only for the people living the areas but also for the global ecosystem. Although the full economic value of coral reefs is rarely appreciated because of its difficulties to show in economic terms, recent advances in valuation techniques provide some useful information. In this section, monetary values of the Study Area deprived from coastal environment are examined as an example trial.

Environmental benefits may include many non-marketed goods and services which have no easily acknowledgeable monetary value. It needs much detailed economic and biological information with enough time and effort to measure them with the method like shadow prices, opportunity cost, and so on. Even with this, inaccuracies will always exist because of the inconsistency, bias of observer, and especially incomplete understanding of complex environmental process and inherent biological uncertainties.

There are several categories for classification of full range of benefit attributable to natural environment. Total Economic Value (TEV) is regarded as the most comprehensive approach. This classification divides benefits as shown in Figure 8.6. Determining the

TEV of natural environment and habitat only provides a minimum value, because some benefits such as potential value in future and/or intrinsic value cannot be ever quantified. If this is made clear then TEV valuation method becomes a valuable tool providing useful lower limit to the value of the environment. While we have to pay maximum attention to the result because under valuation may lead to overexploitation which can result in serious impact to the environment.

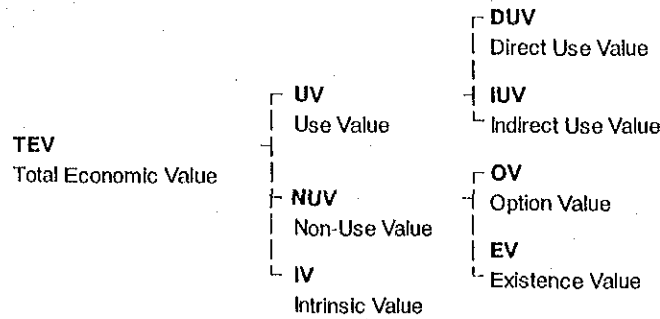


Figure 8.6 Classification of Total Economic Value approach

Examples of each value are shown as in Table 8.18.

Table 8.18 Example of Total Economic Value (TEV)

<p>TEV(Total Economic Value)</p> <p>UV (Use Values)</p> <p>DUV(Direct Use Values)</p> <p>Products (e.g. edible, aquarium, ornamental, construction, medicinal)</p> <p>Recreation</p> <p>Waste assimilation</p> <p>Research</p> <p>Education</p> <p>IUV(Indirect Use Values)</p> <p>Biological support (links to other species and habitats, e.g. seagrass and mangrove provide nutrients for fishery and organic detritus)</p> <p>Physical protection (e.g. coastal defense function)</p> <p>Global life support (functions which help to support life on earth)</p> <p>NUV(Non-Use Values)</p> <p>OV (Option Values, Human kind's willingness to pay now to preserve in case these values may arise in the future, or called Potential Value, it may not currently be used, but it may be in the future. e.g. for medicinal purpose, or called Biodiversity Value)</p> <p>Quasi-option values (the value arising from expected new information which will arise from the conservation of biodiversity for future use)</p> <p>EV (Existence Value, aesthetic and cultural aspects arising from some of all of the following human motivations; Bequest motives-preservation for future generation, Stewardship motives-preservation for its own sake, Altruism-preservation so that it is available for others, Quasi-Altruism-the belief that organisms have intrinsic rights)</p> <p>Intrinsic value (Non anthropocentric values)</p> <p>(Organisms have a worth of their own regardless of human perceptions)</p>
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Supplemental explanation of each economic value is explained in Appendix of this report.

(2) Quantitative Estimation

a) Standard Unit Price of Quantitative Estimation of Economic Values of Coral Reefs and Other Coastal Resources in the Study Area

Methodologies are by no means problem-free, but being refined and improved through many trials of monetary evaluation so far. Existing main techniques can be summarized as follows:

- Change in productivity;
- Replacement cost;
- Aversive / preventative cost;
- Hedonic pricing;
- Travel cost; and
- Contingent Valuation Method (CVM).
(Commonly used questionnaire of Willingness to Pay; WTP).

There are few example in the existing literature which provides specific monetary values of TEV of coastal ecosystem especially that identifies standard monetary price of each basic unit (e.g. per ha or m², per kg or ton, and etc.).

However, there are only a few examples as shown in Table 8.19.

Table 8.19 Unit value of benefit on selected ecosystem

				Unit: US\$/ha/year		
				Report 1	Report 2	Report 3
Coral	UV	DUV	Products	4,464.44 (coral fish, shrimp, mollusk)	---	
			Recreation		235,000.00	
			Research	91.08		
	IUUV	Physical protection		34,871.75 (coast protection)	170,000.00 (coast protection)	
			Global life support	240.00 (carbon sequestration)		
	NUV	OV	Biodiversity	15.00		
	Coral sub-total				39,682.27	405,000.00
Mangrove	TEV					9,123.78
Mangrove	UV	DUV	Products	48.80 (Standing stock)	756.00 (Sustainable forestry)	
				1,290.98 (Fish)	126.00 (Sustainable Fisheries)	
				5.80 (Wildlife: birds and reptile)		
				435.00 (Fruits, Thatch)		
			Waste assimilation		7,833.00	
	IUUV	Biological support			189.00 (Off site fisheries)	
			Physical protection	726.26 (Coastal protection)		
NUV	OV	Biodiversity	15.00	20.00		
	EV		2,516.40			
Mangrove sub-total				4,603.24	9,359.00	9,123.78
Seagrass	UV	DUV	Products	3,858.91 (shrimp & seagrass fish)	1,150.00 (prawn)	
			IUUV	Physical protection	34,871.75 (erosion prevention)	
	NUV	OV	Biodiversity	15.00		
Seagrass sub-total				38,745.66	1,150.00	
Total				83,031.17	415,509.00	9,123.78

Note:

Report 1 : "Economic Valuation of Marine and Coastal Resources in Barefang (Batam, Rempang, Galang) and Bintan", The first Assistant Minister of the State Ministry for Environment, Republic Indonesia and Center for Coastal and Marine Resources Studies Bogor Agricultural University, 1999

Report 2 : "The Socio-Economic Costs and Benefits of Coastal Habitat Rehabilitation and Creation", James Spurgeon, Marine Pollution Bulletin Vol.37, 1998.

Report 3 : "Indonesian Country Study on Integrated Coastal and Marine Biodiversity management", State Ministry for Environment, Republic Indonesia and Directorate for Nature Management Kingdom of Norway, 1996. The price was exchanged from Rp 10,000 to US\$ 1.

b) Valuation of Ecosystem in the Study Area

From restrictions of available data in North Sulawesi, evaluation about three ecosystems was performed by this study, i.e. coral reef, mangrove, and seagrass ecosystem. The total value of coastal resources in the study area is estimated as Rp 34 trillion. The estimation result is shown in Table 8.20. This amount is more than 3 times of GRDP of North Sulawesi or more than 100 times.

Table 8.20 Valuation of Ecosystem in the Study Area

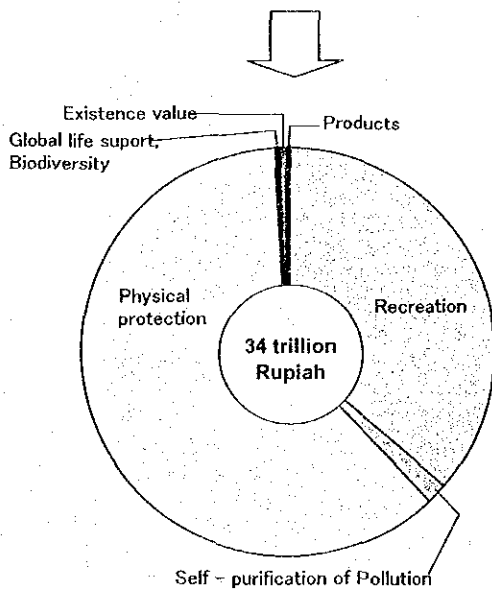
Ecosystem	Classification		Category	Reference value in	Statistics data of		Total amount of	Source, Applied Data, Notes
				existing literature	the Study Area	Area in GIS		
				Unit value (Rp./ha/year)	Value		Study Area	
Coral	UV	DUV	Products		Rp. 221,967,261	1,116,000ha	Rp. 221,967,261	Fish Production, 1998 *1
			Recreation	Rp. 2,350,000,000		5,334ha	Rp. 12,534,900,000,000	Report 2
			Waste assimilation	---	---	---	---	---
			Research	Rp. 910,800		5,334ha	Rp. 4,858,207,200	Report 1
			Education	---	---	---	---	---
	IUV	Biological support	---	---	---	---	---	---
		Physical protection	Rp. 20,000,000,000/km		740.0km	Rp. 14,800,000,000,000	Consultant's estimation *3	
		Global life support	Rp. 2,400,000		5,334ha	Rp. 12,801,600,000	Report 1 Carbon sequestration	
	NUV	OV	Biodiversity	Rp. 150,000		5,334ha	Rp. 800,100,000	Report 1
			EY	---	---	---	---	---
Seagrass	UV	DUV	Recreation	---	---	---	---	---
			Waste assimilation	---	---	---	---	---
			Research	---	---	---	---	---
			Education	---	---	---	---	---
			Biological support	---	---	---	---	---
	IUV	Physical protection	---	---	---	---	---	---
		Global life support	---	---	---	---	---	---
		Biodiversity	Rp. 150,000		9,940ha	Rp. 1,491,000,000	Report 1	
	NUV	OV	EY	---	---	---	---	---
				---	---	---	---	---
Mangrove	UV	DUV	Products		Rp. 3,896,227,000	7,525ha	Rp. 3,896,227,000	Fish Production, 1998 *2
			Sustainable Forestry	Rp. 450,000		403ha	Rp. 181,350,000	Report 1
			Fruits, Thatch	Rp. 4,350,000		7,525ha	Rp. 32,733,750,000	Report 2
			Bird, Reptile	Rp. 58,000		7,525ha	Rp. 436,450,000	Report 1
			Recreation	---	---	---	---	---
			Waste assimilation	Rp. 78,330,000		7,525ha	Rp. 589,433,250,000	Report 2
			Research	---	---	---	---	---
			Education	---	---	---	---	---
	IUV	Biological support	---	---	---	---	---	---
		Physical protection	Rp. 20,000,000,000/km		315.7km	Rp. 6,314,000,000,000	Consultant's estimation *3	
		Global life support	---	---	---	---	---	
	NUV	OV	Biodiversity	Rp. 150,000		7,525ha	Rp. 1,128,750,000	Report 1
			EY	Rp. 25,164,000		7,525ha	Rp. 189,359,100,000	Report 1
Total Value							Rp. 34,486,241,751,461	

Note: Exchange rate US\$1=Rp.10,000. The area is based on coastal GIS developed by JICA Study Team. Report 1: "Economic Valuation of Marine and Coastal Resources in Bareleng (Batam, Rempang, Galang) and Bintan", The first Assistant Minister of the State Ministry for Environment, Republic of Indonesia and Center for Coastal and Marine Resources Studies Bogor Agricultural University, 1999 Report 2: "The Socio-Economic Costs and Benefits of Coastal Habitat Rehabilitation and Creation", James Spurgeon, Marine Pollution Bulletin Vol.37, 1998.

*1: Fish production of Coral means total sum of fish production of the Study Area excluding the figure categorized (*2). Source : Buku Tahunan Statistik Perikanan 1999, Fishery Office North Sulawesi Province.

*2: Fish production of Mangrove means total amount of fish production of the Study Area consists of Giant sea perch (Indonesian Kakap Baramundi), Mullets (Belanak), Sea cat fishes/ Marine cat fishes (Manyung), Mangrove crabs (Kepiting) which can be caught in mangrove area and seagrass area. Source : same as *1

*3: Average 40 cubic meters/meter x Rp.500,000 = Rp.20,000,000 meter



(3) Cost Benefit Analysis of Coastal Management

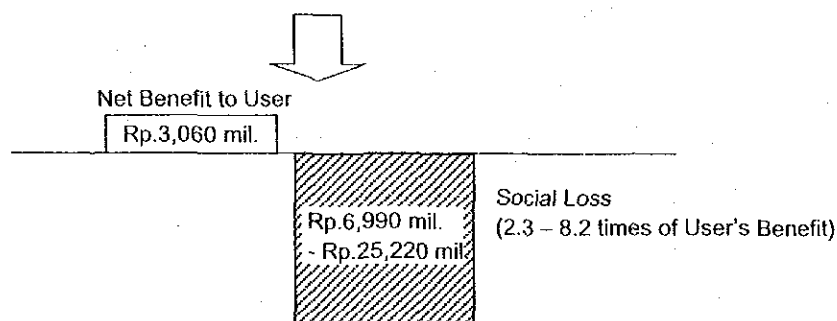
As mentioned above, the economic benefit is difficult to show in economic terms. Furthermore, the valuation how human activities affect coastal natural ecosystem in monetary value is more difficult and there is rarely common valuation technique.

If the effect of the coastal management, however, would be estimated in monetary values, it might help the authorities of local government to decide his policy and budget plan how they put portfolio onto coastal management. In this sense, this report introduces an approach by Cesar (1996). Cesar's analysis emphasize individual economic benefit versus the economic impacts to society. These activities are from direct impacts (dynamite fishing, poison fishing, over fishing, and coral mining) and indirect impacts such as increased sediment load by logging. Conclusion of Cesar's analysis is that all threats which could be quantified produce a total net loss to society 2.3 to 8.2 times greater than benefits to direct coastal resource users.

Table 8.21 Benefits and Losses resulting from threats to Indonesian Coral Reefs (Cesar 1996)

(Unit : Million Rp./km² of coral reef/25 years)

Threat	Net Benefits to Individual Resource Users	Function				Total
		Fishery	Coastal Protection	Tourism	Others	
Poison fishing	330	400	0	30-4,360	n.q.	430-4,760
Dynamite fishing	150	860	90-1,930	30-4,820	n.q.	980-7,610
Coral mining	1,210	940	120-2,600	30-4,820	> 670	1,760-9,030
Sediment logging	980	810	-	1,920	n.q.	2,730
Over fishing	390	1,090	-	n.q.	n.q.	1,090
Total	3,060					6,990-25,220



Source : Herman Cesar "Economic Analysis in Indonesia Coral Reef", 1996

Note : n.q. means Not Quantifiable. Original figures is in US\$ and present value after consideration of 10% discount rate, 25 year time-span, intrinsic values not included.

Based on these assumption mentioned above, benefit of the master plan would be estimated as follows, if these unit values are applied to North Sulawesi.

Benefit of the Master Plan : Rp.807,332 million ①

Assumption :

1. Inappropriate activities will decrease as a result of implementation of the master plan, in other words;
Social net loss caused by inappropriate activities decrease.
→ Its decreased portion equals to social net benefit by Master Plan,
2. Inappropriate activities will start to decrease (= Benefits will be obtained) after year 2006 to 2030 (25 years).
(Note: 2006 is the first year of mid term period of the Master Plan)

3. Calculation

$$\begin{aligned}
 \text{Net Benefit} &= \text{Social Cost} - \text{Net Benefit to User} \\
 &= (\text{Rp.6,990 to Rp.25,220}) - \text{Rp.3,060} \\
 &= \text{Rp.3,930 to Rp.22,160 million (/km}^2\text{/25 years, Cesar 1996)} \\
 \text{Rp.22,160 million} &\times \text{Coral Reef Zoning area of the Study Area} \\
 &= \text{Rp.22,160 million (/km}^2\text{/25 years)} \times 53.34 \text{ km}^2 \\
 &= \text{Rp.1,182,014 million (/25 years, after 10\% discounted)} \\
 &= \text{Rp.807,332 million (/25 years after 4}^{\text{th}}\text{ year(2006), after 10\% discounted)}
 \end{aligned}$$

Result of total cost for proposed projects/programs in this master plan is ;

Cost of the Master Plan : Rp. 238,394 million
 (Initial Cost + O/M cost for 2002-2015)
 ↓ re-calculate till year 2030 (=25 years)
 Rp. 161,756 million ②
 (including Initial Cost + O/M cost for 2002-2030 after 10 %
 discounted, O/M costs every year after 2016 is same as year
 2015)

Given data ①,② presented above, net benefit of the master plan with considering discount rate 10 % is calculated in Table 8.22.

Table 8.22 Results of Economic Analysis (2002 to 2030)

NPV	B/C ratio	EIRR
Rp. 645,575 million	4.99	69.4 %

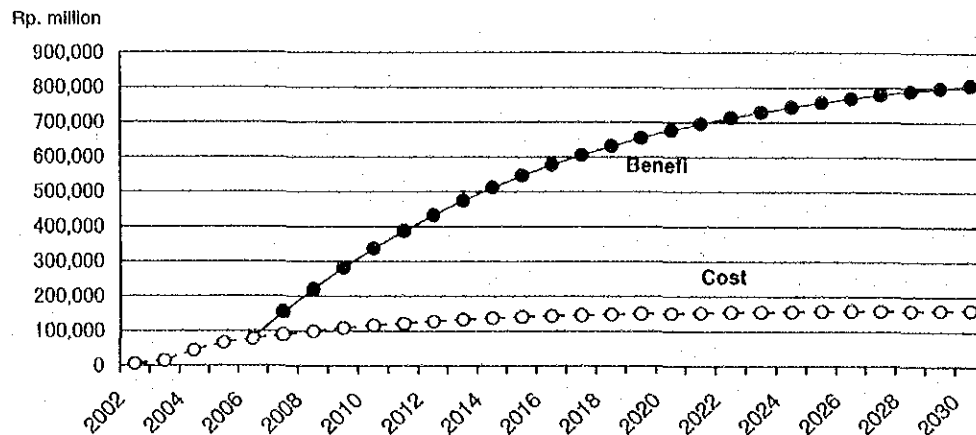


Figure 8.7 Cost and Benefit of the master plan

NPV or Net Present Value is the sum of the present value from the net benefit. Usually, the alternative is chosen where the NPV is positive. B/C ratio or Benefit Cost ratio is the ratio of the sum of the present value of benefit and the sum of the present value of cost. Usually, the alternative is chosen where the B/C ratio is bigger than one. IRR or Internal Rate of Return is compared to market interest rates. When IRR is higher than the interest rates, the alternative is feasible.

From the result of Cost and Benefit analysis, benefit can exceed the management cost in 2007. Therefore it can be justified that implementation of the master plan is economically feasible and acceptable from economic viewpoint of the study area. In addition to the above-mentioned net benefit, society of the study area could receive other ecological, educational, and social benefits because above estimation includes only benefits when the distractive activities, such as poison fishing, dynamite fishing, coral mining, sediment logging and over fishing, would be stopped.

Meanwhile, in accordance with financial analysis, there is not much meaning to try to calculate FIRR or Financial Internal Rate of Return of projects/programs of this master plan. Because most of the projects/programs are not profit-oriented and don't have no means of cost recovery with actual cash flow.

8.6.3 Possible Financial Resources for the Master Plan

Responding to the severe financial conditions of the national budget and the movement of decentralization, the local governments have already begun exploring to raise their own revenues. In the case of the master plan the situation is the same for implementation of the

programs and projects. The local governments concerned should find out the new financial resources.

(1) Strategy

Taking the recent severe financial conditions of the central and local governments into account, it seems unrealistic for them to raise newly an additional fund that will cover 100% of the costs for the master plan. Therefore, first of all, related agencies should make efforts to maintain the existing projects/programs related coastal area. Then, two approaches to raise the sources should be considered and implemented. The first is to review and to change the existing budget allocation mechanism adjusting to the environmental friendly allocation at both the national and local levels, that is to say, to allocate and ensure environmental costs within the existing available financial sources.

The second is to raise an additional fund collected based on the User Pays Principle (UPP) or Polluter Pays Principle (PPP). In the short and medium period the first approach will play a more important role than the second, because the first can be possibly implemented without additional funds.

Responding to the above-mentioned approaches, the following three types of financial sources should be introduced for the master plan

- 1) Environmental account established through the new budgetary allocation frame for the master plan in the local governments' budgets

This is a new account of the local governments for the Master plan established through a new frame to allocate a certain portion of each budget for investment program/project as coastal environmental management costs that have been neglected as external costs for a long time. The coastal environmental costs must be internalized and paid in the investment program/projects for the sustainable development. It will become a very tough work facing various pressures from opposing groups of vested interests. Therefore, the guideline to determine the appropriate and feasible portion of coastal environmental costs should be established carefully with agreement and support of the stakeholders.

- 2) Revenues from fees and permits paid by the direct beneficiary or users (User Pays Principle, UPP)

At present, the management board of Bunaken National Park (Dewan Pengelolaan Taman Nasional Bunaken) established in January 2001 began collecting the admission fee from visitors since March. The fee for foreign visitors is Rp. 75,000 (US\$7.5) for one year per person and for the local visitors Rp. 2,400 (US\$0.24).

Up to August 2001 the total revenue reached Rp. 283,252,750 (US\$ 28,325). Besides, Rp. 48,654,625 (US\$ 4,865) was donated to the board from the World Wildlife Fund.

The capture ratio of the fee from the visitors can be raised in the future, if more appropriate collection method is taken. The fee has been so far collected from 3,528 foreign visitors and 4,447 domestic visitors in 6 months this year. Although the number of the tourists in the province recently has been decreasing, around 30,000 foreign visitors can be expected to come this year. Furthermore, approximately 80 % of the foreign tourists are estimated to visit Bunaken National Park. Based on these figures, the present capture ratio of the fee from the foreign visitors would be estimated at around 30% ($=3,528/(30,000 \times 0.8 \times 0.5)$). More efficient fee collection methods should be explored to raise the important financial resource for the park management.

Table 8.23 Number of Tourists in North Sulawesi Province

Year	Foreign	Domestic	Total
1996	32,525	992,997	1,025,522
1997	42,821	1,714,454	1,757,275
1998	34,502	467,502	502,004
1999	44,087	479,702	523,789
2000	27,557	341,694	369,251

Source: Tourism Bureau of North Sulawesi Province (Dinas Pariwisata Propinsi Sulut)

Apart from the above-mentioned fee, new revenues from fees and permits are necessary for the Master plan. A basic concept of the fees and permits is that the beneficiaries and users of the coastal resources and area owe the environmental costs.

The candidates are as follows:

- Coastal resources collector's permits and charges;
- Development and building permits in the buffer zone (within 200m from the coastal line);
- Occupancy fee of the land in the buffer zone;
- Reclamation permit and fee in the buffer zone; and
- Provincial park fee.

3) Green tax, Coastal Management Tax (Polluter Pays Principle, PPP)

New Government Regulations on Taxes, Retributions were finalized on 13 September, 2001. The Government has issued Government Regulation

No. 65 on Regional Taxes (*Peraturan Pemerintah No. 65 Tahun 2001 tentang Pajak Daerah*), and Government Regulation No. 66 on Regional Retributions (*PP No. 66 Tahun 2001 tentang Retribusi Daerah*). Both Government Regulations are needed to implement Law No. 34/2000 on Regional Taxes and Retributions.

One of the major concerns regarding the impact of decentralization is the tendency of the local governments to increase local taxes and fees. Under such circumstances the Environmental Impact Management Agency of North Sulawesi Province (BAPEDALDA) started studying possibility of introduction of green tax a few months ago. The public hearing from the stakeholders such as the local business circle and NGOs has been held twice and will be held three times more. As their study is still at the beginning stage, they haven't yet envisaged any concrete plans of the new green tax. A basic concept of green tax for the master plan is to raise the fund by collecting the coastal environmental management cost widely in the province from not only direct but also indirect polluters including individuals and industries. However, needless to say, overburdening the local economy with inappropriate additional costs must be avoided.

One method to raise the financial source for the master plan is to utilize the existing local and shared taxes, that is, to collect a certain portion of the revenues as the coastal environmental management cost. At present, two provincial taxes: 1) Motorized Vehicles Tax and 2) Vehicle Transfer Tax exist. As for the shared tax, Land and Building Tax (10% Central government, 16% Province, 64.8% District/Municipality), Fuel Tax (10% Province, 90% District/Municipality) and Land Transfer Tax (not yet levied) exist. In addition to the above, district taxes exist: 1) Hotel and Restaurant Tax, 2) Entertainment Tax, 3) Advertisement Tax, 4) Mineral Tax, and 5) Water Usage Taxes. Their revenues are relatively small, however.

The possibility to utilize 1) Motorized Vehicles Tax, 2) Vehicle Transfer Tax, 3) Land and Building Tax, and 4) Fuel Tax should be explored, because the revenues from the four taxes are relatively large and there are justifiable and logical reasons for levying environment costs on vehicles, buildings and fuels.

Table 8.24 shows the recent trend of regional income of North Sulawesi.

Table 8.24 Recent Trend of Regional Income of North Sulawesi Province

Regional Income	2000		2001	
	Rp.		Rp.	
a. Local Tax	17,507,000,000	86.0%	34,763,105,075	86.6%
Motorized Vehicles Tax	10,570,000,000	51.9%	17,550,000,000	43.7%
Vehicle Transfer Tax	6,030,000,000	29.6%	16,083,105,075	40.1%
Fuel Tax	907,000,000	4.5%	1,130,000,000	2.8%
b. Toll and fee	1,543,000,000	7.6%	3,814,231,500	9.5%
Health Service (Regional General Hospital)	51,000,000	0.3%	70,000,000	0.2%
Motored Vehicle Inspection	759,000,000	3.7%	to Municipality and Regency since 2001	
Fishery License			625,000,000	1.6%
Motortruck Weight Inspection			337,028,000	0.8%
Contract Fee			325,000,000	0.8%
Provincial Property Fee	50,000,000	0.2%	541,853,500	1.3%
Market Fee of Wholesaler and Retailer	50,000,000	0.2%	100,000,000	0.2%
Public Document Printing and Administration Fee	400,000,000	2.0%	1464330000	3.6%
Regional Products Sales Fee	159,000,000	0.8%	157,000,000	0.4%
License fee of the Public Transportation	74,000,000	0.4%	194,020,000	0.5%
c. Profits from the province owned companies	625,000,000	3.1%	690,000,000	1.7%
Bank Sulawesi Utara	625,000,000	3.1%	690,000,000	1.7%
d. Others	677,000,000	3.3%	877,700,000	2.2%
Total	20,352,000,000	100.0%	40,145,036,575	100.0%

Source: Sulawesi Utara Province, Anggaran Pendapatan dan Belanja Daerah, Tahun Anggaran 2000 and 2001

Note: The data on the amounts in 2000 and 2001 can't be compared directly because of the change of the fiscal year period mentioned above. Fishery license, motortruck weight inspection and contract fee were newly established in 2001.

Another method to raise the financial source for the master plan is to establish new green taxes. However, we should keep it in mind again that overburdening the local economy must be avoided. The participatory process is necessary to establish the new green taxes with understanding and support of the local people.

Several candidates of the green taxes are as follows:

- Effluent charges (charges per ton or liter for particular air or water emissions);
- Coastal transportation charges (road tolls and marine traffic taxes); and
- Municipal service charges (for drinking water, wastewater treatment, solid waste collection and disposal by a percent per unit of use).

Performance bonds of the coastal resources and/or area users (resource user posts a bond which is reclaimable if use of resource is

(2) External Funding Resources

In the whole Indonesia, the comprehensive coastal management has not been implemented by local government funding. However, the outside source to fund environmental conservation projects/programs is now in trend in Indonesia. In the last 10 years, ADB funded Marine Resources Evaluation and Planning Project(MREP), World Bank funded Coral Reef Rehabilitation and Management Program(COREMAP), USAID funded Natural Resources Mangement I and II (NRMPI & II), and many other projects and programs have been implemented in Indonesia and North Sulawesi is not an exception to be one of the project sites of these external funding supported projects/programs.

It is, therefore, very rational to tap those existing and available external funds positively by local government initiatives by using this master plan as a tool to convince the needs and urgency. The local government should identify the priority area and its projects/programs from the master plan and make positive efforts to secure the budget for implementation. The positive attitude to gain budgetary endorsement should results in the positive answer from both the national government and outside funding agencies.