



JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)



DAVAO INTEGRATED DEVELOPMENT PROGRAM (DIDP)  
THE REPUBLIC OF THE PHILIPPINES

**THE STUDY  
ON  
THE DAVAO INTEGRATED DEVELOPMENT PROGRAM  
MASTER PLANNING  
THE REPUBLIC OF THE PHILIPPINES**

**FINAL REPORT**

**ENVIRONMENT SECTOR REPORT**

March 1999

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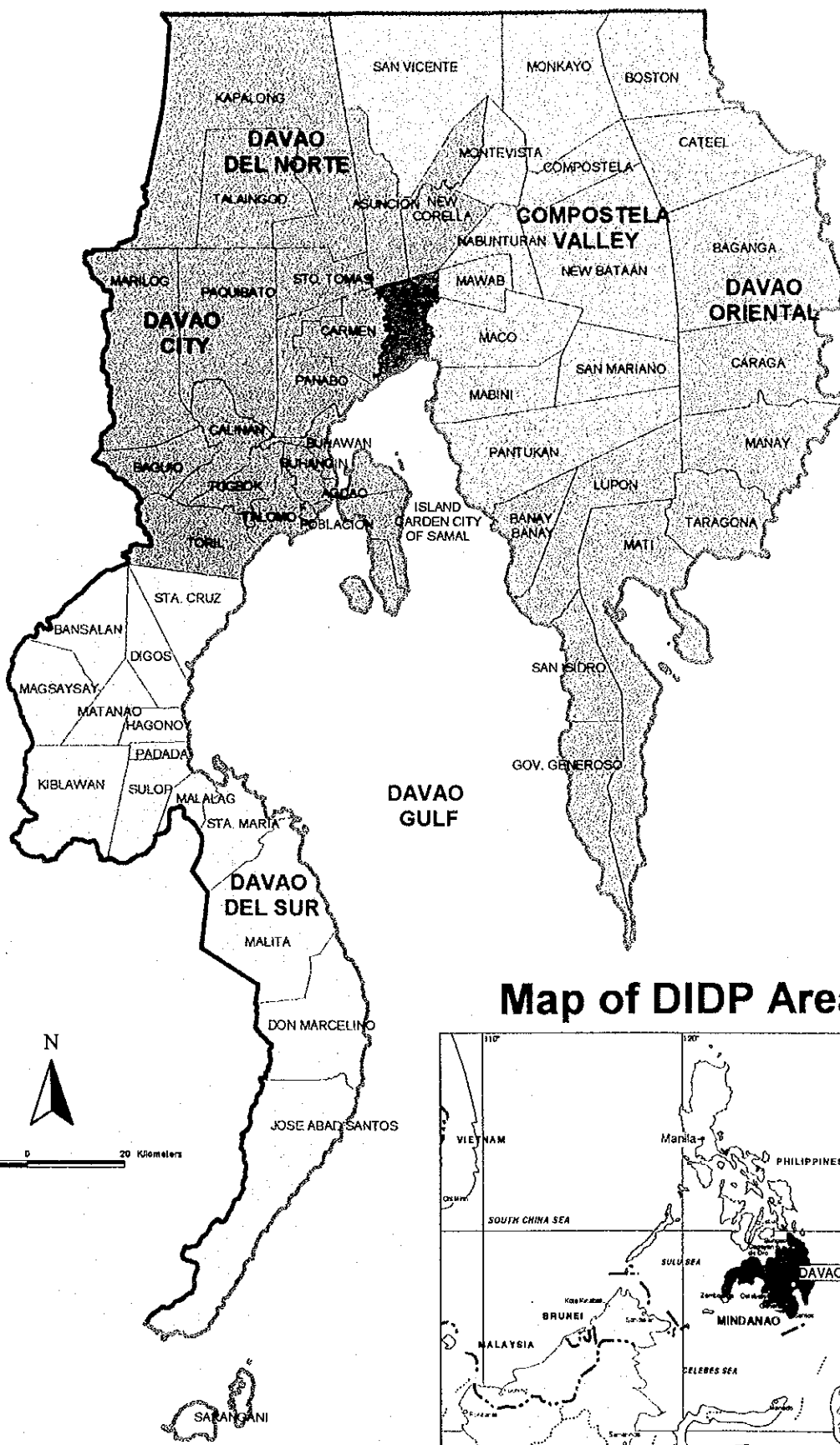
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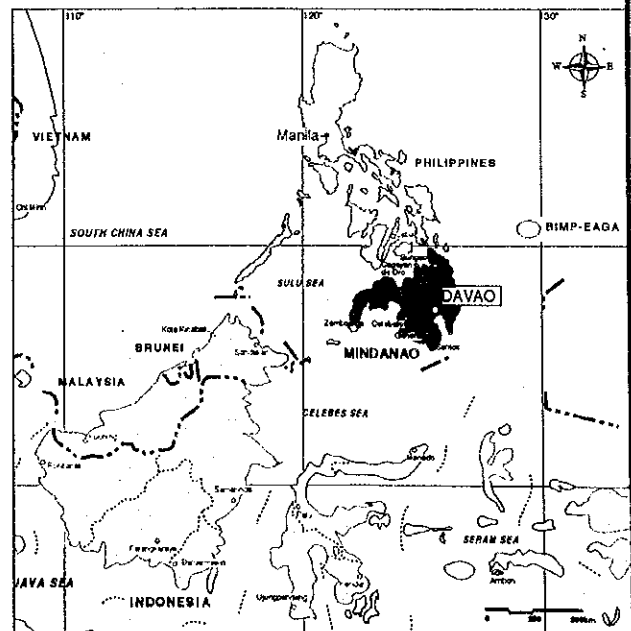
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**Map of DIDP Area**





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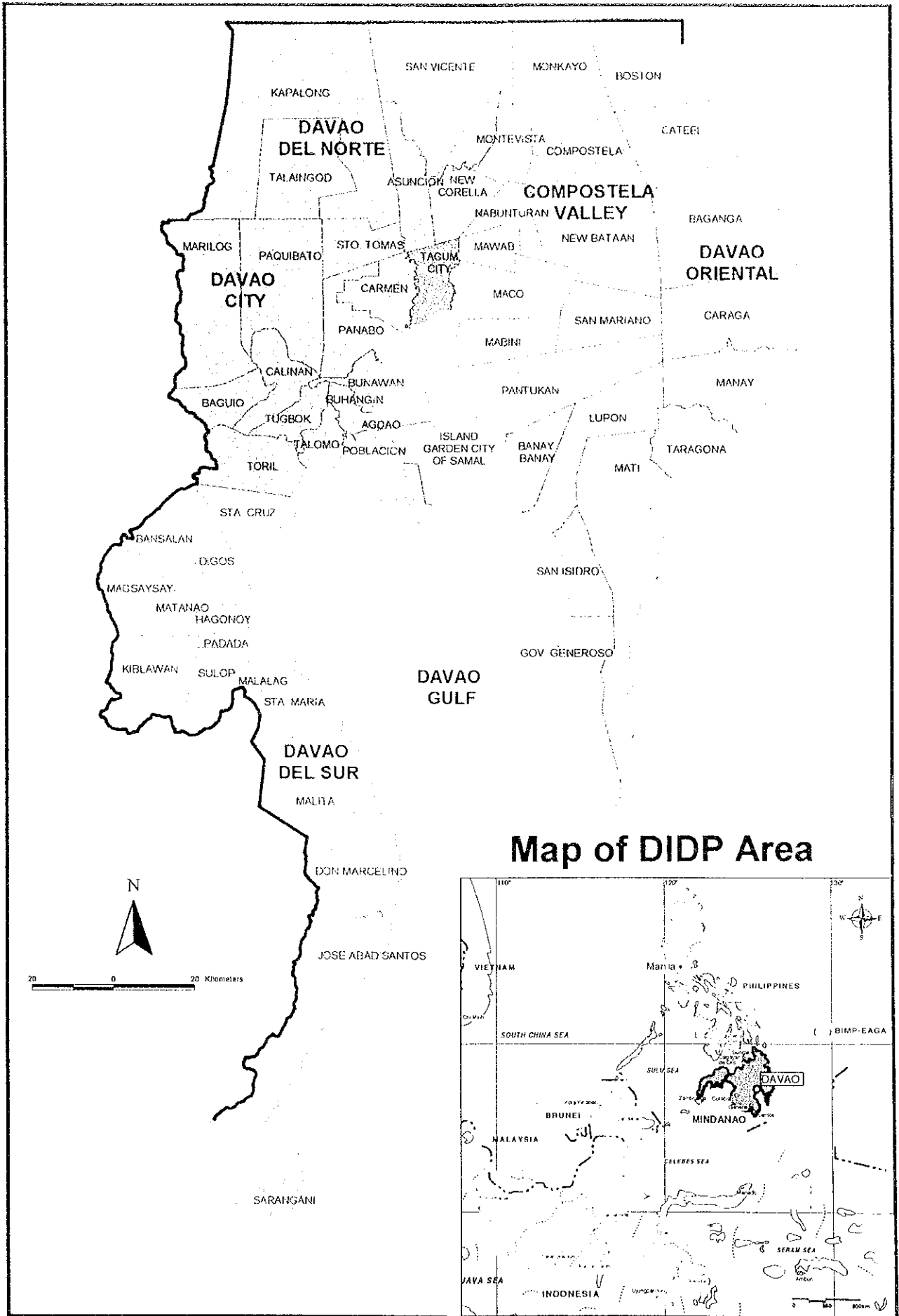
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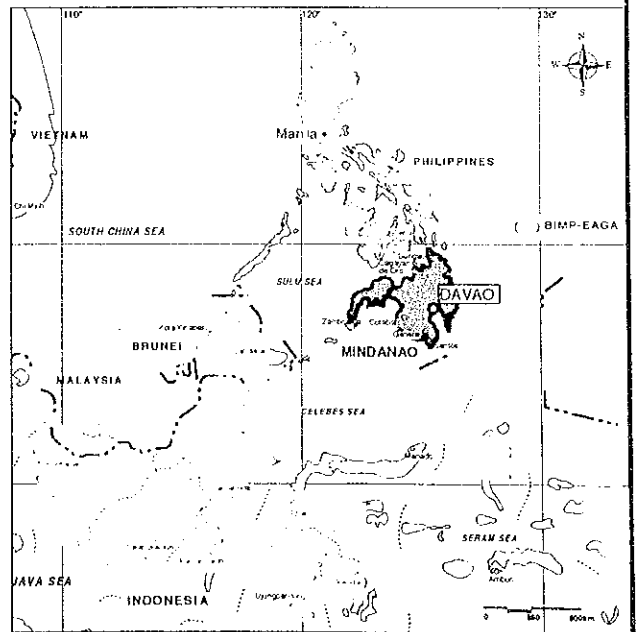
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**Map of DIDP Area**





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# ENVIRONMENTAL SECTOR REPORT

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## Abbreviations

AADT	Annual Average Daily Traffic
AAGR	Annual Average Growth Rate
ADB	Asian Development Bank
ADZs	Area Development Zones
AIDAB	Australian International Development Assistance Bureau
ARMM	Autonomous Region of Muslim Mindanao
ASEAN	Association of Southeast Asian Nations
ATO	Air Transportation Office
BCD	Business Center Davao
BFPE	Barrels Fuel-Oil Equivalent
BIMP-EAGA	Brunei-Indonesia-Malaysia-Phillipines East Asean Growth Area
BOD	Board Of Directors
BPP	Buile Operate Own
BPT	Bureau Of Transportation
BWSA	Barangay Waterworks and Sanitation Association
CAB	Civil Aeronautics Board
CAMP	Civil Aviation Master Plan
CBD	Central Business District
CBFM	Community Based Forest Management
DAMECP	Davao del Norte Electric Cooperatiove, Inc.
DASIRECP	Davao del Sur Rural Electric Cooperatiove, Inc.
DBM	Department of Budget and Management
DBP	Development Bank of Philippines
DCWD	Davao City Water District
DDA	Davao Development Authority
DENR	Department of Environment and Natural Resources
DIA	Davao International Airport
DIADP	Davao International Airport Development Project
DICTF	Davao City International Container Terminal Facilities
DIDP	Davao Integrated Development Program
DIDPMP	Davao Integrated Development Program and Management Planning
DILG	Department of Interior and Local Government
DLPC	Davao Light and Power Corporation
DOE	Department Of Energy
DOF	Department Of Finance



DOH	Department Of Health
DORECO	Davao Oriental Rural Electric Cooperative,Inc.
DOST	Department of Science and Technology
DOTC	Department of Transportation and Communication
DPWH	Department of Public Works and Highways
DSM	Demand Side Management
DTI	Department of Trade and Industry
DUCC	Davao Union Cement Corporation
ECE	Energy Consumption Elasticity
EDC	Energy Development Corporation
EIB	European Investment Bank
EPZ	Export Processing Zone
ER	Electrification Ratio
ERB	Energy Regulatory Board
GDP	Gross Domestic Product
GRDP	Gross Regional Domestic Product
GSC	General Santos City
HIGC	Home Insurance and Guaranty Corporation
HLURB	Housing and Land Use Regulatory Board
HPI	Hijo Plantation Inc.
HUDCC	Housing and Urban Development Coordination Council
IBRD	International Bank for Reconstruction and Development
IEC	Information and Education Campaign
IFMA	Industrial Forest Management Agreement
IOUs	Investor Owned Utilities
IPPs	Independent Power Procedures
IQS	Industrial Questionnaire Survey
IRA	Internal Revenue Allotment
JICA	Japan International Cooperation Agency
LEGOIL	Legaspi Oil Company, Inc.
LGU	Local Government Unit
LRT	Light Railway Transit
LTFRB	Land Transportation Franchising and Regulatory Board
LTO	Land Transportation Office
LWUA	Local Water Utilities Administration
MARINA	Maritime Industry Authority
MBN	Minimum Basic Needs

MEO	Municipal Engineer's Office
MMBFOE	Million Barrels of Fuel-Oil Equivalent
MMLF	Moro National Liberation Front
MPDO	Municipal Planning and Development Office
MTBS	Mindanao Terminal Brokerage Services, Inc.
NCR	National Capital Region
NEA	National Electrification Administration
NEDA	National Economic and Development Authority
NGO	Non-Governmental Organization
NIA	National Irrigation Administration
NLUC	National Land Use of Committee
NPC	National Power Corporation
NPFD	National Physical Framework Plan
NTCP	National Traffic Count Program
NWRB	National Water Resources Board
ODO	Original Destination
ODA	Official Development Assistance
OECF	Overseas Economic Cooperation Fund
PACINTER	Pacific International Terminal
PAGASA	Philippine Atmospheric Geophysical and Astronomical Service Administration
PAIC	Provincial Agri-Industrial Center
PCMI	Per Capita Municipal Income
PDOs	Port District Offices
PEO	Provincial Engineer's Office
PEP	Philippine Energy Plan
PEZA	Philippine Export Processing Zone Authority
PGSEP	Philippine German Solar Energy Project
PMOs	Port Management Offices
PNOC	Philippine National Oil Corporation
PPA	Philippine Port Authority
PPDO	Provincial Planning and Development Office
PUV	Public Utility Vehicle
RAIC	Regional Agri-Industrial Center
RDC	Regional Development Council
RDF	Residue Derived Fuel
RDIP	Regional Development Investment Program

RECs	Rural Electric Cooperatives
REREDP	Rural Electrification and Renewable/Energy Development Program
RIC	Regional Industrial Center
RPPF	Regional Physical Framework Plan
RWSA	Rural Waterworks and Sanitation Association
SCBCS	Solar Central Battery Charging System
SEP	Special Energy Program
SEZ	Special Economic Zone
SOSKSARGEN	South Cotabato-Sultan Kudarat Sarangani General Santos City
SWIM	Small Water Impounding Management
SWIP	Small Water Impounding Project
TADECO	Tagum Agricultural Development Corporation, Inc.
TEFASCO	Terminal Facilities and Services Corporation
TSS	Total Suspended Solids
UHLP	Unified Housing Lending Program
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
WB	World Bank
WBA	World Bank Atlas
WD s	Water Districts
WRR	Water Resources Region



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# ENVIRONMENTAL SECTOR REPORT

## Chapter 1 Current Environmental Policies and Administration

### 1.1. Environmental Policies

#### (1) Philippine environmental policy

The Philippine Environmental Policy is embodied in two regulations as follows:

- Presidential Decree No. 1151, 1977 "Philippine Environmental Policy", and
- Presidential Decree No. 1152, 1977 "Philippine Environmental Code".

The Philippine Environmental Policy was declared (1) to create, develop, maintain and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other, and (2) to fulfill the social, economic and other requirements of present and future generations of Filipino and to ensure the attainment of an environmental quality that is conducive to a life of dignity and well-being.

The goals of environmental policy are spelled out in the Presidential Decree (PD) No. 1152 as follows:

In pursuing this policy, it shall be the responsibility of the Government, in cooperation with concerned private organizations and entities, to use all practicable means, consistent with other essential considerations of national policy, in promoting the general welfare to the end that the nation may (a) recognize, discharge and fulfill the responsibilities of each generation as trustee and guardian of the environment for succeeding generations, (b) assure the people of a safe, decent, healthful, productive and aesthetic environment, (c) encourage the widest exploitation of the environment without degrading it, or endangering human life, health and safety or creating conditions adverse to agriculture, commerce, and industry, (d) preserve important historic and cultural aspects of the Philippine heritage, (e) attain a rational and orderly balance between population and resource use and (f) improve the utilization of renewable and non-renewable resources.

To realize these environmental goals, the following environment management guidelines are prescribed in PD No. 1152, 1977:

- Air quality management;
- Water quality;
- Land use management; and
- Natural resources management and conservation for:
  - 1) Fisheries and aquatic resources;
  - 2) Wildlife;
  - 3) Forestry and soil conservation;
  - 4) Flood control and natural calamities;
  - 5) Energy development;
  - 6) Conservation and utilization of surface and ground water; and
  - 7) Mineral resources

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**(2) Sector medium term development plan**

The medium term plan for environment and natural resources aims to provide essential strategies that could help alleviate the economic condition of Region XI and at the same time preserve remaining natural resources.

Roles of DENR are seen in the Medium Term Plan as promoting and implementing sustainability, social equity and economic efficiency, while improving the quality of life of the people within the framework of a balanced ecology and environment. The Plan is geared towards development of natural resources to substantially contribute to the alleviation of poverty and the total ecosystems.

The major concerns of the Plan related to environment and economic development are:

- rapid depletion of natural resources;
- environmental degradation;
- inequitable distribution and allocation of lands and natural resources;
- population pressure and poverty in the uplands;
- volatile peace and order conditions;
- decentralization; and
- political interference/political will.

The goals for solution of the above concerns are:

- to increase the contribution of the natural resources sector towards employment generation and countryside development,
- to enhance the sustainability and growth of natural resources with due regard to conservation and the protection of the environment,
- to provide a responsive and equitable environment and natural resources administration, efficient and effective natural resources management information system,
- to generate and promote economically viable, environmentally sound, socially acceptable and sustainable technologies for environment and natural resources, and
- to improve policy studies and enhance manpower and institutional development.

The Medium Term Plan envisions such an integrated system to environment and resources management through the ecosystem approach to be continuously implemented. The approach, however, considers the totality of all ecosystems i.e. forest ecosystem, upland ecosystem, grassland and degraded ecosystem, and coastal zone and fresh water ecosystem. The relationship between the components shall be vigorously pursued, through an interaction management scheme which will enhance and maintain productivity, sustainability, stability, and equity in the management of environment and natural resources.

**(3) Philippine Agenda 21**

Philippine Agenda 21 represents part of Country's efforts to fulfill its commitments in the Earth Summit in 1992. Philippine Agenda 21 builds on the outcomes and provides an integrated conceptual and operational framework for these consultations and initiatives in sustainable development.

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It recognizes the key actors in sustainable development as government, business and civil society, and the functional differentiation of modern society into three realms: economy, policy and culture. The essence of sustainable development is in the harmonious integration of a sound and viable economy, responsible governance, social cohesion/harmony and ecological integration to ensure that development is a life-enhancing process.

Philippine Agenda 21 envisions a better quality of life for all through the development of a just, moral, creative, spiritual, economically vibrant, caring, diverse yet cohesive society characterized by appropriate productivity, participatory and democratic processes and living in harmony within the limits of the carrying capacity of nature and the integrity of creation.

In concretizing the vision, Philippine Agenda 21 describes a path for individuals, families, households and communities and also for each ecosystem and across ecosystems in consideration of interactions of various lifescapes and landscapes found therein.

The Philippine Agenda 21 adheres to the following principles of sustainable development:

- Primacy of developing human potential,
- Holistic science and appropriate technology,
- Cultural, moral and spiritual sensitivity,
- Self-determination,
- National sovereignty,
- Gender sensitivity,
- Peace, order and national unity,
- Social Justice and inter-, intra-generational and spatial equity,
- Participatory democracy,
- Institutional viability,
- Viable, sound and broadbased economic development,
- Sustainable population,
- Ecological soundness,
- Bio-geographical equity and community-based resource management, and
- Global cooperation.

Sustainable development is development that draws out the full human potential across ages and generations and at the same time is ecologically friendly, economically sound, politically empowering, socially just, spiritually liberating, and gender sensitive, based on holistic science, technologically appropriately built upon Filipino values, history, culture and excellence, and strong institutional foundations.

Philippine Agenda 21 promotes harmony and achieves sustainability by:

- A scale of intervention that is primarily area-based. The national and global policy environment builds upon and supports area-based initiatives.
- Integrated island development approaches where applicable. This recognizes the archipelagic character of the Philippines which includes many small island provinces.

- People and the integrity of nature at the center of development initiatives. This implies the strengthening of roles, relationships and interactions between stakeholders in government, civil society, labor and business. Basic sectors have an important role to play in achieving equity and in managing the ecosystems that sustain life.

Philippine Agenda 21 adopts a two-pronged strategy in defining and mapping out the action agenda:

- creating the enabling conditions which would assist various stakeholders to manage the transition and at the same time build their capacities towards sustainable development; and
- direct and proactive efforts at conserving, managing, protecting and rehabilitating ecosystems through an approach that harmonizes economic, ecological and social goals.

Managing the transition to sustainable development call for interventions in the following areas: integrating sustainable development in governance; providing enabling policies; investing in human development; mapping out a legislative agenda; and addressing critical and strategic concerns to include population management, human health, food security, human settlements and land use. These interventions define the Philippine Agenda 21's agenda across ecosystems.

The action agenda at the level of ecosystems consist of strategic and catalytic interventions covering the following ecosystems and critical resources: forest/upland ecosystems, coastal and marine ecosystems, urban ecosystems, freshwater ecosystems, lowland/agro-ecosystems, minerals, and bio-diversity.

Regional Agenda 21 for Region XI have clarified the following issues and concerns, and action agenda as shown in Table 1.

**Table 1 Regional Agenda 21, Region XI**

Issues/Concerns	Action Agenda
A. Agricultural Ecosystem	
1. Interventions to ensure food security and agricultural development	<ul style="list-style-type: none"> <li>• effectively implement standard farm to market roads/bridges that consist of combination of either barangay road, municipal road, provincial road or national road to support marketing services</li> <li>• prepare a comprehensive development master plan for integration into the concerned agencies annual program</li> </ul>
B. Forest Ecosystem	
1. Dwindling indigenous species	<ul style="list-style-type: none"> <li>• use indigenous species in industrial forest plantations</li> <li>• protect habitat of endangered species</li> </ul>

#### (4) Policy of DIDP related to environment

The DIDP was organized in 1994. Missions of establishing DIDP are to minimize poverty and environmental degradation, and to improve inadequate social services and infrastructure facilities within the local government units covered by the DIDP through natural resources management and conservation.



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## 1.2. Environmental Administration

### (1) Department of Environment and Natural Resources (DENR)

The Department of Environment and Natural Resources (DENR) is the primary agency of the Government responsible for sustainable development of natural resources and ecosystems. DENR was established in 1987 by virtue of Executive Order No. 192. Other agencies including the Department of Trade and Industry, the National Economic Development Authority, the Department of Agriculture, the Department of Health, and the Department of Science and Technology, also has functions of pollution control, natural resources management and public health.

DENR has the following responsibilities:

- sustainable development of forest resources;
- optimal utilization of lands and minerals;
- social equity and efficiency in resources use; and
- effective environmental management.

DENR is composed not only of the central office but also of regional, provincial and community level offices as outlined below.

#### Region level

DENR has a regional office in Region XI. The DENR Region XI office covers Davao Province, Davao City, Davao Del Sur, Davao Oriental, South Cotabato, Sarangani, and General Santos City.

According to Executive Order No. 192, June 1987, the DENR regional office has the following functions:

- to implement laws, policies, plans, programs, projects, rules, and regulations of the Department to promote the sustainability and productivity of natural resources, social,
- to provide efficient and effective delivery of services to the people;
- to coordinate with regional offices of other departments, offices and agencies and local government units in the enforcement of natural resources conservation laws and regulations and in the formulation and implementation of natural resources programs and projects;
- to recommend on approval, implement programs and projects on forestry, minerals, land management and disposition;
- to conduct comprehensive inventories of natural resources in the region and formulate regional short- and long-term development plans for the conservation, utilization, and replacement of natural resources;
- to prepare budget proposals in conformity with priorities established by the Regional development Councils;
- to supervise and monitor the exploitation, processing, and movement of natural resources and their products, and grade and inspect minerals, lumber, and other wood-based processed products;
- to conduct filed researches for appropriate technologies recommended for various projects; and

- to perform other functions as may be assigned by the Secretary and/ or provided by law.

Provincial level

DENR has three offices in the DIDP Area, named Provincial Environment and Natural Resources Officers or Offices (PENROs) for Davao Province, Davao City/Davao del Sur and Davao Oriental. Although PENRO's jurisdiction is based on a province, Davao City and Davao del Sur are covered by the same PENRO.

Community level

DENR has community-based offices named Community Environment and Natural Resources Officers or Offices (CENROs) in large cities and municipalities. A list of CENROs is given in Table 2.

Functions of CENRO are:

- to undertake and/or implement projects for development and conservation of natural resources at the community level;
- to implement/enforce laws, rules and regulations for the protection of the environment and the conservation of natural resources;
- to conduct measurement assessment and grading of timber and other forest products;
- to maintain up-to-date data on environmental and natural resources conditions;
- to file in court criminal cases against violators of environment and natural resource laws;
- to undertake surveys of areas covered by application for lease and permits;
- to collect and account for fees due to government from users of natural resources;
- to initiate the settlement of conflicts between or among users of natural resources; and
- to perform other related functions that may be assigned by higher authority.

**Table 2 List of CENRO In DIDP Area**

Davao Province	Davao City	Davao Del Sur	Davao Oriental
Tagum, Monkayo, Nabunturan, Panabo	Davao City East, Davao City West	Digos, Malalag	Mati, Baganga, Manay, Lupon

**(2) LGUs**

The Philippine Government promotes to devolve functions from the Central Government to LGUs the under Local Government Code of 1991. Parts of environmental administrations have also been devolved to provincial and municipal government's nation-wide. Some of environmental functions devolve to LGUs from DENR under Local Government Code are as shown in Table 3.

**Table 3 Devolved Functions to LGUs for Environmental Management**

LGUs	Devolved Functions from DENR
Barangay	Services and facilities related: <ul style="list-style-type: none"> <li>• general hygienic and sanitation;</li> <li>• beautification; and</li> <li>• solid waste collection.</li> </ul>
Municipalities	Extension and on-site research services and facilities related to: <ul style="list-style-type: none"> <li>• water and soil resource utilization and conservation projects; and</li> <li>• enforcement of fishery laws in municipal waters including the conservation of mangroves.</li> </ul> Pursuant to national policies and subject to supervision, control and review of DENR: <ul style="list-style-type: none"> <li>• implementation of community-based forestry projects which include integrated social forestry programs and similar projects;</li> <li>• management and control of communal forests with an area not exceeding 50 km<sup>2</sup>;</li> <li>• establishment of tree parks, greenbelts, and similar forest development projects; and</li> <li>• solid waste disposal system or environmental management system.</li> </ul> Services or facilities related to: <ul style="list-style-type: none"> <li>• general hygiene and sanitation</li> </ul>
Provinces	Pursuant to national policies and subject to supervision, control and review of DENR: <ul style="list-style-type: none"> <li>• enforcement of forestry laws limited to community-based forestry projects;</li> <li>• pollution control law;</li> <li>• small-scale mining law; and</li> <li>• other laws on the protection of the environment.</li> </ul>

Source : Republic Act No. 1760-1991

#### Provincial and City governments

Provincial and City governments also have environmental management sections, named Provincial Environment and Natural Resources Office just like PENRO of DENR and City Environment and Natural Resources Office. In this report, Provincial ENRO is used for the Environment and Natural Resources Office belonging to a provincial government.

#### Municipal governments

In the Philippine, Municipal Environment and Natural Resources Offices (Municipal ENROs) were established belonging to respective municipal governments. However, a Municipal ENRO is not appointed by any mayor in the DIDP Area to date because of lack of human resources.

### **1.3. Human Resources for Environmental Management**

Some DENR officers have been transferred to Provincial and City ENROs due to the LGC of 1991. However, it is a common situation in the Country that the most staff members belonging to environmental sections of DENR and LGUs are foresters, or agriculture specialists. Expertise of officers belonging to environmental sections are shown in Table 4. For environmental officers having responsibilities for management of various environmental fields' capability in ecology, marine environment and pollution control needs to be reinforced.

**Table 4 Background of Environmental Officers in DIDP Area**

	RENRO, DENR	Provincial ENRO, Davao Oriental
Background	Forest (8), Agriculture (1), Pollution control (2), Marine environment (2), others (17)	Forest (8), Agriculture (1), Biology (1), Industry (1), Mining (1), Mechanical engineering (2), Commerce (2), Others (9)

#### **1.4. Land Policies and Institutions**

##### **1.4.1. Development plans and policies at national level**

###### **(1) Philippine Agenda 21**

The Philippine Agenda 21: A national Agenda for sustainable Development addresses action agenda on land use. The following are established in the agenda related to land use.

- Issues and concerns: Indiscriminate land use conversion
- Strategy/action agenda: To review policies on land conversion and work for the passage of the National Land Use Act.
- Milestones: (1) Review of policies to be completed by 1998; (2) Draft National Land Use Act to be reviewed and revised in coordination with Congress by 1996.

###### **(2) Updated Medium-term Philippine Development Plan**

The Updated Medium-term Philippine Development Plan 1996-1998 enumerates the following policies for land resources management:

- In line with the agreements in the Social Reform Agenda (SRA), the immediate settlement of ancestral land claims shall be affirmed in recognition of rights of indigenous communities to develop their ancestral domains;
- The tenure arrangement and security of land ownership of both women and men farmers will be strengthened to spur rural development;
- Ecological profiling and physical framework planning at the national, regional, and provincial levels will be undertaken in support of the national land use policy; and
- The new National Land Use Act and the Land Code of the Philippines shall be operationalized to pave the way for a more proactive land management regime.

##### **1.4.2. National land use policies**

###### **(1) Agricultural land use**

Use of land resources for agricultural purposes is authorized by relevant Presidential Decrees (PDs): PD 262 for the use of virgin public lands for rice and other crops, and PD 861 authorizing pasture leases and permittees to devote their pasture lands for agricultural purposes. Land suited for agriculture cannot be converted to non-agricultural uses, except in the following cases.

- Agricultural lands classified or zonified for non-agricultural uses by LGUs and approved by the HLURB before June 15, 1988, shall be governed by DAR Administrative Order No. 6, 1994.
- Conversion may be allowed if at the time of the application, the lands are reclassified as commercial, industrial, residential or other non-agricultural in the new or revised town plans promulgated by the LGU and approved by HLURB or by the Sangguniang Panlalawigan (SP) after June 15, 1988.
- If the city/municipality does not have a comprehensive development/land use plan and zoning ordinance duly approved by HLURB/SP but the dominant use of the area surrounding the land subject of the application for conversion is no longer agricultural, or if the proposed use is similar to, or compatible with the dominant use of the surrounding areas as determined by DAR, conversion may be granted.

In all cases, conversion shall be allowed only if there is a certification from DENR that the conversion is ecologically sound. The Inter-agency Planning Task Force to approve town plans is organized by HLURB with the participation of DA, DENR, DAR, DTI, NEDA and in applicable cases DOT. The classification and reclassification of agricultural lands are subject to DAR approval after 15 June 1988.

Reclassification of lands by LGU must be implemented strictly under HLURB Memorandum Circular No. 54 regarding implementing guidelines for land reclassification by the LGUs.

Agricultural lands which are identified as non-negotiable for conversion are as follows and those areas non-negotiable for conversion are pursuant to Administrative Order No. 20 signed by the former President Ramos:

- all irrigated lands,
- all agricultural lands with irrigation facilities operated by private organizations; ,
- all irrigable lands already covered by irrigation projects with firm funding commitments, and
- all land identified for irrigation purposes.

The following agricultural areas are classified as highly restricted from conversion:

- Lands classified as Highly Restricted from Conversion in the Network of Protected Areas for Agriculture as delineated by DA as follows:
  - 1) Irrigable lands without irrigation projects with firm funding commitment,
  - 2) Agro-industrial croplands or lands presently planted to industrial crops that support the economic viability of existing agricultural infrastructure and agro-based enterprises, and
  - 3) Highlands or areas located in elevations of 500 m or above and have the potential for growing semi-temperate and usually high value crops; and
- Lands issued a Notice of Acquisition/Valuation under the agrarian reform program or subject of a perfected agreement between the landowner and the beneficiaries under the Voluntary Land Transfer (VLT) or Direct Payment Scheme (DPS) under the CARP.

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**(2) Timberlands and production forests**

Use of timberlands and production forests is dictated by the following policies.

- To ensure the sustainability of the remaining forest resources, buffer zones shall be established between the boundary of production forest and areas used for agriculture and other purposes, and livelihood opportunities provided to forest occupants. The buffer zones to be established shall have the following objectives:
  - 1) To serve as a protective belt on the exposed natural forest, both virgin and residual or second growth, from encroachment and destruction;
  - 2) To provide areas for livelihood opportunities to rural communities; and
  - 3) To establish natural landmarks within forestlands.
- All lands within 30-50% slope shall be classified under production forests provided that the use of such areas will not result in soil degradation and are required to be planted with timber forest.
- To eliminate destructive land use practices in watershed areas, the existing regulations, resettlement programs, and incentive systems as well as the monitoring of encroachment and inappropriate land use shall be strengthened and enforced.
- Critical watersheds shall be reforested to improve water quality and increase water yield.
- Involvement of the private sector in watershed and soil conservation shall be encouraged to effect equitable distribution of benefits, increase government efficiency and strengthen its resources.
- Inadequately stocked residual forests may be converted into industrial forest plantations, subject to guidelines provided by Executive Order 725 and DENR Administrative Order 42. Inadequately stocked residual forests refer to logged-over areas with an existing stand timber containing less than 20 trees of dipterocarp, premium and/or other presently commercial species with diameter above buttress (DAB) of than 20 cm. Clear cutting of residual forests is not allowed. However, conversion of inadequately stocked forest into forest plantation through clear cutting by IFMA (Industrial Forest Management Agreement) holders may be allowed upon prior authority from the Secretary of DENR.
- Inadequately stocked forests in areas 50% or steeper in slope, 1,000 meters and above in elevation, and 20 meter strips on both sides of a stream bank protection, shall not be allowed for conversion into plantation. Enrichment planting shall be conducted in such areas using dipterocarp, premium or other commercial species.

**(3) Other productive land uses**

The following provide policies for other productive land uses such as grazing, forage production and aquaculture.

- Underutilized or unproductive pasture lease areas or portions thereof shall revert to the State and may be converted to other suitable types of production forest activities.

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- Proper management of pasture and grazing areas should take into consideration the requirements for forage grasses and soil conversion.
  - Development of coastal areas and other fishing activities shall be ensured by providing technical assistance, investment support and policy information to interested seaweed cultivators and aquaculture operators.
  - Public lands disposition for fishpond purpose shall be controlled by the PD 48 providing its mechanism.

**(4) Protection areas covered by the NIPAS law**

Republic Act 7588 of 1992 established the National Integrated Protected Areas (NIPAS) which would encompass outstandingly remarkable areas and biologically important public lands that are habitats of rare and endangered species of plants and animals, biographic zones and related ecosystems, whether terrestrial, wetland or marine, all of which shall be designated as "protected areas".

NIPAS areas include the following:

- 1) Strict nature reserve: an area possessing some outstanding ecosystem, feature and/or species of flora and fauna of national scientific importance,
- 2) National Park,
- 3) Natural monument: a relatively small area focused on protection of small features to protect or preserve nationally significant natural features on account of their special interest or unique characteristics,
- 4) Wildlife sanctuary,
- 5) Protected landscapes and seascapes,
- 6) Resource reserve: an exclusive and relatively isolated and uninhabited area normally with difficult access designated as such to protect natural resources of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based on appropriate knowledge and planning, and
- 7) Natural biotic area: and area set aside to allow the way of life of societies living in harmony with the environment to adapt to modern technology at their pace.

The following are the basic policies listed in the RPEP for the NIPAS areas:

- These NIPAS shall be delineated in order to protect them from any future development.
- Open and denuded areas within national parks and other protected areas shall be restored for the enhancement of biological diversity.

**(5) Protection areas not covered by the NIPAS law**

Protection area not cover by the NIPAS law includes the following:

- 1) Protected agricultural lands: prime agricultural lands and potential areas for irrigation that should be preserved and exempted from any conversion to non-agricultural uses;
- 2) Buffer strips and easements along rivers;

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3) Environmentally constrained area: areas subject to seismic hazards, prolonged flooding, tidal waves, or volcanic eruption fall outs, areas with unstable slopes or areas along active fault lines; and

4) Military and civil reservations.

The following policies are addressed:

- Remaining mangrove forests must be strictly protected and conserved through the collaboration of concerned agencies and community citizens;
- The stewardship of mangrove areas to organized coastal residents over new plantation, existing mangrove forest or a combination of both shall be encouraged;
- An appropriated coastal resource management scheme should be continuously implemented to obviate irreversible damage to fisheries; and
- On the land disposition, the restriction on easement and right of way should be incorporated in the patent and lease contract.

#### **1.4.3. Land use policies of DIDP provinces and the City**

##### **(1) Davao Province**

In the Provincial Physical Framework Plan/Comprehensive Provincial Land Use Plan (1993-2002), Davao Province addresses as goals ensuring of sustainable use of land resources and protection of critical environment concerns, with the following objectives:

- to minimize reclassification of prime agricultural land for urban development,
- to minimize population pressure on protection land, and
- to minimize population pressure on non-sustainable (over-used) production lands.

Specific policies listed up in the PFP/CLPLUP are as follows.

- 1) Improvement and enforcement of laws and regulations to support the sustainable use of land, as generated in the Local Comprehensive Development Plan and through appropriate land use planning and agricultural sector development;
- 2) Formulation of Comprehensive Development Plan per commodity as basis in support of the identified industries by the PAICs;
- 3) Land to the tiller through full, forceful and comprehensive agrarian reform program implementation to cover all ancestral domains and all private agricultural lands;
- 4) Massive farming technology dissemination and commercialization;
- 5) Maximization of assistance to farmer groups and cooperatives to include training on alternate livelihood thereby promoting agrarian-based cooperatives;
- 6) Intensification of projects on agricultural infrastructures;
- 7) Promotion of the rehabilitation of damaged ecosystem and forest areas by full enforcement of forest and forestry laws, and information dissemination;
- 8) Formulation and enforcement of laws declaring a total log ban on critical watershed areas;



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- 9) Strengthening of NGOs, GOs, POs linkages in rehabilitating the degraded environment, and in prompting environmental advocacy work;
  - 10) Strengthening of rural banking and credit system to provide rural people's access to alternate livelihood;
  - 11) Deputizing of tribal leaders and barangay leaders to regulate habitation and cultivation in protected areas and marginal non-sustainable lands;
  - 12) Provision of incentives to people, motivating them to conserve resources, rehabilitate watersheds, and use environment-friendly technologies; and
  - 13) Establishment of buffer zones along major rivers, coastal areas and in between conflicting land uses.

**(2) Davao City**

According to the City's Comprehensive Development Master Plan (1993-2021), the City has the following as general land use policies:

- All irrigated and potentially irrigable areas shall not be converted;
- Limitations in the reclassification of lands shall be prescribed to LGUs; and
- Priority areas of conversion shall be designated.

The following are specific land use policies.

Agricultural areas

- Stringent development control to prevent the premature conversion of agricultural lands to urban uses;
- Balanced land use of agricultural area and clustered settlement pattern; and
- Intensified development of more agricultural lands based on suitability of land.

Forest areas

- Reforestation of denuded area.

Conservation areas

- Proper enforcement and control on logging activities and slash and burn farming practices;
- Proper implementation of reforestation;
- Proper management of protected and restricted areas like Mt. Apo National Park, prime agricultural lands, forest lands, and buffer areas; and
- Preserve lands with scenic, ecological and cultural value.

Urban or settlement areas

- To avoid disorderly and disruptive effect of unplanned decentralization and to attain a more balanced spatial distribution of population throughout the city.

Davao City plans to have multi-nucleus city with the following urban centers as priority development areas.

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- Calinan urban center: Agri-based industrial center
  - Mintal-Tugbok urban center: Educational institution center
  - Marilog-Paquibato economic zone: Agro-forestry center
  - Eden-Bayabas Ecotourism center: Mountain resort area
  - Poblacion or CBD
  - Bunawan urban center: Industrial zone for light, medium & heavy industries

**(3) Davao del Sur**

The Provincial Physical Framework Plan (1993-2002) of Davao del Sur states the goals for land resources management is the judicious utilization of land resources with the following objectives:

- to stop rural population pressure on protection land;
- to reduce rural population pressure on non-sustainable development opportunities and non-sustainable areas, and
- to improve accessibility to development opportunities or underutilized areas.

As a general policy, all municipalities must have Comprehensive Land Use Plan approved by 1996. The following are listed in the PFP as land use policies.

- 1) It must be the policy of all levels of government in the province that not sustainable and development opportunity production lands must be given priority in terms of proper land resource management.
- 2) In terms of urban land requirements, it must be the policy of LGUs, the Province included that, rural land for urban conversion must use development opportunity areas first and if not available, not sustainable areas must be the next to be converted. If the first two categories are not available, only then can the sustainable category of land can be used.
- 3) It must be a policy of the Local Government Units to reduce rural population increase in not-sustainable lands and likewise reduce large rural population increase in both sustainable and development opportunity areas.
- 4) For existing rural population occupying production forestland within not sustainable areas, a policy must be formulated by the local government units that said occupants must shift cultivation of land based on its suitability.
- 5) A policy must be made to review implementing rules or regulations on existing forestry programs of the government to conform with the plan.
- 6) It must be the policy of the LGUs that the severely eroded areas must be the priority for rehabilitation programs.
- 7) It must be the policy of the Province to restrict expansion of built-up and cultivated areas within protection lands.

**(4) Davao Oriental**

The Provincial Physical Framework Plan (1993-2002) of Davao Oriental states the goal for land resource management/land use as ensuring sustainable use of land resources and protecting critical environmental values. Its specific objectives are the following:

- to minimize conversion of prime agricultural land for urban development,
- to minimize population pressure on protection lands, and
- to minimize population pressure on non-sustainable (over-used) production land.

The plan also lists the land use policies as follows:

- 1) Strictly adhere to existing laws, rules and regulations relative to land conversion;
- 2) Protections of environmentally critical areas like the watershed by strictly prohibiting the intrusions of people threat;
- 3) Rehabilitate 30% of the severely eroded areas by the end of 2002;
- 4) Strengthen support to Key Fisheries Development Areas in terms of technology, manpower and logistics in order to minimize the conversion of mangrove areas to fishponds;
- 5) Provision of resettlement sites for existing squatters within the protected areas;
- 6) Intensify adoption of technologies that would improve productivity and sustainability of land use;
- 7) Intensify information education campaign on sustainable use of land resources;
- 8) Provide incentives for people to shift to development opportunity lands. (Provision of infra-support facilities like roads, power, and other amenities);
- 9) Provide alternate source of livelihood other than farming as a way of rehabilitating over-used lands;
- 10) Compel all the municipalities to formulate their updated Municipal Comprehensive Land Use Plans and Zoning Ordinances;
- 11) Come up with a complete inventory of the stocks in the province's natural endowment and other information needed for the formulation of a sound and comprehensive environmental program and policies;
- 12) Strengthen and enforce the system of Environmental Impact Assessment (EIA), Integrated Protected Areas System and implement a total logging ban;
- 13) Provide alternative employment and social amelioration to displaced workers of the forestry sector; and
- 14) Increase taxes on extractive industries and impose environmental fees.

#### **1.4.4. Institutional settings for regional and local land use planning**

##### **(1) Regional Land Use Committee**

The Regional Land Use Committee (RLUC) has been replicated from the National Land Use Committee (NLUC) through a NEDA Board Memorandum Order, and is mandated to formulate Regional Physical Framework Plans (RFPF). It shall review comprehensive land use plans of provinces and independent component cities to ensure consistency with the respective RFPF and national policies set forth by NLUC.

RLUC's functions and responsibilities are:

- to recommend land assistance to Provincial Land Use Committee/Municipal Land Use and Zoning Committee (PLUC/MLUZO);

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- to conduct capability building to PLUC/MLUZC; and
  - to conduct studies and policies researches on land use.

A Technical Working Group (TWG) is the working arm of RLUC, carrying out duties that will be delegated to them by RLUC. The NEDA Regional Office serves as its secretariat.

RLUC is composed of the Directors of DENR, DPWH, DA, DAR, HLRB, DTI, DILG, DOT, DOJ, DOTC, DOST, HUDCC, NIA, MARINA and NEDA, and shall be responsible for implementing the RFPF and recommending land use policies for RDC adoption. The NEDA Regional Director is the Chairperson.

**(2) Provincial/City Land Use Committee**

Per Executive Order No. 72, the Provincial/City Land Use Committee (CLUC) is mandated to coordinate preparation and update of their Provincial/City Physical Framework Plan (P/CPFP) and to assist Sangguniang Panlalawigan in reviewing comprehensive land use plans of component municipalities. P/CLUC is assisted by a TWG composed of the senior technical staff of member agencies at the provincial level. P/CLUC resolves land issues within its responsible area; recommend policies to Provincial Development Council (RDC) coordinate monitoring/evaluation of land use plans; and give technical assistance.

The Chairperson for the P/CLUC shall be the Provincial/City Planning and Development Coordinators. The members shall compose of various provincial/city officials and private sector representatives following more or less the RLUC composition of member agencies. P/CLUC shall be responsible for the implementation of their respective P/CPFPs and to conduct surveillance and monitoring of implementation of land use ordinances and initiate persecution of transgressors of the land use laws.

**(3) Municipal Land Use and Zoning Committee**

A Municipal Land Use Plan (MLUP) shall be formulated with the benefit of guidance or direction from a provincial or regional land use framework. The Municipal Land Use and Zoning Committee (MLUZC) coordinates preparation and updating of the MLUP, recommends to Sangguniang Bayan (SB) enactment of zoning ordinances and land regulatory measures; conduct actual survey and studies on land use, conducts surveillance and monitoring of implementation of land use ordinances and initiates persecution of the transgressor of the land use laws.

## Chapter 2 Existing Natural Environment and Resources Conditions in DIDP Area

### 2.1. Natural Environment

#### 2.1.1. Climate

Climate of the DIDP area is characterized by uniform annual distribution of different climatic elements such as temperature, humidity and rainfall. However, the rainy period is attributed to the northeast and southeast monsoons as follows: northeast monsoon during December to January, and southeast monsoon during June to October (substantial rainfall).

The Philippines experience a spate typhoons throughout the year. However, Mindanao Island is located outside the typhoon belt. Only 15% of typhoons entering the Philippines strike areas located south of Samal. The annual rainfall ranges in 1,400 mm to 2,100 mm in Mati, Davao City, Tagum.

#### 2.1.2. Land

According to 1995 Southern Mindanao Statistical Year Book. Lowland which is characterized by slope 0 - 8% and lower than 100 m elevation, covers only 337,000 ha or 17% of the DIDP Area. Davao City has 13,000 ha of lowland which accounts for 5.4% of Davao City area. Plateaus and lowland are unevenly distributed in DIDP Area. Upland, characterized by slope 8 - 18% and lower than 500 m elevation, has 326,000 ha or 17% of DIDP area. Highland and hilly areas account for 65% of the DIDP Area. Hillyland, within 500 m elevation and with slope greater than 18%, has 479,000 ha or 24% of DIDP Area. Highland areas which have more than 500 m elevation cover 808,000 ha or 41% of DIDP Area (Table 5).

In DIDP Area, 931,409 ha or 56% of total land is eroded at moderate and severe erosion levels. Only 339,000 ha or 20% of total land is categorized as areas of no apparent erosion. Severe erosion areas of Davao City and Davao Del Sur accounts for 53% of total land area, 207,000 ha. It follows from these data that DIDP Area is extensively eroded (Table 6).

**Table 5 Classification of Topography**

Province	Unit	Lowland	Upland	Hillyland	Highland	Miscellaneous	Total
Davao Province	ha	171,983	164,951	132,814	340,469	2,758	812,975
	%	21.2	20.3	16.3	41.9	0.3	100
Davao City	ha	15,453	67,122	46,088	103,676	12,022	244,361
	%	6.3	27.5	18.9	42.4	4.9	100
Davao Del Sur	ha	99,880	70,688	73,539	148,757	557	393,401
	%	25.4	18.0	18.7	37.8	0.1	100
Davao Oriental	ha	49,368	23,590	226,348	216,435	1,705	516,446
	%	9.6	4.6	43.8	41.7	0.3	100
Total	ha	336,684	326,331	478,789	808,337	17,042	1,967,183
	%	17.1	16.6	24.3	41.1	0.9	100

Note: Davao Province includes Davao del Norte and Compostela Valley.

Lowland: slope 0 - 8 %, elevation <100 m Upland: Slope <18 %, elevation <500 m

Hillyland: slope <18 %, elevation >100 m Highland: elevation >500 m

Source: 1995 Southern Mindanao Statistical Yearbook, original source: BSWM, DA XI

**Table 6 Conditions of Soil Erosion**

Erosion Class Province	Unit	Eo	E1	E2	E3	Unclassificatio/ Unidentified erosion	Total
Davao Province	ha %	177,899 23.2	122,970 16.1	261,988 34.2	199,894 26.1	3,099 0.4	765,850
Davao City Davao del Sur	ha %	91,384 23.2	37,457 9.5	57,663 14.7	206,897 52.6	- -	393,401
Davao Oriental	ha %	70,079 13.6	237,842 46.1	189,840 36.8	15,127 2.9	2,713 .5	515,601
Total	ha %	339,362 20.3	398,269 23.8	509,491 30.4	421,918 25.2	5,812 .35	1,674,852

Note: Davao Province includes Davao del Norte and Compostela Valley.

Eo: No apparent erosion and soil deposition

E1: Slight erosion

E2: Moderate erosion

E3: Severe erosion

Source: Ecological Profile (Davao Province, Davao City, Davao Del Sur, Davao Oriental)

### 2.1.3. Coastal environment

Davao Gulf is located in the southern part of Mindanao Island, and is bounded by Davao Del Sur, Davao City, Davao Province and Davao Oriental. The total catchment area of Davao Gulf is about 5,100 km. About 33 major rivers flow into Davao Gulf. Major rivers, particularly Hijo, Manat, Libuganon rivers in Davao Province, Davao river in Davao City were polluted by discharges of domestic waste water, and discharges of toxic chemicals from industries.

There are various types of marine habitats such as coral reefs, mangrove, seaweed/seagrass, and others. According to a Rapid Resources Appraisal of Davao Gulf, Mindanao State University in Naawan, Foundation for Science & Technology Development Inc. 1995, Davao Gulf has a length of 412 km of coral reefs as shown in Table 7. In Davao Gulf, 57% of coral reef is distributed around islands. Majority of live coral with not less than 50% is distributed in Sigaboy Island, Tinaytay reef, Ligid, Dako Island, Marisa uno, Basyawan reef and Tubalan reef.

**Table 7 Length of Coral Reef Shoreline**

	(Unit : km)		
	Land Base	Island Base	Total
Davao Province	9.2	139.5	148.7
Davao City	19.8	3.9	23.7
Davao del Sur	102.7	166.5	269.2
Davao Oriental	114.0	11.0	125.0
Total	245.7	320.9	566.6

Source: Rapid Resources Appraisal of Davao Gulf, Mindanao State University in Naawan, Foundation for Science & Technology Development Inc. 1995

Mangrove forest has been decreased rapidly. A large area of mangrove forest has been converted into fishponds and settlement. There were 2,683 ha of mangrove forest in 1950. However, mangrove forest has decreased to 447 ha or 17% of original area (Table 8). In 1993, 62% of diminution of mangrove forest has been converted into fishponds.

**Table 8 Estimated Mangrove Forest Conversion between 1950 and 1988.**

(Unit : ha)

	1950	1988			Total
	Mangrove	Mangrove	Fishponds	Others	
Davao Province	1,508	140	1,117	251	1,508
Davao City	292	0	69	233	292
Davao Del Sur	807	307	205	295	807
Davao Oriental	76	0	0	76	76
Total	2,683	447	1,391	855	2,683

Source: Rapid Resources Appraisal of Davao Gulf, Mindanao State University in Naawan, Foundation for Science & Technology Development Inc. 1995

According to the Rapid Resources Appraisal of Davao Gulf, Davao Gulf ranks among the top 15 major municipal fishing ground in the Philippines, and the top 18 commercial fisheries production. In 1993, the Gulf produced 32,098 t or 1.32% of the total fish production of the Philippines.

There are 16 identified fishing ground for commercial fishing in Davao Gulf. Common fishing gears includes ring net, bagnet and purse seine. Municipal fishermen use various fishing gears as shown in Table 9. Conditions of fishery resources are mentioned in detail in Economic Sector Report.

**Table 9 List of Fishing Gears by Municipal Fisherman in Davao Gulf**

## Fishing Gear and Methods

encircling gillnet, surface/drift gillnet, bottom-set gill net, multiple hook and line, single hook and line, long line, beach seine, fish corral, barrier net, drive-in net, babay trawl, others (spear, fish traps, fish pots, compressor, diving, cyanide poison etc.)

Source: Rapid Resources Appraisal of Davao Gulf, Mindanao State University in Naawan, Foundation for Science & Technology Development Inc. 1995

**Table 10 Major Species Caught by Commercial Fisherman and Municipal Fisherman**

Caught by Commercial Fishermen	Caught by Municipal Fishermen
<p>Decapterus kurroides (round scad), Decapterus macrosoma (round scad), Selar crumenophthalmus (big eye scad), Auxis rochei (Bullet mackerel), Auxis thazard (Frigate mackerel), Elegatis bipinnulatus (Rainbow runner), Rastrelliger brachysoma (Short bodied mackerel), Rastrelliger faughaii (Island Mackerel), Thunnus albacares (Yellowfin tuna), Thunnus obesus (Big eye tuna), Stolephorus commersonii (Long jawed anchoovy), Mene maculata (Spotted moonfish), Sardinella melanura (Blacktip sardinella), Mobula eregoodoo (Manta ray), Alutera monocerus (Unicorn filefish), Trichiurus sp. (Hairtail)</p>	<p><b>Invertebrates</b></p> <p>Selar crumenophthalmus, Sardinella melanura, Thunnus albacares, Etelis carbunculus, Acetes sp., Sepioteuthis lessoniana, Liza sp., Thunnus alalunga, Auxis thazard, Stolephorus commersonii, Decapterus macrosoma, Katsowonus pelamis, Rastrelliger brachysoma, Mene maculata, Decapterus kurroides, Auxis rochei, Epinephelus spp., Lethrinus spp., Rastrelliger kanagurta, Rastrelliger faughni</p> <p><b>Fin Fish</b></p> <p>Carangidae (Roundscad &amp; cavallas), Scombridae (Tunas &amp; Mackerels), Clupeidae (Sardines &amp; Herrings), Lutjanidae (Snappers &amp; Fusiliers), Mugilidae (Mulletts), Engraulidae (Anchovies), Menidae (Moonfish), Sphyraenidae (Barracuda), Mullidae (Goatfishes), Serranidae (Rock Cods)</p>

**2.1.4. Protected areas**

The National Integrated Protected Areas System (NIPAS) was established in 1992 (Republic Act No. 7586). Eight types of protected areas are categorized under NIPAS: 1) strict nature reserve, 2) natural park, 3) natural monument, 4) wildlife sanctuary, 5) protected landscape and seascape, 6) resource reserve, 7) natural biotic areas, and 8) other categories established by law, conventions or international agreements which the Philippine Government is a signatory. List of protected areas in the DIDP Area is shown in Table 11. There are two protected areas under NIPAS including Mt. Apo Natural Park and Pujada Bay Protected Landscape and Seascape in the DIDP Area. Seven protected areas were established by former regulations. These protected areas are called Initial Components. Location of protected areas are shown in Figure 1. The total of all the protected areas is 77,406 ha and 4% of the DIDP Area.

Protected areas are defined as follows.

**“Natural Park”** is a relatively large area not materially altered by human activity where extractive resource uses are not allowed and maintained to protect outstanding natural and scenic areas of national or international significance for scientific, educational and recreational use.

**“Protected landscapes/seascapes”** are areas of national significance which are characterized by the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal lifestyle and economic activity of these areas.



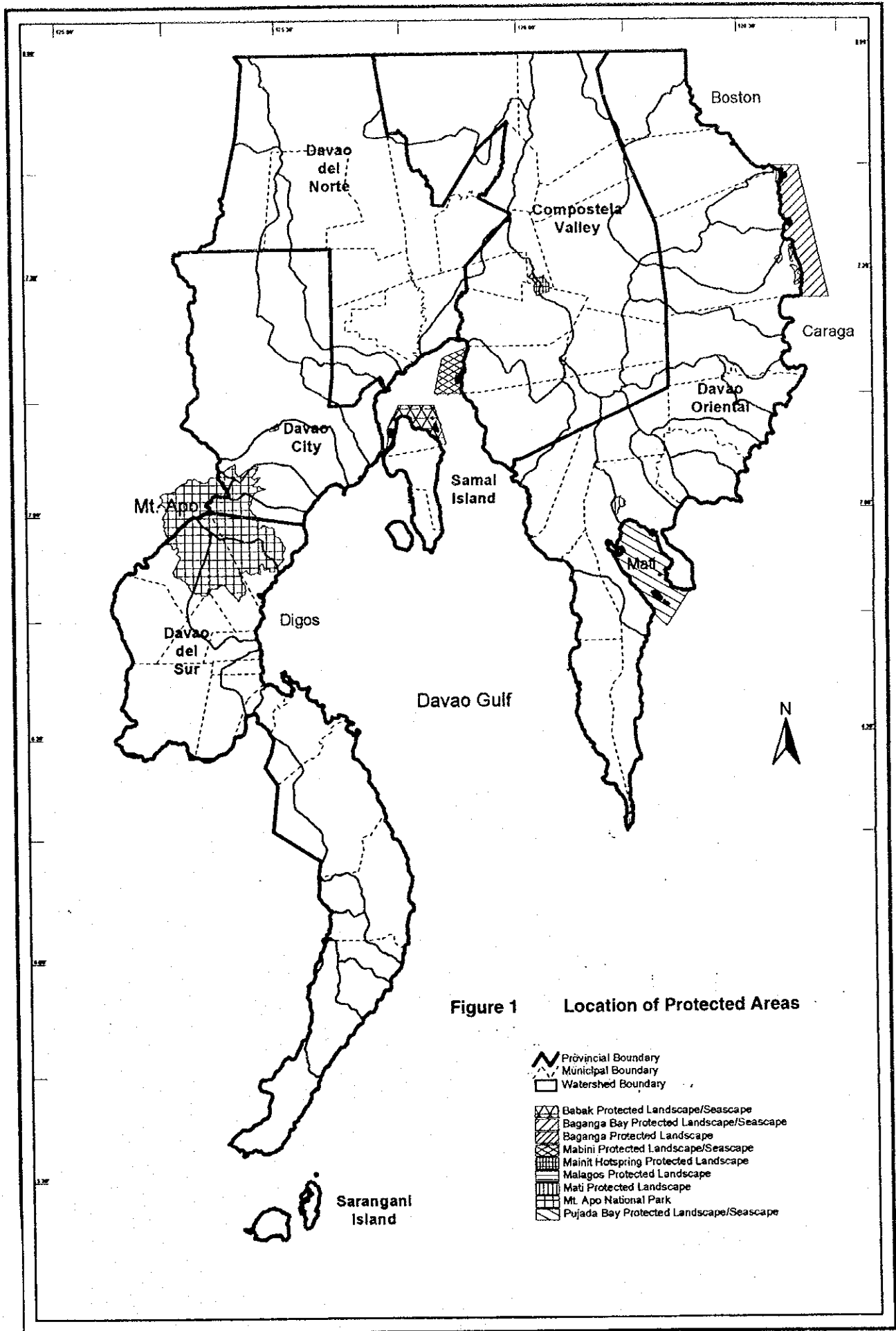


Table 11 Protected Areas in the DIDP Area

NIPAS Categories	Davao Province	Davao City	Davao Del Sur	Davao Oriental
Natural Park		Mt. Apo Natural Park (10,244 ha) Proclamation No. 59 (1936)	Mt. Apo Natural Park (42,200 ha) Proclamation No. 59 (1936)	
Protected Landscape/Seascape				Pujada Bay Protected Landscape/Seascape (21,200 ha) Proclamation No. 431 (1994)
Initial Components	Mainit Hotspring National Park (Proposed Mainit Hotspring Protected landscape) (1,381 ha) Proclamation No. 466 (1957)  Pindasan Island Wilderness Area (Proposed Mabini Protected Landscape/Seascape) (14.82 ha) Proclamation No. 2151 (1981)  Samal Island Mangrove Swamp Forest Reserve (Proposed Babak Protected Landscape/Seascape) (44.54ha <sup>*1</sup> ) Proclamation No. 2152 (1981)	Malagos Watershed Forest Reserve (Proposed Malagos Protected Landscape) (235 ha) Proclamation No. 612 (1933)		Mati Watershed Forest Reserve (Proposed Mati Protected Landscape) (890 ha) Proclamation No. 222 (1967)  Baganga Watershed Forest Reserve (Proposed Baganga Protected Landscape) (114 ha) Proclamation No. 195 (1987)  Baculin Point to Lakud Point, Taguip Point Mangeove Forest Sawmp Reserve (Proposed Baganga Bay Protected Landscape/Seascape) (1,083 ha) Proclamation No. 2152(1981)
	Mt. Apo National Park: 52,444 ha (within Region XI)			

Source: Profile DENR Region XI (1996)

\*1: Initial Protected Plan for Babak Protected Landscape and Seascape

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Outlines of protected areas are as follows

**a. Mt. Apo Natural Park: MANP**

Mt. Apo Natural Park (MANP), with the highest peak in the Philippines with an elevation of 2,938 m (above mean sea level) is located in the southern portion of Mindanao and has an area of 2,112.59 ha. Its boundary is being shared by Region XI including the municipalities of Digos, Bansalan and Santa Cruz in Davao del Sur and Davao City, and by Region XII including the municipalities of Makilala and Kidapawan of North Cotabato.

Mt. Apo is the watershed of 30 river systems located in Davao City, Davao del Sur, Bukidnon and Cotabato and the seat of several hot springs, waterfalls and lakes. Three sets of fault lines have been identified along the volcanic complex by the Philippine National Oil Company, some of which have been considered as geothermally significant.

Mt. Apo has a varied and unique habitat types which host a wide range of flora and fauna. It includes 629 species under 148 families of vascular and non-vascular plants. The useful rare and endangered flora species are *Agathis Philippinensis*, *Shorea molita* and *Vatica mangachapoi*. *Vanda* and *sanderiana* and *Plectocomia elmeri* are already extinct in their natural habitat due to over collection. Six endemic species known only to occur in Mt. Apo were also identified. There are at least 227 vertebrate species belonging to 69 families of birds. Based on faunal composition, butterflies are the most numerous but the Philippine eagle is by far the most important bird species in Mt. Apo.

MANP, despite having been declared as a protected area on May 3, 1936 under Proclamation No. (PN) 59 is devoted to several land uses such as agriculture, settlement and open grassland. The forest areas are spread over the upper slope and at the summit of the park. A significant portion, i.e. 45% of the park, is being utilized for agricultural purpose. Settlement is prevalent in the southern and western side. The 1990 Survey by National Statistic Office (NSO) revealed that population totals 74,324 comprising 14,000 households. Davao City side of Mt. Apo is the most densely populated with a density of 348 persons/km<sup>2</sup> and that birth rate is highest in Davao City side of Mt. Apo i.e. 32.84 per 1,000 population.

As for the local administration, 33 personnel of DENR are presently assigned at Mt. Apo Natural Park; most of them are Forest Rangers and Environment Management Specialist (EMS). The management of the park is being complemented by the Protected Area Management Board (PAMB) which is a multi-sectoral body organized to protect, conserve, manage, monitor and control the activities within the area and is composed of 67 members.

**b. Mainit Hotspring National Park**

(Proposed Mainit Hotspring Protected Landscape: MHSPL)

This is located at the two (2) barangays of Mainit and Bukal in Nabunturan, Davao del Norte with an area of more or less 1,375 ha and with a buffer zone area of more or less 379 ha. It has been declared a protected area under Proclamation No 466 dated December 12, 1957.

This is a mountainous area with a slope gradient ranging from 40% to 50% and over. The soil type is good for forest land with no agricultural significance. The highest

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elevation within the area is 1,000 m and it belongs to type II climate. The lowest temperature is 17°C, the highest is 36°C, while prevailing wind direction is from north to south.

The area is being traversed by six rivers/creeks but the main feature is the Mainit Hotspring and the alleged growing baby volcano named Mt. Angelo. The area is predominantly covered with grassland and brushland with patches of forest gullies and riparian zones. Faunal species include birds, mammals and reptiles.

While it is one of the protected area in the region, it has been encroached upon as early as 1950 and the population continues to increase over the years composed of Christian migrants and indigenous people belonging mainly to Mansaka. Agriculture is their dominant activity despite its low fertility type of soil. Aside from the settlement houses, school buildings, log cabin and cottages are also visible in the area.

The administration of the area is being undertaken by the Environment and Protected Area Services unit of the DENR through its Ecosystems Management Specialist and Forest Ranger personnel.

**c. Pindasan Island Wilderness Area**

(Proposed Mabini Protected Landscape and Seascape: MPLS)

The Mabini Landscape and Seascape is located at the southeastern section of Davao Province. It was formerly known as the Pindasan Island Mangrove Wilderness Reservation with an area of 14.82 ha and had been declared as protected area under Proclamation No 2151 dated December 29, 1981. It has a pristine mangrove stand dominated by Bacauan but some 4 ha of the area is devoted to coconut and is being claimed by private persons. About nine rivers and creeks are embraced by the protected landscape.

The surrounding waters of Mabini which are considered additional component of the NIPAS has mangrove forest in its primitive state over an area of 72 ha. About six species of seagrass associated with a variety of living flora and fauna were identified along the coast, indicative of varied habitats and good food source. On the living coral cover, there are about 57% of the reef areas in excellent condition, 22% were rated good, 14% fair and only 7% poor.

It has been declared as protected area for the following reasons: 1) three components of the coastal ecosystem were represented; 2) the area has been previously proclaimed as wilderness area; 3) the coastal area is considered the fishing ground of the municipality; 4) the area possess a good site for fish/marine sanctuary; and 5) the white sandy beaches and good and excellent cover could provide enjoyment and recreation to local and foreign visitors.

The management of the protected landscape and seascape is in the hand of the PAMB in coordination with DENR and the host NGO but it is threatened by siltation and pollution caused by human intervention as well as mining operation, and conversion of mangrove areas into other uses.

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#### **d. Samal Island Mangrove Swamp Reserve**

(Proposed Babak Protected Landscape and Seascape: BPLS)

Babak in Island Garden City of Samal is bounded to the south by Samal and on all other sides by Davao Gulf. The protected landscape and seascape is a portion of Davao Gulf with inland boundary starting from Tagpopongan Point to Babak-Peñaplata boundary covering a coastal area of more or less 7,050 ha.

The municipality is characterized by extensive mountain range with isolated hills and uneven distribution of lowlands. Soil is slightly acidic but with poor permeability. Its large guano deposit is due to the presence of numerous caves.

The protected area has mangrove forest covering an aggregate area of 40 ha while some 10 ha open area is being considered for rehabilitation. The protected landscape, Small Cruz is now planted to coconut while Sanipaan is bare sand during low tide. The seascape area on the other hand, is the fishing ground for marginal fishermen and some portion of its coastline is being developed into resort. There are two existing ports/wharves within the protected area while some portions are set aside for industrial purposes aside from hundreds of houses in some parts of the shoreline.

The area had been declared a protected landscape and seascape under Proclamation NO. 2152 dated December 29, 1981 for the following reasons: 1) the components of marine and coastal ecosystem were represented in the area; 2) Samal Island is considered a tourism zone; 3) it is considered the fishing ground of the municipality; and 4) it is important for science and education. Therefore there is a need for the area to be protected and the remaining resources to be preserved.

The administration of the area is being undertaken by the DENR under the following principles: 1) water quality shall be monitored; 2) all projects and activities undertaken in the area shall pass through the Protected Area Management Board (PAMB) for deliberation and approval; and 3) LGUs shall be provided with funds to buy lots for the relocation of all residents along the coastline who are the major source of domestic pollution. The major threats in the protected area are industrial and domestic pollution, illegal cutting of mangrove, settlement and conversion of mangrove into beach resorts.

#### **e. Malagos Watershed Forest Reserve**

(Malagos Protected Landscape: MPL)

Malagos Watershed Reservation has been declared protected area under Proclamation No. 612 in 1933. It is located in Baguio District, Davao City, about 5 km from Calinan.

The topography of the area is moderately sloping. Its clayey loam soil and its Type II climatic condition make the area best suited for agriculture. It is being traversed by the Malagos river and its tributaries. The surface water and groundwater are classified as Class A and Class GA, respectively. It is the seat of 26 floral species, and faunal species are composed of birds, mammals and reptiles.

The protected area is a water source of Davao City with some portion planted to coffee, rice and fruit trees. Some 18 ha of the area is titled while 2 ha are reserved for Philippine Eagle Captive Breeding Project which cater to educational and

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research needs of some visitors particularly on the conservation of wildlife resources.

Present administration of the area is lodged with the Davao City Water District and Philippine Eagle Foundation, Inc.

**f. Baganga Watershed Forest Reserve**

(Proposed Baganga Protected Landscape: BPL)

Baganga Watershed Reservation (BWR) under Proclamation No. 195 dated December 8, 1987 now known as the Baganga Protected Landscape is located at the eastern portion of Davao Oriental embracing an area of 114 ha. Land mass within the protected area is generally flat becoming hilly to mountainous to the east. Soil texture is of silty loam and clayey to rocky on the mountain slopes.

Based on NAMRIA data, about 35 ha of the protected landscape has second growth forest and the rest which is suited for agriculture is planted to coconut, corn and vegetables for the settlers' means of living.

BWR the source of water for the entire municipality, therefore its protection and preservation is of prime importance. Its management is being undertaken by Baganga Water District in close coordination with the DENR, PAMB and LGUs but the protection and preservation of the area are constrained by timber harvesting and presence of titled properties within the watershed reservation.

**g. Baculin Point to Lakud Point, Taguip Point Mangrove Forest Swamp Reserve**

(Proposed Baganga Bay Protected Landscape and Seascape: BBPL)

The mangrove reservation from Baculin Pt. to Lucod Pt. and from Taguip Pt. to Kinablangan to include the coastal waters of Baganga municipality is now known as the Baganga Bay Protected Landscape and Seascape. It is located at the eastern part of the municipality and the northeastern portion of Davao Oriental covering an area of more or less 20,500 ha embracing 11 coastal municipalities.

It is a swampy area most of the time saturated with brackish water, and the soil texture is suitable for fishpond development. Vegetative cover includes about 1,513 ha of permanent mangrove forest. Coastal barangays covering the protected seascape has a 1995 population of 26,182 engaged primarily in fishing and agriculture but has various tourist destinations.

By virtue of Proclamation No. 2151 on December 29, 1981, the area had been declared a protected area due to the following reasons: 1) the three components of coastal ecosystem were represented in the area; 2) mangroves between Taguip to Kinablangan and from Baculin to Lucod Pt. had been declared mangrove reserve; 3) coastal area is considered the fishing ground of the municipality; and 4) white sand beaches could cater to recreational needs of local and foreign visitors.

However, the remarkable reduction of mangrove area from 17,358 ha in 1972 to 7,100 ha at present is the primary reason why the Government proclaimed the area as a protected one. This remaining hectare of mangrove needs immediate protection from human intervention.

The potential problems identified in the area include illegal entry and occupation, siltation and pollution, mangrove area conversion into fishponds, illegal cutting and harvesting of mangrove and its by-products and destructive fishing practices.

**Table 12 Damage by Natural Disaster in the DIDP, 1996-1997**

	Davao del Norte	Davao del Sur	Davao City	Davao Oriental
Earthquake			- March 12, 1996 magnitude: 2, affected families: 2 - Aug. 12, 1996 magnitude: 5.2	
Volcanic Activities		- Jan. 5,9,11, 1996 Sarangani		
Landslide	- July 21, 1996 soil eroded over 900 m of provincial road	- Feb. 9, 1996 affected families: 2	- June 24, 1996 affected families: 3	- Jan. 1, 1996 affected families: 30 - Feb. 1, 1997 damage: water system pipe, 1 km provincial road
Flood	- Jan. 23, 1996 affected families: 1,594 - Feb. 6, 1996 affected families: 2,638 - Apr. 25, 1996 affected families: 7,799 - Apr. 28, 1996 - Aug. 18, 1996 affected families: 8 - Oct.28, 1996 - Jan. 12-16, 1997 affected families: 21,529 damage:P54,160,100.00 - Jan. 30-31, 1997	- Oct. 23, 1996 - July 9, 1997 affected families: 766	- Apr. 25, 1996 affected families: 1,200 damage: P100,000 - Jan. 28-30, 1996 affected families:1,533 damage: P6,601,212.91 - Apr. 24, 1996 affected families: 500	- Jan. 1-11, 1996 affected families: 203 damage: P 1,579,410 - Jan. 15 - Feb. 16, 1996 affected families: 1,589 damage: P 16,681,287 dead: 1 - Apr. 25, 1996 affected families: 540 persons - June 7, 1996 affected families: 51 damage: P 79,450 - Nov. 12, 1996 affected families: 1,300 persons
	- Mar. 6-7, 1997 affected families: 2,010 damage: ?, dead: 3 - Apr. 24, 1997 damage: P 500,000 - Oct. 28, 1997 affected families: 917 damage: P 1,833,000.00			- Jan. 12-18, 28 - Feb. 6, 1997 affected families: 6,310 damage: P 45,472,336 - May 2, 1997 affected persons: 2,376 Gov. Gen. Damage: (P4,459,619,25) affected persons: 9,000 San Isidro damage: (P13,395,254.71) - Sept. 20, 1996 affected families: 13 damage: P 50,000
Tornado	- July 3, 1997 affected families: 158	- May 3, 1996 affected families: 44 damage: P 451,000 dead: 3 persons		
Lighting Accident	- April 21, 1996 - August 31, 1997 dead: 1 person damage: ?			
Cloud Burst		- August 13,1997 damage: 6 houses & (P 50,000.00)		- Nov. 4, 1997 families affected: 40 damage: P 3,000,000.
Monsoon Waves		- Feb. 21, 1997 families affected: 250 damage: P 4,094,000 - Aug. 17-19, 1997 families affected: 12 damage: ?	- Aug. 16-18, 1997 families affected: 142 damage: P 1,573,200 - Aug. 1997 families affected: 26 damage: P 463,400.00 - Aug. 1997 families affected: 78 damage: P 3,583,000.00 - Aug. 1997 families attached: 14 damage: P 97,800.00	- August 18, 1997 families affected: 61
Heavy Rain				- May 19, 1997
Big Wave	- Aug. 19, 1997 families affected: 47 damage: P 128,500.00			
Tsunami		- Feb. 20, 1996 families affected: 347		

Source: National Disaster Coordinating Council Region XI

### 2.1.5. Natural disasters

There are various natural disasters in the DIDP Area such as earthquakes, volcanic activities, landslides, floods, tornadoes, lighting accidents, cloud bursts, monsoon waves/big waves, tsunami and heavy rains. Damages caused by natural disasters in the DIDP Area are shown in Table 12.

### 2.2. Natural Resources

The conditions of the following natural resources in the DIDP Area are mentioned in other sector reports:

Water resources : Infrastructure Sector Report  
 Mineral resources and fishery resources : Economic Sector Report

#### 2.2.1. Forest resources

##### (1) Existing conditions of forest resources

Existing forest cover including primary and secondary forest accounts for 33% of the total DIDP Area or 655,600 ha based on landsat image analysis taken in January and December of 1989 and April of 1993 (Table 13).

According to the Profile DENR Region XI, 1996, there are small portions of old growth forest and mossy forest covering 180,900 ha or 15% of total land (Table 14). In Davao City and Davao del Sur, old growth and mossy forest area covers 37,000 ha or 9.3% of total land, and is the lowest compared with other provinces.

**Table 13 Forest and Grassland Areas by Province and City**

(Unit : ha)

	Forest Area
Davao del Norte	34,463
Compostela Valley	219,840
Davao City	71,615
Davao del Sur	97,155
Davao Oriental	232,485
Total	655,558

Source: landsat image analysis taken in January and December of 1989 and April of 1993

**Table 14 Forest Cover by Province**

Province	Unit	Old Growth	Mossy Marginal	Second Growth	Brushland	Large Scale Grassland	Plantation	Open Cultivated	Mangrove	Total
Davao Province	ha %	31,800 6.2	46,700 9.1	110,634 21.5	87,400 17.0	2,782 0.5	16,891 3.3	218,397 42.4	697 0.1	515,301 100.0
Davao City Davao Del Sur	ha %	18,400 4.6	18,600 4.7	41,900 10.5	121,802 30.5	6,854 1.7	6,428 1.6	184,372 46.2	391 0.1	398,747 100.0
Davao Oriental	ha %	24,800 7.9	40,600 12.9	115,800 36.7	3,772 1.2	620 0.2	6,368 2.0	121,814 38.6	1,728 0.5	315,502 100.0
Total	ha %	75,000 6.1	105,900 8.6	268,334 21.8	212,974 17.3	10,256 0.8	29,687 2.4	524,583 42.7	2,816 0.2	1,229,550 100.0



## (2) Forest products

Log production in the DIDP Area has been decreasing as shown in Table 15. In 1995, the total log production was 48,000 m<sup>3</sup>.

**Table 15 Log Production by Province**

	unit: cubic meters				
	1991	1992	1993	1994	1995
Davao Province	69,128	25,333	68,506	34,265	20,048
Davao del Sur	3,356	-	18,578	7,019	5,756
Davao Oriental	31,055	4,285	15,312	21,380	22,534

Source: Philippine Forest Statistics, DENR, 1991-1995

## (3) Forest management projects and programs

There are two major forest management programs: Community Based Forest Management (CBFM) Programs and Industrial Forest Management (IFM) Programs. The CBFM consists of Integrated Social Forestry (ISF) Program, Community Forest Program (CFP), Forest Land Management (FLM) Program, Coastal Environmental Program (CEP) and Ancestral Domain Program. In 1997, ISF was integrated into CBFM.

### a. Community Based Forest Management Program (CBFMP)

The Community-Based Forest Management Program (CBFMP) is an umbrella program for all people oriented forestry program of DENR encompassing ISF, CFP, CEP and other programs recognizing the tribal claims over their ancestral land. It was launched in 1997 by virtue of Executive Order No. 263 based on the concept of catering to the needs and enhancing the skills of the upland people so that they may be utilized as managers in the sustainable development of the forest and forest resources.

The primary goals of the CBFMP include sustainable management of forest resources, promotion of social justice and improved well being of the local communities. The program is being implemented by concerned agencies as governed by the following principles:

- recognition of rights of indigenous peoples to their ancestral domain,
- generation of employment and creation of local economic opportunities,
- preservation and enhancement of biodiversity,
- downstream benefits of sound watershed management,
- transparency and accountability,
- linking the CBFM communities to market players and resource institutions, and
- developing/Strengthening of partnership between and among DENR, LGU, PO and other agencies or organization.

The participants of this program may include local community and underprivileged upland settlers represented by People's Organization or Tribal Council, of which members are actual land tillers or time immemorial occupants of those areas for

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their livelihood and sustenance. These participants are provided security of tenure for 25 years, renewable for another 25 years.

Under this program, the following benefits may be derived not only by the local community but also by the local government:

- Increased economic/employment opportunities for the constituents,
- More revenues generated from forest resources,
- More stable water supply, and
- More active participation in the rehabilitation, protection, and development of forest resources.

#### Integrated Social Forestry Program (ISFP)

Integrated Social Forestry Program (ISFP) is an umbrella program of DENR for all socially oriented community-based upland development projects launched in 1982 by virtue of LOI 1260 and based on the policy of the Government to democratize the use of public lands and to promote a more equitable distribution of forest resources under the stewardship principle. This program is designed to maximize upland productivity, enhance ecological stability and improve the socioeconomic condition of forest occupants and communities in line with the national objectives of environmental protection, poverty alleviation and promotion of social justice.

Under this program, qualified participants are provided with tenurial security through the issuance of Certificate of Stewardship Contract (CSC) good for 25 years and renewable for the same period over the lands which are actually occupied and cultivated, the size of which shall not exceed 5 ha.

The ISFP is implementable in open and denuded forest land with less than 10% stocking and areas covered by former projects on Forest Occupancy Management (FOM), Family Approach to Reforestation (FAR), Communal Tree Farm (CTF) and other suitable reforestation/afforestation projects. Areas with existing TLA, PLA, ITP and AFLA which have been developed into productive farms as of December 31, 1981 provided that there is no conflict with reforestation obligation of any license or lease holder as well as areas of Communal Forest, Communal Pasture or any DENR project which has ceased to serve its original intentions, neglected or abandoned as determined by DENR may also be made available for ISFP. However, areas designated strictly for protection purposes such as virgin forest, areas for biodiversity conservation and areas beyond 50% slope and 1,000 m elevation, or those areas where continued occupancy would result in the impairment of other resources leading to serious detriment of community and public interest cannot become an ISF area. Even those areas which are covered by existing DENR reforestation projects such as Community Forestry Project (CFP), Forest Land Management Agreement (FLMA) and other similar projects are areas restricted for ISFP implementation.

Extension services, which constitute one major program component involve community organizing and development, training, and provision of farm inputs. Program participants are also encouraged to develop their lands using appropriate agro-forestry technologies and soil and water conservation measures promoted by DENR to improve farm productivity.

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Infrastructure as program components includes access road/graded trails development, water impounding structures and dam construction. Credit assistance is also being provided under this program through Land Bank especially to those farmers who form into a viable organization or cooperative.

An ISFP beneficiary has the obligation to participate in the delineation and parcellary survey of the project area which they must develop into a productive farm, devoting 20% of the land within such a project area to tree farming of suitable species to contribute to the reforestation efforts of the Government. He also has to protect and conserve the forest growth, preserve monuments and other landmarks indicating corners and boundaries, and prevent and suppress fires within the project area and areas immediately adjacent thereto. Protection and preservation of trees and other vegetation within a 20 m strip of land from the edge of the normal high waterline of rivers and streams with channel of at least 5 m wide bordering or passing through their allocated lands belong to the list of his responsibilities.

In order to encourage qualified applicants to participate in the program, an ISFP beneficiary is provided with the following incentives:

- no fees shall be collected for the use of allocated land under the Stewardship Agreement;
- all income/proceeds derived from the land shall accrue to the Program participants;
- unless the law otherwise provides, forest products derived and/or harvested from the Project Area shall be exempted from the payment of forest charges;
- technical, legal, financial, marketing, credit and other needed assistance shall be extended to Program participants;
- program participants may also avail of assistance provided by other government agencies and non-government and/or private organizations; and
- upon the expiration of the Stewardship Contract, Program participants or their direct next-of-kin shall have the right of pre-emption to any subsequent Stewardship Agreement covering their allocated land, and when for some reasons the Government opts to allocate the land for other uses, the participants concerned shall be entitled to just compensation for permanent improvements introduced including trees.

The implementation of the Program was formerly lodged with DENR but by virtue of the Local Government Code (RA 7160), this was devolved to the local government unit. However, the conduct of parcellary survey and the issuance of CSC as well as the monitoring the Program remain with the DENR.

**b. Community Forest Program (CFP)**

The Community Forestry Program (CFP) is a socially oriented forest management program of DENR which involves the gradual transfer of management resources to organized local communities as well as piloting of the integration of several upland programs in a single physical area. It was officially launched on November 28, 1989 through the issuance of Administrative Order No. 123, S. 1989. It provides partnership among DENR, communities and assisting organizations like NGOs in community based resource management. It also promoted the direct participation of

organized local communities within or adjacent to public forest lands in resource management during the period where a Community Forest Management Agreement (CFMA) is already awarded to them.

The CFP envisions a two-prong status: 1) bio-physically: "a sustainable land use system consisting of a protected primary forest, managed residual forest, productive agro-forestry, agricultural and coastal system in watershed landscape promotive of ecological, cultural and productive function;" and 2) socio-culturally: "sustainably managed by an organized, empowered and technically equipped community for improved well being of the present members of the community as well as that of their children."

These, they hope to accomplish through the following strategies:

- Provision of appropriate tenurial instrument,
- Deployment of technically competent, socially sensitive and skilled staff who will work and live with the community,
- Use of appropriate entry points after the conduct of Rapid Rural Appraisal, Cross Farm Visits, Community Profiling, Community Organizing and other necessary assessments,
- Promoting alternative livelihood systems with the use of non-wood forest resources and wise utilization of wood-based forest resources, and
- Implementation of "pump priming" activities as a vehicle for collective endeavor capability building, on the job training and skills development as well as capital formation.

Based on the Philippine Master Plan for Forestry Development, the CFP shall have to address about 1.5 million ha. At the rate of 1,000 ha per project, 1,500 projects shall be established.

**Table 16 Existing Community Forest Programs**

Locations	Area (ha)	No. of Beneficiaries
Davao Province		
Pantukan	1,000	78
New Bataan	1,041	66
New Bataan	15,014	400
Davao City		
Mrilog	1,230	64
Davao Del Sur		
Kiblawan	1,410	95
Davao Oriental		
Cateel	1,000	54
Lupon	1,000	100
Tarragona	1,590	119
Mati	1,180	91

Source: Profile DENR Region XI

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**c. Forest Land Management Program (FLMP)**

The Forest Land Management Program (FLMP) is a long term contract reforestation system launched in April 27, 1993 by virtue of Department Administrative Order (DAO) No. 23. It is being implemented by the DENR as a principal means to accomplish its reforestation objective in collaboration with forest occupants and other residents of the upland communities and in consistency with its policy of achieving economic empowerment of the people through measures that are beneficial to the environment. This program provides financial and tenurial incentives for forest occupants and rural communities to develop, protect and manage forest resources.

As a program component, tenurial security is being provided through the issuance of a Forest Land Management Agreement (FLMA) entered by and between the Government represented by DENR and the program beneficiary. An FLMA remains in full force and effect for the duration of 25 years and renewable for another 25 years but subject to suspension or cancellation if an Forest Land Manager (FLM) violates any of the conditions in the FLMA. An FLMA With those rights and incentives provided the FLM, he is also obliged to cover land that falls within any of the following categories:

- land that was previously reforested or otherwise developed under the National Forestation Program or any other program administered by DENR whose major objective is production of timber and/or other forest products;
- all denuded uplands in the public domain including areas within officially designated watersheds, reservations, parks or preserves which shall be approved on a case to case basis by the Secretary consistent with the limited production, and forest utilization as provided for under the Philippine Master Plan for Forestry Development;
- residual and second growth natural forests that are adjacent to or continuous with lands planted under the FLMP; and
- naturally grown and planted mangroves, subject to the provision of R.A. 7161.

Community organization services as well as technical assistance are being provided by NGOs, DENR and other competent groups, agencies and institutions engaged by DENR to furnish assistance to forest occupants and communities for rural development.

Land development and livelihood activities consist of reforestation, agro-forestry and other measures that restore productivity and improve environmental conditions on denuded and degraded lands.

Short and long term incentives are created by providing financial assistance to help them defray the initial costs incurred to reforest and otherwise rehabilitate the areas covered by the FLMA. This financial assistance is given during the first 3 to 4 years of operation but the same shall be repaid beginning the seventh year or where products of the land so developed are already matured, harvested and sold, whichever comes first. The amount to be reimbursed shall not exceed those disbursed to the FLM. An FLM is also given the right to harvest and sell timber and non-timber product grown on the FLMA area. However, from the gross sales of the forest products, the FLM is required to set aside 5% for the reforestation trust

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fund to be deposited in the bank which only the FLM can withdraw but with the concurrence of DENR. On the other hand, whenever an FLM is required by law to pay forest charges, environmental fees or similar levies, the amount so paid shall be considered a partial reimbursement and will be deducted from the total reimbursement obligation of the FLM.

With those rights and incentives provided for the FLM, he is also obliged to do the following in addition to some requirements:

- prepare a project development plan which shall present in a systematic and organized manner the objective, detailed activities, planting design/choice of species, schedule activities, organization and manpower, estimated costs and other matters necessary for the full operation of the various components of the plan;
- prepare a forest protection plan as an integral part of the management strategies to be adopted;
- maintain and protect trees and other crops in the project site from fire, stray animals, vandals poachers and other agents or causes of destruction;
- use labor-intensive methods in harvesting;
- replant the project site after harvesting;
- refrain from cutting trees, regardless of species, found within 20 meters from river banks or creeks of at least 5 meters in width to prevent soil erosion and/or sedimentation; and
- appoint not more than three representatives who shall interact with the DENR on all matters pertaining to implementation of the Program.

**d. Industrial Forest Management Program (IFMP)**

In order to promote ecological stability, productivity and equity in the use of forestlands, DENR, has launched by virtue of Executive Order No. 278 dated July 25, 1987, the Industrial Forest Management Program (IFMP) based on the following policies and with the following objectives:

- adhere to its policy to promote the rehabilitation and restoration of degraded forestlands through appropriate reforestation and afforestation programs;
- promote the responsible management of suitable portions of brushlands and open and denuded forestlands for industrial purposes that will ensure adequate supply of timber and other forest products primarily for domestic requirements and secondarily for export markets;
- promote ecologically sound, equitable, socially acceptable and culturally appropriate management of natural forests, forest plantations and lands under its jurisdiction;
- encourage the private sector to engage in establishment and development of industrial forest plantations in the country's brushlands, open and denuded lands; and
- ensure equitable access to forest and forest resources of forest dependent communities by involving them in the development and management of forestlands.

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The Industrial Forest Management Agreement (IFMA) is a tenurial agreement entered into by and between the Secretary of the DENR and a qualified private sector investor or applicant whereby the former grants to the latter the right to develop, utilize and manage a specified area, consistent with the principle of sustainable development and in accordance with a Comprehensive Development and Management Plan, and under which both parties share in its produce. DENR shall take charge of the collection of the government share in the IFMA which amount is determined and negotiated with the IFMA holder based on plantation establishment and maintenance costs, harvesting schedule, kind of products to be harvested, market price of the timber products and the variation in applicable interest rate of financial investment. The amount of government share shall remain unchanged for the duration of the IFMA unless renegotiated and mutually agreed upon by the DENR and the IFMA holder.

IFMA areas may cover all delineated grasslands, brushlands, and open and denuded forestlands under the jurisdiction of the DENR except the following:

- Areas under NIPAS unless located within the buffer zone,
- Areas under CADCs/CALCs or under any tenurial instrument issued by DENR under the people oriented forestry programs,
- Areas under pending application for CADC/CALC, and
- Areas actually occupied by cultural communities under a claim of time immemorial possession.

The minimum area that may be covered by IFMA is 500 ha and the maximum is 20,000 ha. An IFMA holder may have one or more IFMA simultaneously but the aggregate total size of the IFMA areas shall not exceed 40,000 ha. Potential IFMA areas shall be identified by CENROs. They evaluate on the ground the availability and suitability thereof with respect to site and forest conditions, environmental limitations, conflicting land and resource claims and legal encumbrances. The approval of the area as suited for IFMA is the responsibility of the Secretary of the DENR. However, no IFMA shall be awarded to the applicant without the submission of the following requirements:

- Project Description (PD) or Initial Environment Examination,
- Environmental Compliance Certificate issued by the DENR,
- Environmental Management Record - proof of its present technical and financial capability to undertake resource protection, conservation, and rehabilitation of degraded areas and the like, and
- Community Relations Records - proof of its socio-cultural sensitivity, cultural appropriateness and social acceptability of its resource management strategies.

An IFMA is not transferable and no conveyance or exchange shall be undertaken without prior approval by the DENR. An IFMA holder shall be entitled to the following benefits and incentives:

- He may interplant secondary crops between trees within the areas designated for IFP in their IFMA areas, provided that such will not cause adverse impact on bio-diversity as indicated in prior Environmental Impact Assessment study;

- All trees planted by the holder, except for those planted or retained for environmental protection purposes, shall belong to him who shall have the right to harvest, sell and utilize such trees and crops;
- He shall be allowed to export logs, lumber and other forest products harvested from the IFMA plantation, in accordance with the government allocation system;
- All plantation products derived from the IFMA area shall be exempt from forest charges; and
- There shall be no restriction on the use of IFMA and improvements in the IFMA areas as collateral for obtaining loans for the improvement of the IFMA area, provided that there is a prior approval by the issuing authority of the IFMA.

On the other hand, an IFMA holder shall be responsible for the protection of IFMA areas from forest fires and other forms of forest destruction as well as the conservation of unique, rare and endangered trees, palms and wildlife found within their area. He shall reforest all areas within the IFMA that are open and denuded or brushland, or along banks of streams with channels less than five meters in width planting principally timber-producing species compatible with the ecological and biophysical characteristics of the area, but not excluding bamboo, rattan and rubber within five years from the date the Comprehensive Development Management Plan (CDMP) was approved. He may develop up to 10% of suitable portions for permanent agricultural use but he shall not introduce any exotic species that are untested under Philippine condition without prior written clearance from the DENR. Reports on the area development shall be submitted by the IFMA holder to the DENR annually.

CENRO shall be directly responsible for site identification and processing of IFMA applications. It shall be further responsible for the management and implementation of the program within its jurisdiction in coordination with other concerned government and non-government agencies, and for the monitoring and evaluation of the program implementation. It shall submit periodic reports to the DENR for evaluation.

**Table 17 Industrial Forest Management Agreement (IFMA)**

	Active		Inactive		Suspend/Canceled		Total	
	No.	ha	No.	ha	No.	ha	No.	ha
Davao Province	5	26,133.00	8	7,393.00	1	950.00	14	34,476.00
Davao del Sur	1	950.00	9	7,267.00	3	2,465.00	13	10,682.00
Davao Oriental	20	30,239.00	7	5,814.25	1	720.00	28	36,773.25
Total	26	57,322.00	24	20,474.25	5	4,135.00	55	81,931.25

Source: Davao del Sur includes Davao City