



Department of  
Environment and  
Natural Resources

# Compendium of Basic ENR Statistics for Operations and Management (Second Edition)

(2000-2008)



REPUBLIKA NG PILIPINAS  
**KAGAWARAN NG KAPALIGIRAN  
AT LIKAS NA KAYANGGALAN**  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DENR Central Office Building

**COMPENDIUM OF BASIC  
ENVIRONMENT AND NATURAL RESOURCES (ENR)  
STATISTICS FOR OPERATIONS AND MANAGEMENT  
(Second Edition)**

**2000 - 2008**



**DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES**





## FOREWORD

Economic progress, usually based on the exploitation of natural resources, leads to resource depletion, environmental degradation, and pollution. To mitigate these problems and effectively manage our natural resources, it is vital that environmental statistics are made available to policy makers and other users. This *Compendium of Basic Environment and Natural Resources Statistics for Operations and Management (2000 - 2008)* is a response to this need.

With accurate statistical data on component sectors such as forestry, biodiversity, coastal and marine resources, minerals and lands, this *Compendium* is a useful tool for managing natural resources accounts. It shows us, among others, the extent to which our economy uses natural resources and degrades the environment, while taking into consideration the presence or absence of a particular policy. Such information will definitely facilitate planning for sustainable development.

This *Compendium* is thus indispensable to the performance of the DENR's mandate as the primary agency tasked with environment and natural resources management.

Assembling the wealth of statistics in this volume took patience and political will, and so we are proud to have reached the stage of completing this volume for dissemination. With this, however, comes the responsibility, which we accept, to periodically update this *Compendium*. Thereby, we can measure the impacts of the policy responses and management measures that we may henceforth adopt.

  
RAMON J.P. PAJE  
Secretary

.

## **ACKNOWLEDGEMENT**

This Compendium of Basic ENR Statistics for Operations and Management is the result of team efforts among the DENR Statistical Family as well as the inspiration and encouragement from the DENR leadership, notably Acting Secretary Ramon J.P. Paje.

Gratefully acknowledged is the technical assistance extended by the DENR Bureaus, Attached Agencies, Regional Offices and Central Office: Planning and Policy Service (PPS), Human Resource and Development Service (HRDS), Administrative Service-Personnel Division, National Gender Development Focal Point System, Foreign Assisted and Special Projects (FASPO), Public Affairs Office (PAO) and National Water Resources Board (NWRB).

Finally, congratulations to the Undersecretary for Policy and Planning, Director of Planning and Policy Service, the Chief, Research and Statistics Division (RSD), and Chairperson, Technical Committee on Statistical Concerns and Coordination, the Research and Statistics Division Staff, the members of the Technical Committee on Statistical Concerns and Coordination, and NWRB for giving this worthy undertaking the priority that it deserves. The teamwork that developed in the course of this project will surely serve the institution in more endeavors to come.

## Table of Contents

	Page No.
Foreword .....	i
Acknowledgement .....	ii
Table of Contents .....	iii
List of Figures .....	iv - vi
List of Tables .....	vii - x
Introduction .....	xi
 Chapter 1 – Environment and Natural Resources (2000-2008)	
Section A – Forestry .....	1 - 38
Section B – Biodiversity .....	39 - 65
Section C – Coastal and Marine .....	66 - 70
Section D – Mines and Geosciences.....	71 - 87
Section E – Lands .....	88 - 108
Section F – Environment .....	109 - 160
Section G – Research, Development and Extension .....	161 - 179
Section H – Water Resources .....	180 - 182
Chapter 2 – Laguna de Bay .....	183 - 204
Chapter 3 - Gender and Development (GAD) .....	205 – 221
 Appendices	
Glossary of Terms .....	222 – 265
Acronyms/Abbreviations .....	266 - 273

## List of Figures

Figure No.	Title	Page No.
<b>Chapter 1 – Environment and Natural Resources</b>		
Section A – Forestry		
1	Land Classification as of 2008 .....	1
2	Log Production: 2000 – 2008 .....	4
3	Lumber Production: 2000 – 2008 .....	4
4	Plywood Production: 2000 – 2008 .....	5
5	Veneer Production: 2000 – 2008 .....	5
6	Summary of Forest-Based Products Exports and Imports: 2003 – 2008 .....	6
7	Area Reforested by Sector: 2000 – 2008 .....	7
Section B – Biodiversity		
1	Summary of Initial Components of NIPAS by Category as of December 2008 .....	39
2	Summary of Proclaimed PAs by Region per Ecosystem Type as December 2008 .....	40
3	Summary of Proclaimed Protected Areas with PAMB as December 2008 .....	40
4	PACBRMA Issued per Region: CY 2002 – 2008 .....	41
5	Summary of Income Generated from IPAF per Region as of December 2008 .....	41
6	Reported Caves in the Philippines as of December 2008 .....	42
7	Number of Critical Wetlands Assessed as of December 2008 .....	43
8	Number of Ecotourism Sites Identified as of December 2008.....	43
9	Issuance of Wildlife Farm Permits and Income Generated (CY 2006 – 2008) .....	44
10	Issuance of Wildlife Collector’s Permits and Income Generated (CY 2006 – 2008) .....	44
11	Issuance of Wildlife Gratuitous Permits and Income Generated (CY 2006 – 2008) .....	45
12	Issuance of Wildlife Local Transport Permits and Revenues Generated as of December 2008 .....	45
13	Confiscated Wild Flora and Fauna: CY 2006 – 2008 .....	46
14	Approved Certificate of Wildlife Registration and Revenues Generated as of December 2008 .....	46
15	Issuance of CITES/Non-CITES Permits: CY 2006 – 2008 .....	47
16	CITES/Non-CITES Revenues Generated: CY 2006 – 2008 .....	47
Section C – Coastal and Marine Resources		
1	Status of Philippine Coral Reefs .....	67

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
2	Seagrass Distribution in the Philippines .....	68
3	State of mangrove cover for all mangrove sites in the Philippines .....	69
 Section D – Mines and Geosciences		
1	Number of Operating Metallic Mines: CY 2000 – 2008 .....	71
2	Number of Permits/Agreements Approved/Registered: As of 2008 .....	72
3	Gross Production Value in Mining of Large-Scale Metallic Mining, Small-Scale Gold Mining & Non-Metallic Mining: CY 2000 – 2008 ...	73
4	Employment and Taxes, Fees & Royalties from Mining: CY 2000 – 2008 .....	74
 Section E – Lands		
1	Status of Land Titling in the Philippines, As of December 2008 .....	88
2	Cadastral Surveys Profile (No. of Municipalities and Cities), As of December 2007 .....	89
3	Densification of Philippine Reference System of '92, Control Points Established, 3 <sup>rd</sup> and 4 <sup>th</sup> Order: CY 2000 – 2008 .....	90
4	Densification of Philippine Reference System of '92: Control Points Established, 1 <sup>st</sup> and 2 <sup>nd</sup> Order CY 2002 – 2007 .....	91
5	Management of Foreshore Areas: CY 2006 – 2008 .....	92
 Section F - Environment		
1	Annual Average of Total Suspended Particulates (TSP) in the National Capital Region: 2000-2008 .....	110
1a	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in EDSA-NPO: 2000-2008 .....	110
1b	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in EDSA-East Avenue: 2000-2008 .....	110
1c	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Ateneo: 2000-2008 .....	111
1d	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Valenzuela: 2000-2008 .....	111
1e	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Makati City: 2000-2008 .....	111
1f	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Pasig: 2000-2008 .....	112
1g	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Mandaluyong: 2000-2008 .....	112
1h	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Manila: 2001-2008 .....	112
1i	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Pasay: 2001-2007 .....	113
1j	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in EDSA-MRT: 2004-2008 .....	113
2	Number of Classified Water Bodies (Including Principal and Small Rivers): CY 2007 .....	115

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
3	Number of Solid Wastes Disposal Facilities (As of 2008) .....	118
4	Number of Registered Hazardous Wastes Generators: 2000-2008 .....	119

#### Section G – Research, Development and Extension Sector

#### Section H – Water Resources

1	Issuance of Water Permit: CY 2006 – 2008 .....	180
2	Allocated Water by Purpose: CY 2009 .....	181

#### **Chapter 2 – Laguna de Bay**

1	Lake Level of Laguna de Bay: 2000 – 2008 .....	183
2	Laguna de Bay Water Volume: 2000 – 2008 .....	184
3	Change in Water Balance of Laguna de Bay .....	184
4	Number of Industries with Valid Permits .....	185
5	Adjudication and Legal Orders .....	186
6	Clearance & Certificate Issued .....	186
7	Aquastructures in Laguna de Bay .....	187

#### **Chapter 3 – Gender and Development**

1a	Percentage Composition of DENR Personnel by Gender, As of 2009 .....	206
1b	Percentage Composition of DENR Personnel by Office and by Gender, As of 2009 .....	206
2	Number of Grantees under the Foreign Scholarship Program ....	207
3a	Number of Protected Areas (PAs) Local Visitors: 2000 – 2008 .....	208
3b	Number of Protected Areas (PAs) Foreign Visitors: 2000 – 2008 .....	209



## List of Tables

Table No.	Title	Page No.
<b>Chapter 1 – Environment and Natural Resources</b>		
<b>Section A – Forestry</b>		
1	Land Classification: 2008 .....	10
2	Philippine Forest Cover 2003 by Type .....	11
3	Philippine Forest Cover 2003 by Region .....	12
4	Watershed Characterized as of 2008 .....	13
5	Watershed Forest Reserves as of 2008 .....	14
6	Tenurial Instruments and Other Management Arrangements as of 2008 .....	15
7	Rattan Cutting Contracts: 2000 – 2008 .....	16
8	Existing Regular Sawmills: 2000 – 2008 .....	17
9	Active Regular Sawmills: 2000 – 2008 .....	18
10	Existing Mini-Sawmills: 2000 – 2008 .....	19
11	Wood-Based Panel Plants, Pulp and Paper Mills: 2000 – 2008 ...	20
12	Log Production: 2000 – 2008 .....	21
13	Log Production by Type of Timber License/Permit: 2000 – 2008 .....	22 – 23
14	Log Production by Species: 2000 – 2008 .....	24
15	Production of Naturally Grown and Planted Logs by Region: 2000 – 2008 .....	25
16	Lumber Production by Region: 2000 – 2008 .....	26
17	Plywood Production by Region: 2000 – 2008 .....	27
18	Veneer Production by Region: 2000 – 2008 .....	28
19	Production of Selected Non-Timber Forest Products: 2000 – 2008 .....	29
20	Top Forest-Based Products Export: 2003 – 2008 .....	30
21	Forest and Forest Products Export Summary: 2003 – 2008 .....	31
22	Top Forest-Based Products Imports: 2003 – 2008 .....	32
23	Forest and Forest Products Import Summary: 2003 – 2008 .....	33
24	Forest Charges on Roundwood Harvested: 2000 – 2008 .....	34
25	Forest Charges on Non-Timber Products: 2000 – 2008 .....	35
26	Area Reforested by Sector, by Region: 2000 – 2008 .....	36 -37
27	Forest Disturbance by Cause: 2006 – 2008 .....	38
<b>Section B - Biodiversity</b>		
1	Summary of Initial Components of NIPAS by Category, As of December 2008 .....	48
2	Summary of Proclaimed Protected Area by Region per Ecosystem Type, As of December 2008 .....	49
3	Summary of Proclaimed Protected Area under NIPAS by Category per Ecosystem Type, As of December 2008 .....	50
4	Summary of Proclaimed Protected Area with PAMB, As of December 2008 .....	51
5	PACBRMA Issued per Region: CY 2002 – 2008 .....	52

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
6	Summary of PACBRMA Issued per Protected Area, As of December 2008 .....	53 - 54
7	Summary of Income Generated from IPAF per Region, As of December 2008 .....	55
8	Summary of Income Generated from IPAF, As of December 2008 .....	56
9	Summary of Reported Caves in the Philippines, As of December 2008 .....	57
10	Summary of Critical Wetlands Assessed, As of December 2008 .....	58
11	Summary of Ecotourism Sites Identified, CY 206 – 2008 .....	59
12	Summary of Issuances of Wildlife Permit and Revenues Generated, CY 2006 – 2008 .....	60
13	Issuance of Wildlife Local Transport Permit and Revenues Generated, CY 2006 – 2008 .....	61
14	Summary of Confiscated Wild Fauna: CY 2006 – 2008 .....	62
15	Summary of Confiscated Wild Flora: CY 2006 – 2008 .....	63
16	Summary of Approved Certificate of Wildlife Registration and Revenues Generated per Region, As of December 2008 .....	64
17	Issuance of CITES/Non-CITES Permits and Revenues Generated: CY 2006 – 2008 .....	65
<b>Section C – Coastal and Marine Resources</b>		
1	Estimates of Mangrove Forest in the Philippines (1918 – 2009)	69
<b>Section D – Mines and Geosciences</b>		
1	Metallic and Non-Metallic Mineral Resources/Reserves of the Philippines: CY 2006 .....	77
2	Number of Operating Metallic Mines .....	78
3	Number of Permits/Agreements Approved/Registered, As of 2008.....	79
4	Gross Production Value in Mining of Large-Scale Metallic Mining, Small-Scale Gold Mining, Non-Metallic Mining: CY 2001 – 2008 .....	80
5	Summary of the Number of Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability: Pre-2005, CY 2005 – 2008 .....	81
5.a	Number of Provinces and Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability: CY 2006 – 2008 .....	82
6	Summary of the Volume of Mine Waste and Mill Tailings in MT and the Amount Collected in Pesos: CY 2000 – 2008 .....	87
<b>Section E – Lands</b>		
1	Status of Land Titling in the Philippines, As of December 2008 .....	94
2	Cadastral Surveys Profile: CY 2003 – 2007 .....	95

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
3	Densification of Philippine Reference System of '92, 3 <sup>rd</sup> and 4 <sup>th</sup> Order: CY 2000 – 2008 .....	96
4	Densification of Philippine Reference System of '92, 1 <sup>st</sup> and 2 <sup>nd</sup> Order: CY 2002 – 2007 .....	97
5	Management of Foreshore Areas: CY 2006 – 2008 .....	98
5.1	Inventory of Foreshore Areas: CY 2000 – 2007 .....	99
6	Management of Patrimonial Properties: CY 2006 – 2008 .....	100
7	Land Disposition – Patent Issuance (Public Agricultural Lands): CY 2001 – 2008 .....	101 – 102
7.1	Land Disposition – Patent Issuance (LAMP): CY 2006 – 2008 ..	103
7.2	Land Disposition – Patent Issuance (Regular): CY 2003 – 2008 .....	104
8	Identification of School Sites: CY 2007 – 2008 .....	105
9	Identification of Socialized Housing: CY 2007 – 2008 .....	106
10	Disposition of Land Cases: CY 2000 – 2008 .....	107
11	Implementation of Oplan Fake Titles: CY 2000 – 2007 .....	108
<b>Section F – Environment</b>		
1a	Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Level in the National Capital Region (NCR) Monitoring Stations: 2000-2008 .....	121
1b	Annual Mean Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers Monitoring Stations by Region: 2000-2008 .....	122 - 124
2a	Number of Classified Water Bodies (Including Principal and Small Rivers): 2007 .....	125
2b	Number of Classified Water Bodies (Including Principal and Small Rivers): 2008 .....	126
3a	Water Quality Monitoring by Region: 2000 – 2001 .....	127 – 132
3b	Water Quality Monitoring by Region: 2002 – 2003 .....	133 – 139
3c	Water Quality Monitoring by Region: 2004 – 2005 .....	140 – 144
3d	Water Quality Monitoring by Region: 2006 – 2008 .....	145 - 150
4	Number of Open Dump, Controlled Dump, Materials Recovery Facility (MRF) and Sanitary Landfill (SLF) by Region: 2004 – 2008 .....	151 – 152
5	Number of Clearances and Registration Certificates Issued for Chemicals under Chemical Control Order (CCO): 2003-2008 ....	153 – 154
6	Number of Registered Hazardous Wastes Generators (HWG) by Region: 2000-2008 .....	155
7a	Environmental Compliance Certificate (ECC) Issued for Non-Environmentally Critical Projects (ECAs) by Central Office and by Region: 2000-2008 .....	156
7b	Environmental Compliance Certificate (ECC) Issued for Environmentally Critical Projects (ECPs) by Region: 2006-2008 .....	157
8	Number of Pollution Adjudication Board (PAB) Orders Issued by Region: 2000 – 2008 .....	158 - 160

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
<b>Section G – Research, Development and Extension Sector</b>		
1	Research, Development and Extension Programs/Projects Implemented by the DENR Research Sector, 2007-2009 .....	163
2	Priority Watersheds in the Philippines Assessed for Their Vulnerability (As of December 2009) .....	164 – 165
3	Carrying Capacity (CARCAP) of Selected Protected Areas for Ecotourism and CBFM Sites (As of December, 2009) .....	166 - 167
4	Verified and Assessed Seed Sources (As of December 2009) ...	168 – 169
5	Charcoal Briquetting Technology (CBT) Trainings Conducted, 2006-2009 .....	170 – 171
6	Charcoal Briquetting Equipment Fabricated and Distributed to Different offices .....	172
7	ERDB Publications Produced and Distributed, 2006 – 2009 .....	173 – 175
8	Important Exhibits Conducted by ERDB, 2006-2009 .....	176 – 177
9	Important Trainings Conducted by ERDB, 2006-2009 .....	178 - 179
<b>Section H – Water Resources</b>		
1	Issuance of Water Permit by Purpose: 2006 – 2009 .....	182
<b>Chapter 2 – Laguna de Bay</b>		
1	Lake Water Level of Laguna de Bay: 2000-2008 .....	191
2	Lake Water Volume of Laguna de Bay: 2000-2008 .....	191
3	Water Quality of Laguna de Bay by Parameter by Station .....	192 – 195
4	Water Quality of Major Tributaries of Laguna de Bay by Parameter by Station .....	196 – 200
5	Adjudication and Orders Issued: 2000-2008 .....	201
6	Environmental User Fee (EUF) Statistics: 2000-2008 .....	201
7	Permits & Licenses Issued ( 2000-2008) .....	202
8	Environmental User Fee (EUF) Statistics: 2000 – 2008 .....	203
9	Percent Reduction in BOD Loading .....	204
<b>Chapter 3 – Gender and Development</b>		
1	Manpower Complement by Central Office, Bureau, Region and Attached Agency: 2009 .....	212 – 213
2a	Number of Graduates/Grantees under the DENR Local Scholarship Program by Gender, As of CY 2009 .....	214
2b	Number of Grantees under the DENR Foreign Scholarship Program: CY 2001-2009 .....	215
3	Number of Land Disposition by Sex: 2002-2008 .....	216
4a	Number of Protected Areas (PAs) Local Visitors by Region and by Sex: CY 2006-2008 .....	217
4b	Number of Protected Areas (PAs) Foreign Visitors by Region and by Sex: CY 2006-2008 .....	218
5a	Number of Employment of Large Scale Metallic Mines by Company and Gender: CY 2006-2008 .....	219
5b	Number of Employment of Selected Non-Metallic Mining Companies by Company and Gender: CY 2006-2008 .....	220 - 221

## INTRODUCTION

This is the second edition of Compendium of Basic Environment and Natural Resources Statistics for Environment and Natural Resources Operations and Management. This compendium is intended to provide our policy and decision makers with the most recent, reliable and relevant statistical data needed in formulating and executing policies and regulations for the sustainable management of natural resources and effective protection of the environment.

The document contains minimum data requirements towards measuring and monitoring the Major Final Outputs (MFOs) of the DENR and in line with the Philippine Statistical Development Plan Framework on ENR. It covers data for the period 2000 to 2008, whenever possible, on forest, biodiversity, coastal and marine, land, mineral resources, environment and water resources. The data set reflects the DENR's priority concerns and thrusts that are most significant to national development.

The publication is divided into three (3) chapters. The first chapter deals with the natural resources and the environment administered and under the regulatory supervision of the DENR. The second chapter focuses on one of the major ecosystem and economic zone of the Philippines under the jurisdiction of the DENR, the Laguna de Bay, while the last chapter is concerned with the workforce of the department with a gender-based perspective.

The chapter dealing with the environment and natural resources contains an introduction about the environmental media covered highlighting its importance, status and interventions being implemented by the concerned bureaus of the DENR, a situational analysis of the major ENR issues and concerns together with the supporting data in the form of statistical tables reflecting the activities and programs of the DENR. The levels of disaggregation vary depending on the availability of data.

The Glossary of Terms, which contains the terminologies and definitions used in the compendium, is included as a supplementary section. Inclusion of the Glossary is a way by which we hope to enhance the usefulness of statistics presented in this compendium.

The publication of this compendium is part of the ongoing efforts of the DENR, particularly, the Research and Statistics Division, to improve ENR statistics. It is also a contribution of the DENR to the development of an orderly Philippine Statistical System capable of providing timely, accurate, relevant and useful data for the government and the public for planning and decision making.



# Chapter 1

## Environment and Natural Resources

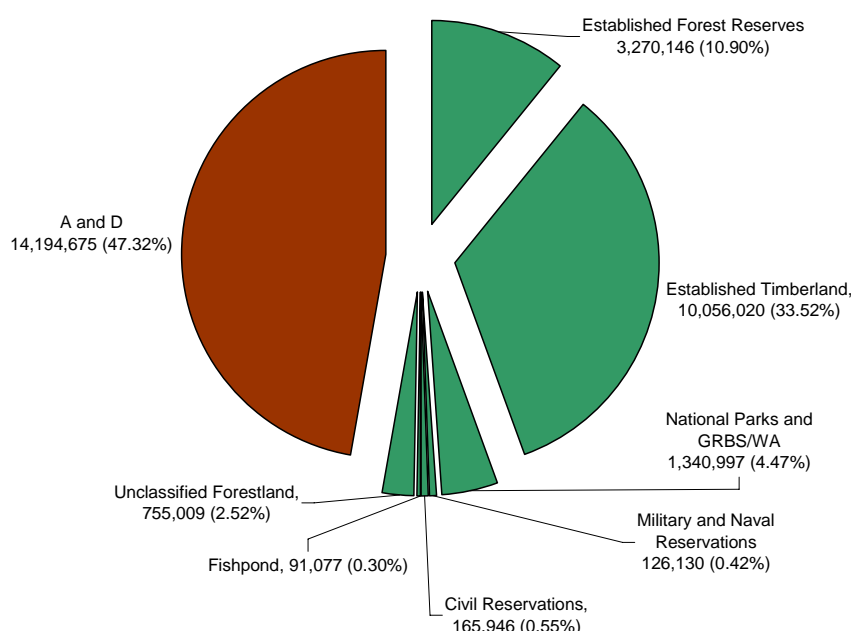
## Section A

### Forestry

#### Forest Resources

As of 2008, the Philippines' total land area is 30 million hectares, classified into: forestland and alienable and disposable land (A and D). Forestland covers more than half (53%) of the country's total land area, categorized as follows: established forest reserves (3,270,146 ha); established timberland (10,056,020 ha); national parks GRBS/WA (1,340,997 ha); military and naval reservations (126,130 ha); civil reservations (165,946 ha); fishpond (91,077 ha); and unclassified forestland (755,009 ha) (Figure 1).

**Figure 1. Land Classification as of 2008\***  
*30 million hectares*



Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

#### Forest Cover

Forest cover is measured 7.168 million hectares, equivalent to one fourth of the country's total land area. Such figure was gathered by the Forest Management Bureau (FMB) and National Mapping and Resource Information Authority (NAMRIA) using 2001 to 2003 satellite imageries. Almost 90 percent of the forest cover is located within forestland, while 10 percent is within A and D land. More than 50 percent of the forest cover is classified as open forest; 35.73 percent, closed forest; 4.60 percent, plantation forest; and 3.45 percent, mangrove forest.

Region 4-B has the biggest forest cover of 1,195,144 hectares, and Region 2 is the close second which also has the biggest area on closed (503,149 ha) and open (604,473 ha) forests. Region 3 and 4-B got the biggest area on plantation (58,671 ha) and

mangrove (57,567 ha) forests, respectively. Apparently, NCR has the least with 2,820 hectares.

### Watersheds

Watershed is a land area drained by a stream or fixed body of water and its tributaries having a common outlet for surface runoff necessary to support habitat for plants and animals, and they provide drinking water for people and wildlife. It also provides the opportunity for recreation and enjoyment of nature. Watersheds are valuable not only because of its water resources but also because of forest and other natural resources found therein. It is estimated that watershed practically covers at least 70 percent of the country's land area.

There are 422 river basins in the country with watersheds/subwatersheds. As of 2008, a total of 322 watersheds are characterized, 140 of which are critical supporting the National Irrigation System (NIS). Ninety two (92) of the characterized watersheds are within the 140 critical watersheds. Watershed characterization is a regular activity aimed at determining the biophysical, social-economic, cultural, agricultural and political characteristics of various watersheds of the country started in 1989. Region 8 has the most number of characterized watersheds (44), while, Region 2 has the biggest in terms of area (2,035,401 ha).

Likewise, there are 128 proclaimed Watershed Forest Reserves (WFRs) covering an aggregate area of more than 1.5 million hectares as of 2008. Region 3 has the most number (25) with a total area of 280,865.60 hectares, while, the National Capital Region (NCR) has only one - the La Mesa Watershed Forest Reserve in Quezon City proclaimed on 25 July 2007.

## **Forest Resource Utilization**

### Forest Tenure

The Department issues several tenurial instruments to manage forestland and these are: Timber License Agreement (TLA) and Integrated Forest Management Agreement (IFMA) for private forest operators, and Community Based Forest Management Agreement (CBFMA), and Socialized Industrialized Forest Management Agreement (SIFMA) for communities. There has been a shift in resource user rights from large scale commercial utilization by timber license agreements to the communities who now operate most of the forest lands. The TLA system is being phased out to convert to a production / co-production – sharing and joint venture modes pursuant to the country's Constitution. Most expiring TLAs have opted to convert to IFMA which is a production-sharing agreement.

From the 15.9 hectares forestland, 57 percent is under tenurial instruments and other management arrangements, while the remaining 43 percent is available for tenure. As of 2008, there are only 6 operating TLAs covering 325,310 hectares of forest lands; 146 IFMAs with an operational area of 767,095 hectares; 1,786 CBFMA covering 1.6 million hectares; 1,803 SIFMA covering 35,587.06 hectares; and 101 tree farm and 42 agroforestry farm lease agreements covering more than 70 thousand hectares.

Majority of the forestland under other management arrangement was issued to indigenous peoples (IPs) through Certificate of Ancestral Domain Titles (CADT) or Certificate of Ancestral Land Titles (CALT). Lately, a new management strategy has evolved which recognizes the crucial role of LGUs and upland dwellers in effecting any meaningful program of intervention - the co-management of forestlands approach by the LGUs and the Department of Environment and Natural Resources (DENR) towards sustainable management. It encourages LGUs and local people to invest in their forestlands and help conserve remaining natural forests.

The issuance of Individual Property Rights (IPR) is a means by which the DENR and the LGUs share stewardship of forests and forestlands with claimants/occupants. The IPR gives each occupant in a co-managed area the right to utilize, develop and manage a maximum of five hectares of land for 25 years, renewable for another 25 years at the option of both parties. The claimant can use the land to farm and harvest the crops he has planted. As steward and manager of the resource, he is bound to help protect and conserve the forest and its resources, and to reforest open and denuded areas. IPRs allow community members to commercially benefit from their upland farms. This motivates farmers to develop bare forestlands and adopt sustainable and environment-friendly farming methods, such as agro-forestry, that minimize forest conversion and slash and burn activities, and wanton timber cutting. They effectively protect the remaining natural forest stands, conserve biodiversity and minimize the release of carbon in the atmosphere. With the support of LGUs, DENR, civil society, and the private sector, IPR holders are encouraged to use their own labor, know how, and available capital to develop their claims, consistent with the co-management agreement and in support of the Forest Land Use Plan (FLUPs) of local government units.

#### Other Permits and Licenses

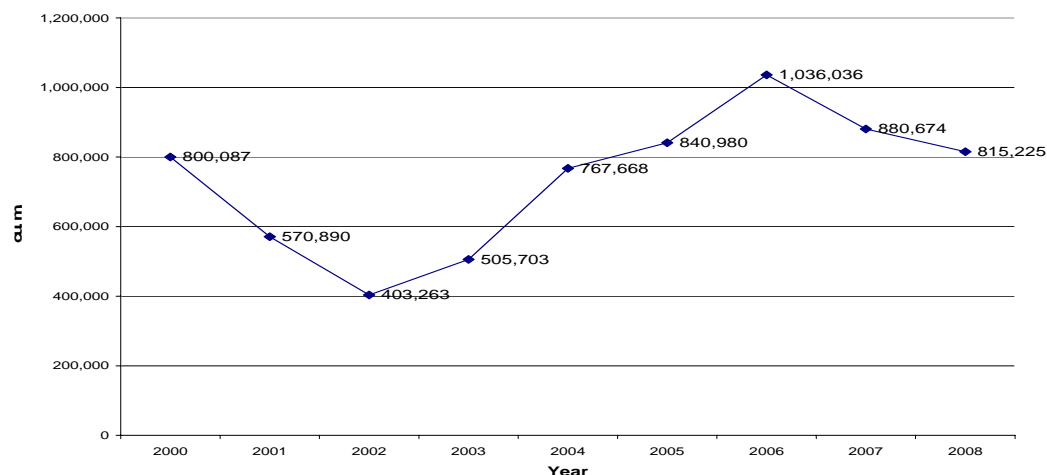
Apart from licenses/permits/contracts issued for forest land use and timber production, the Department also issues contracts allowing private individuals/organizations to gather and transport rattan. As of 2007, there are 34 rattan cutting contracts existing with a total area of 202,994 hectares and with a total of 11,497,747 lineal meters allowed cut. Likewise, there are 55 existing regular sawmills, but only 35 are active, and there are 304 existing mini-sawmills but only 116 are active. Also, there are several plants involved in wood processing/related business producing plywood, veneer, blockboard, particleboard and fiberboard. However, only those involved in veneer, plywood and blockboard production remain active in business.

#### Production

In nine (9) years, the country produced a total of 6,620,526 cubic meter logs with an average of 735,614 cubic meters per year. Figure 2 revealed that it was in year 2002 when the log production suffered a major slump by as much as 50 percent from 2000, but slowly recover until it reached over 1 million cubic meters in 2006 (157% increase). However, it declined again by 21 percent in 2008. Data are based from timber licensees' reports and different tenurial instruments issued such as Special Cutting Permit (SCP), CBFM/ISF, Private Land Timber Plantation, IFMA, and among others. Around 60 percent of produced logs are from private forest plantations, and 30 percent are from IFMA holders. Noticeably, produced logs from TLA areas are declining as a result of diminishing number of TLA holders. Region 13 is the source of more than 60 percent of

logs, and among the 22 timber species, “falcata” and “yemane” are commonly harvested. Majority of the harvested logs are planted trees (79%) and are most often processed into sawlog or veneer log (57%).

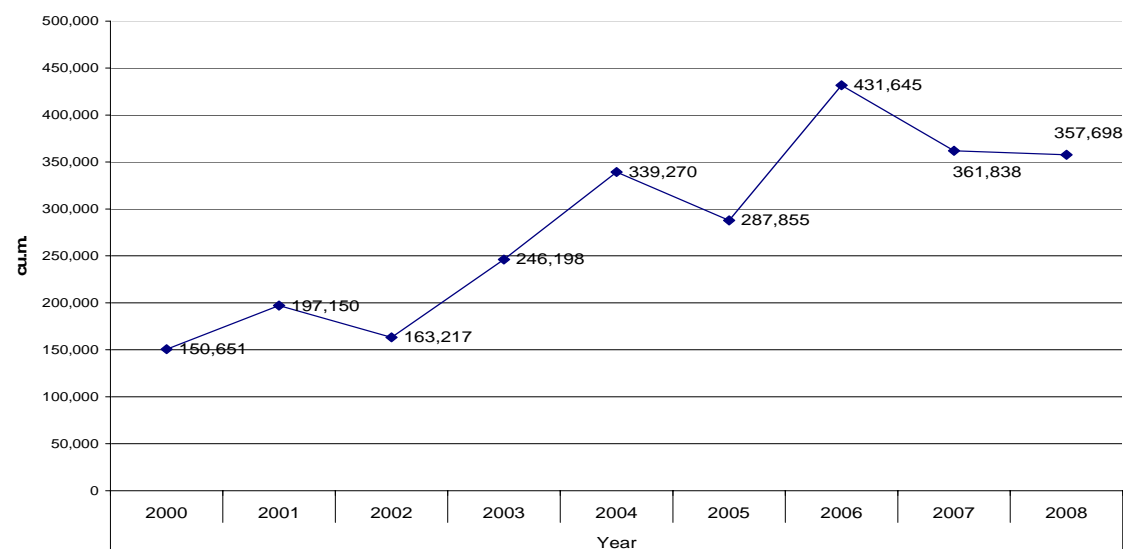
**Figure 2. Log Production 2000-2008\***  
(in cubic meters)



Source: Philippine Forestry Statistics, 2000-2008  
\*2008 Preliminary Data (Forest Economics Division)

In general, lumber showed an uptrend production. From 150,651 cubic meters lumber production in 2000, it increased by as much as 137 percent in 2008 (Figure 3). A total of 2,535,522 cubic meters were produced with an average production of 281,725 cubic meters. Region 13 produced the most with a total of 672,337 cubic meters, equivalent to 26.52 percent share.

**Figure 3. Lumber Production 2000-2008\***  
(in cubic meters)

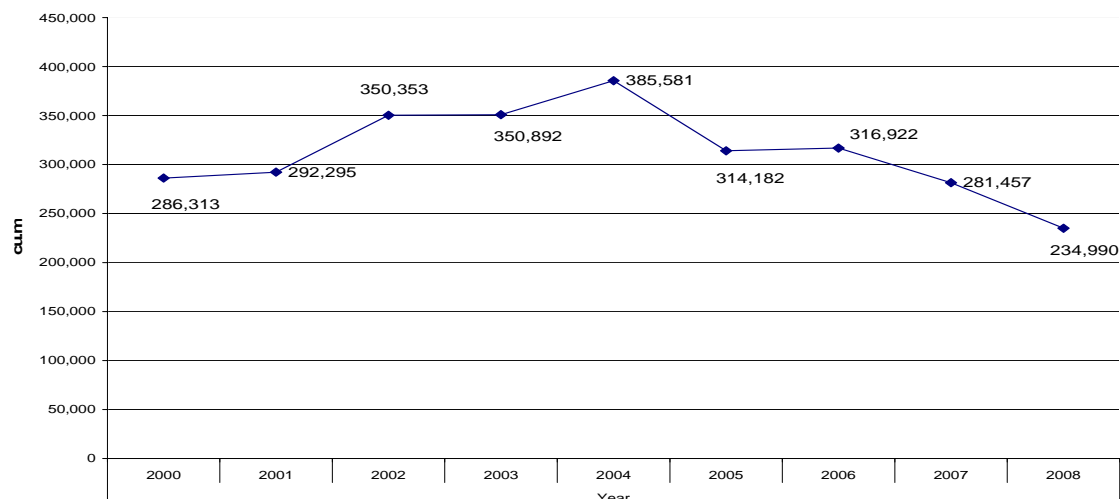


Source: Philippine Forestry Statistics, 2000-2008  
\*2008 Preliminary Data (Forest Economics Division)



Close to 3 million cubic meters of plywood were produced from 2000 to 2008 with an average production of 312,554 cubic meters. Seven (7) regions produced plywood and the bulk (44.38%) comes from Region 13. Plywood production increased from 2000 to 2004 but slowly decreased from 2005 to 2008. From 385,581 cubic meters production in 2004, it decreased by 39 percent in 2008 (Figure 4).

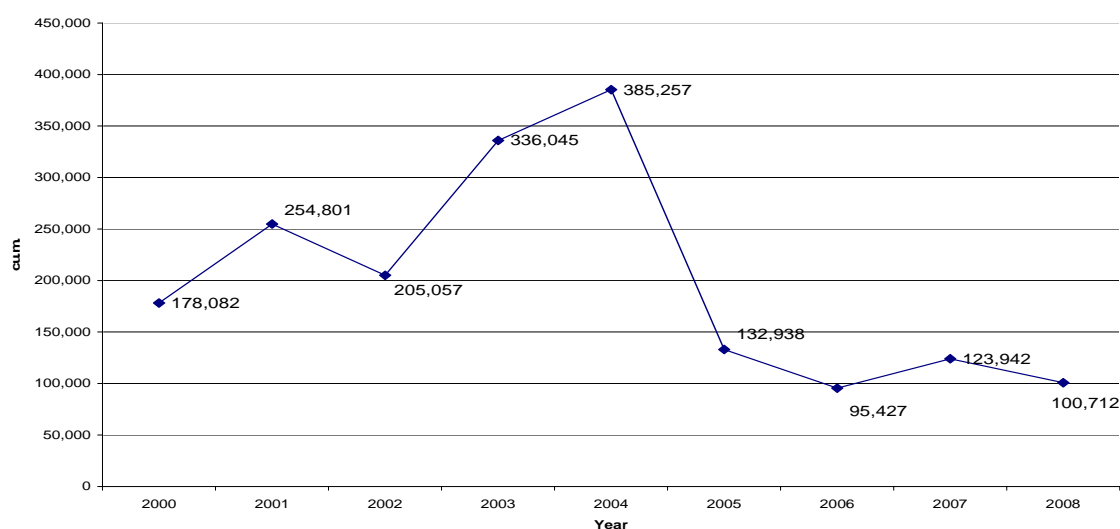
**Figure 4. Plywood Production 2000-2008\***  
(in cubic meters)



Source: Philippine Forestry Statistics, 2000-2008  
\*2008 Preliminary Data (Forest Economics Division)

There were 1.8 million cubic meters of veneer produced with an average of 201,362 cubic meters from 2000 to 2008. Veneer production suffered a major downfall in 2005 when it decreased by as much as 65 percent from 2004. Eight (8) regions produced veneer during the period in review and Region 13 produced the most with 62 percent (Figure 5).

**Figure 5. Veneer Production 2000-2008\***  
(in cubic meters)



Source: Philippine Forestry Statistics, 2000-2008  
\*2008 Preliminary Data (Forest Economics Division)

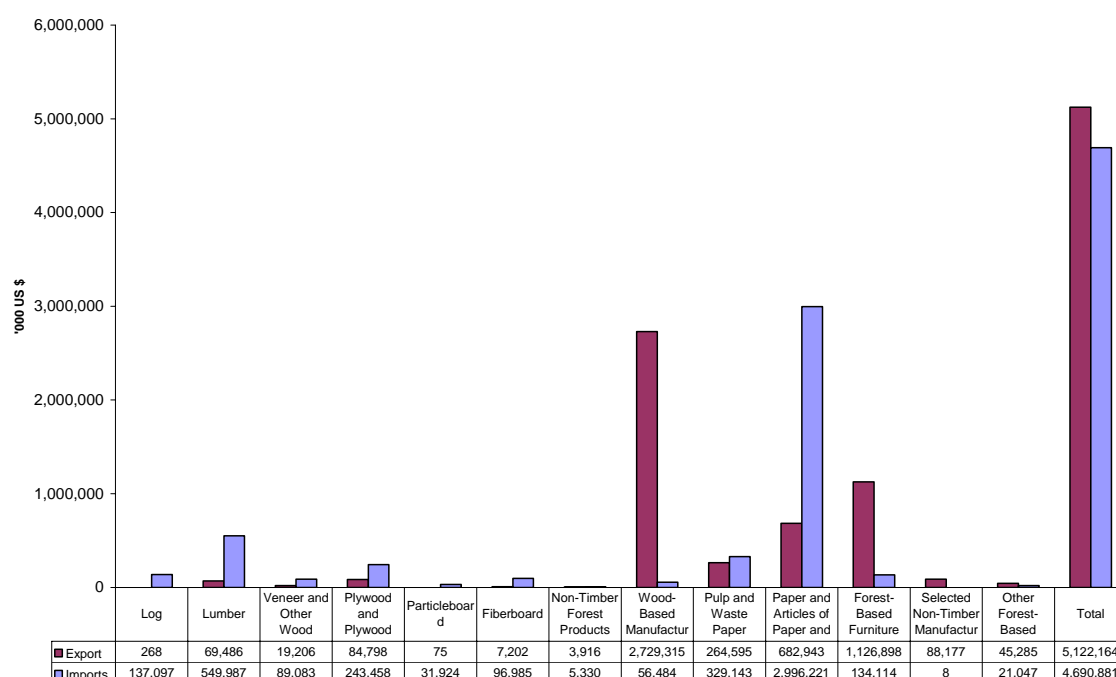
Apart from timber, non-timber forest products are also produced for domestic and foreign consumption such as almaciga resin, unsplit rattan, split rattan, nipa shingles, anahaw leaves, and bamboo poles, among others.

## Trade

Forest products are marketed abroad and a good source of revenue. From 2003-2008, it generated a total of 5.1 billion US dollars, however, it contributed only 2 percent of the country's total exports. Wood-based manufactured articles topped the list of forest-based products exports which got as much as 53 percent. Data shows that the country earns more in wood/forest-based manufactured items than other forest products. Among the four (4) major forest products, plywood and plywood veneered panels is the most marketable as it ranked 5<sup>th</sup> in the list while lumber and veneer ranked 6<sup>th</sup> and 9<sup>th</sup>, respectively. Non-timber forest products ranked 11<sup>th</sup>. Apparently, a very small quantity (2,819 cu.m) of log is being exported due to the log export ban allowing only plantation logs for export.

In terms of value, the country's exports in six (6) years exceed imports by 431 million US dollars (Figure 6). Paper and paperboard and articles of paper and paper board topped the list of forest-based products imports from 2003 to 2008 with a total value of about 3 billion US dollars. This is followed by lumber (2<sup>nd</sup>) and pulp and waste paper (3<sup>rd</sup>). All four (4) major forest products are in the top 8 of the list meaning that the country is sourcing some of its much needed logs, lumber, veneer and plywood from other countries.

**Figure 6. Summary of Forest-Based Products Exports and Imports 2003-2008\*  
(in thousand US \$)**



Source: Philippine Forestry Statistics, 2003-2008

\*2008 Preliminary Data (Forest Economics Division)

## Forest Charges

More than 1.5 billion pesos is the total collected forest charges from harvesting log in nine (9) years with an average of around 167 million pesos. Almost 100 percent of the collected forest charges are from sawlog/veneer log and a very small amount is generated from pulpwood, poles and piles, and fuelwood/charcoal.

There are 14 non-timber forest products harvested from 2000-2008. However, only five (5) generate income out of forest charges and these are: almaciga resin, unsplit/split rattan, bamboo poles, and boho. More than 55 million pesos were collected from harvesting non-timber forest products. Unsplit rattan is the source of 51 million pesos (93%) and followed by almaciga resin with 3.6 million pesos (6.5%).

## **Forest Disturbance and Forest Conversion**

Deforestation occurred at an annual rate of about 316,000 hectares in the 1980s, caused by land conversion, shifting cultivation, forest fires and over-logging. Deforestation decreased somewhat to about 89,000 hectares (1.4%) annually during the 1990s (FAO 2005). Much of the remaining forests are heavily fragmented. The forests of the Philippines are subject to typhoons and other wind damage. Floods have caused widespread damage and large numbers of casualties in recent years. Regular fires occur in many forest areas and that costs around 33 million pesos of damages from 2006 to 2008. About 28,000 hectares were detected as forest areas converted to agriculture, settlements, infrastructures and other purposes.

## **Reforestation**

No clear figures on the total extent of planted forests are available; estimates range from a total of 274,000 hectares to 753,000 hectares (FAO 2005). The official statistics pertain to reforestation conducted by government and non-government groups and are often incomplete to include plantation contributions from the private and other sectors.

**Figure 7. Area Reforested by Sector 2000-2008\*  
(in hectares)**



Source: Philippine Forestry Statistics, 2000-2008  
\*2008 Preliminary Data (Forest Economics Division)

However, Philippine Forestry Statistics revealed that more than 200 thousand hectares were reforested in nine (9) years and 43,610 hectares was the biggest recorded reforestation activity which took place in 2008. It exceeded the 2007 record by 57%, and recovered by as much as 337% from 2006 data. Figure 7 showed that reforestation activities declined from 2001 to 2006 but significantly recovered in 2007 and 2008. Region 13 performed the biggest with more than 40 thousand hectares, followed by CAR with 24 thousand hectares.

Government sector is the main actor on reforestation activity that it performs most of the job (74%) composed of DENR and other government agencies. It was only in 2005 that the private sector outperformed the government by 2,000 hectares. Timber licensees (IFMA/SIFMA/CBFMA/TFLA/ PLA/ITPL) and private individuals complying with Presidential Decree 1153<sup>1</sup> are the government's counterpart. Species most commonly used in plantations are Mahogany *Gmelina arborea*, *Acacia mangium*, *Paraserianthes falcata* and *Eucalyptus* spp.e

## **Forestry and Climate Change<sup>2</sup>**

In 2007 the President issued Administrative Order (AO) 171, creating the Presidential Task Force on Climate Change (PTFCC). The Task Force is intended to provide mitigation and adaptation measures to reduce the impacts of climate change from identified sectors including forestry. Last December 2008, the President reorganized the PTFCC with herself as Chairperson and all cabinet secretaries as members. Of concern to DENR, a Task Group on watershed protection was created to undertake a survey and mapping of the protected areas of the country and the needed areas for forest land and these shall be clearly marked on the ground pursuant to the Constitution. Water resources and watersheds shall also be identified and protected and their water flow improved and their floral cover regenerated. There shall also be an inventory of flora and fauna in terrestrial and marine ecosystems principally harnessing the youth in their respective localities. Most of these activities have been initiated but the Task Force provides the political will to complete and provide additional financial resources.

Tropical forests have a valuable role in relation to climate change, being a source and sink of carbon. In the Philippines it is estimated that carbon density ranges widely from less than 5 t/ha to more than 200 t/ha in the following order: old growth forests > secondary forest > mossy forest > mangrove forest > pine forest > tree plantation > agroforestry farm > brushlands > grasslands. Carbon sequestration ranges from less than 1 t/ha/yr in natural forests to more than 15 t/ha/yr in some tree plantations. Land-use change and forestry make an important contribution in the national emissions and sinks. It is estimated that Philippine forest lands are a net sink of greenhouse gasses (GHG) absorbing 107 Mt CO<sub>2</sub> equivalent in 1998, about equal to the total Philippine GHG emissions. The clean development mechanism (CDM) presents a clear opportunity for Philippine forestry, if the threats are properly addressed.

---

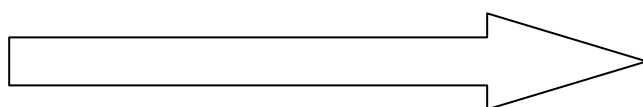
<sup>1</sup> PD 1153 was revoked thru an Executive Order No. 287 dated 25 July 1987 issued during the Aquino Administration.

<sup>2</sup> Excerpt in full from the Third National Report of the Philippines: Status of Sustainable Forest Management Using Criteria and Indicators, March 2009

Climate change mitigation can be accomplished through conservation of existing forest cover and establishment of forest and agro-forestry plantations. Pursuant to this objective, the FMB, as a member of the Inter-Agency Committee on Climate Change and also its Technical Evaluation Committee (TEC), evaluates all proposed Clean Development Mechanism (CDM) projects on afforestation and reforestation which include in and out-sourced financing approaches for forest development. To date, the TEC has conducted scoping on the proposed CDM project of the Laguna Lake Development Authority and the National Power Corporation. At present a project funded by the WB is conducting GHG emission reduction on reforestation and agroforestry in the Laguna de Bay Lake area.



# Statistical Tables



**Table 1. Status of Land Classification 2008\***  
(in hectares)

Land Classification	Area	%
Forestland	15,805,325	52.68
Classified	15,050,316	50.17
Established Forest Reserves	3,270,146	10.90
Established Timberland	10,056,020	33.52
National Parks and GRBS/WA	1,340,997	4.47
Military and Naval Reservations	126,130	0.42
Civil Reservations	165,946	0.55
Fishpond	91,077	0.30
Unclassified Forestland	755,009	2.52
Certified A and D	14,194,675	47.32
<b>Philippines</b>	<b>30,000,000</b>	<b>100.00</b>

*Source: Philippine Forestry Statistics*

*\*2008 Preliminary Data (Forest Economics Division)*

**Table 2. Philippine Forest Cover 2003 by Type**

Type	Within Forestland		Within A and D		Total	
	Area (in hectares)	%	Area (in hectares)	%	Area (in hectares)	%
Closed	2,480,644	34.61	80,228	1.12	2,560,872	35.73
Open	3,515,645	49.04	514,943	7.18	4,030,588	56.22
Mangrove	153,577	2.14	93,785	1.31	247,362	3.45
Plantation	281,764	3.93	47,814	0.67	329,578	4.60
<b>Total</b>	<b>6,431,630</b>	<b>89.72</b>	<b>736,770</b>	<b>10.28</b>	<b>7,168,400</b>	<b>100.00</b>

*Source: Philippine Forestry Statistics, 2007*

**Table 3. Philippine Forest Cover 2003 by Region**

Region	Type				Total	%
	Closed	Open	Mangrove	Plantation		
CAR	384,877	246,848	0	40,595	672,320	9.38
NCR	0	2,790	30	0	2,820	0.04
1	37,723	117,217	151	34,710	189,801	2.65
2	503,149	604,473	8,602	33,621	1,149,845	16.04
3	226,241	304,215	368	58,671	589,495	8.22
4-A	117,162	161,165	11,346	0	289,673	4.04
4-B	484,866	604,246	57,567	48,465	1,195,144	16.67
5	50,618	90,284	13,499	2,075	156,476	2.18
6	105,873	104,686	4,600	49,355	264,514	3.69
7	2,231	43,026	11,770	17,842	74,869	1.04
8	36,473	410,111	38,781	34,483	519,848	7.25
9	29,652	126,790	22,279	3,474	182,195	2.54
10	107,071	226,400	2,492	1,530	337,493	4.71
11	177,503	240,986	2,010	536	421,035	5.87
12	126,385	218,858	1,350	2,641	349,234	4.87
13	64,729	431,832	26,731	0	523,292	7.30
ARMM	106,319	96,661	45,786	1,580	250,346	3.49
<b>Philippines</b>	<b>2,560,872</b>	<b>4,030,588</b>	<b>247,362</b>	<b>329,578</b>	<b>7,168,400</b>	<b>100.00</b>

Source: Philippine Forestry Statistics, 2007

**Table 4. Watershed Characterized as of 2008**

Region	No.	Area (in hectares)	Situation in the 140 critical watershed*		Reference Year
			Within	Outside	
NCR	-	-	-	-	-
CAR	19	1,001,900	9	10	1999-2008
1	15	817,976	8	7	2000-2008
2	30	2,035,401	8	22	1998-2008
3	32	1,488,206	7	25	1999-2008
4-A	9	62,863	8	1	2005-2008
4-B	14	343,660	7	7	2003-2008
5	20	378,334	3	17	2001-2008
6	11	345,205	9	2	2005-2008
7	15	231,471	-	15	1998-2008
8	44	467,476	12	32	1990-2008
9	18	122,577	3	15	1998-2008
10	36	1,164,160	3	33	1996-2008
11	29	851,461	2	27	1989-2008
12	17	571,975	7	10	2003-2008
13	23	750,737	6	17	1997-2008
<b>Philippines</b>	<b>332</b>	<b>10,633,402</b>	<b>92</b>	<b>240</b>	

\* - Identified by NIA

Source: PDED, PPSO

**Table 5. Watershed Forest Reserves as of 2008\***

Region	Number	Area (in hectare)
NCR	1	2,659
CAR	7	119,113.98
1	10	6,167
2	5	119,261
3	25	280,865.60
4-A	13	48,160.63
4-B	6	8,747.75
5	11	37,724.95
6	9	131,777
7	7	104,380.89
8	9	30,599.24
9	4	11,456
10	4	114,970
11	3	7,850
12	5	272,759.12
13	7	38,241.44
ARMM	2	182,354
<b>Philippines</b>	<b>128</b>	<b>1,517,087.60</b>

Source: Watershed Division, FMB

\*2008 Preliminary Data (Forest Economics Division)

**Table 6. Tenurial Instruments and Other Management Arrangements as of 2008**

<b>Tenurial Instruments and Other Management Arrangements</b>	<b>No.</b>	<b>Area (In hectare)</b>
<b>1. Tenurial Instruments</b>		
Other People-Oriented Tenure Instruments (CSC, FLMA, CFSA, CTF, CFP, etc)	3,722	3,281,987.13
Community-Based Forest Management Agreement (CBFMA)	1,786	1,622,403.45
Integrated Forest Management Agreement (IFMA)	146	767,095
Timber License Agreement (TLA)	6	325,310
Forestland Grazing Management Agreement (FLGMA)	370	101,187
Agroforestry Farm Leases	42	63,579
Socialized Industrial Forest Management Agreement (SIFMA)	1,803	35,587.06
Protected Area Community-Based Resource Management	55	21,795.61
Tree Farm Lease Agreement	101	10,631.88
Special Uses of Forestlands (SLUP, SPLULA, FLAg and FLAgT)	162	2,566.44
<i>Sub-Total</i>		<i>6,232,142.57</i>
<b>2. Area Under Other Management Arrangements</b>		
Area Under CADT/CALT		1,641,601.01
Area Under Management of PNOC		266,326.00
Area Under Management NPC		337,721.00
Area Under Management of NIA		22,243.00
Area Under Co-Management Agreement w/ LGUs		273,536.00
Area Under Co-Management Agreement thru FLUP		199,448.00
<i>Sub-Total</i>		<i>2,740,875.01</i>
<b>Grand Total</b>		<b>8,973,017.58</b>
<i>% Tenured</i>		<i>57</i>
<b>Remaining Forestland Available for Tenure</b>		<b>6,832,307.42</b>
<i>% Available for Tenure</i>		<i>43</i>

Source: Planning Division, FMB 2008

**Table 7. Rattan Cutting Contracts 2000-2008\***

Year	No.	Area	Allowable Cut (lm)
2000	370	5,002,186	220,536,160
2001		No Data Available	
2002	39	508,663	43,416,504
2003	41	291,983	20,928,818
2004	47	316,483	22,284,821
2005	32	190,994	10,948,312
2006	32	190,994	10,948,312
2007	34	202,994	11,497,747
2008		No Data Available	

*Source: Philippine Forestry Economics*

*\*2008 Preliminary Data (Forest Economics Division)*



**Table 8. Existing Regular Sawmills 2000-2008\***  
(DRC and ALR in cubic meters)

Year	With Timber Concession			Without Timber Concession			Total		
	Number	Daily Rated Capacity	Annual Log Requirement	Number	Daily Rated Capacity	Annual Log Requirement	Number	Daily Rated Capacity	Annual Log Requirement
2000	19	1,191	482,267	67	2,556	903,133	86	3,747	1,385,400
2001	18	1,208	482,267	69	2,507	886,800	87	3,715	1,369,067
2002	18	982	373,875	45	1,985	695,597	63	2,967	1,069,472
2003	17	794	301,318	37	1,652	587,853	54	2,446	889,171
2004	15	794	301,334	36	1,560	556,419	51	2,354	857,753
2005	18	794	301,318	41	1,559	547,593	59	2,353	848,911
2006	16	747	296,907	36	1,403	522,093	52	2,150	819,000
2007	18	841	329,479	39	1,591	597,799	57	2,432	927,278
2008	18	841	344,039	37	1,503	570,159	55	2,344	914,198

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 9. Active Regular Sawmills 2000-2008\***  
(DRC and ALR in cubic meters)

Year	Total			With Timber Concession			Without Timber Concession		
	Number	Daily Rated Capacity	Annual Log Requirement	Number	Daily Rated Capacity	Annual Log Requirement	Number	Daily Rated Capacity	Annual Log Requirement
2000	45	2,016	743,003	10	757	294,400	35	1,259	448,603
2001	44	2,119	777,335	11	828	318,067	33	1,291	459,268
2002	36	1,710	622,257	9	605	231,705	27	1,105	390,552
2003	31	1,470	538,894	10	594	226,927	21	876	311,967
2004	36	1,645	598,914	11	679	261,007	25	966	337,907
2005	30	1,280	453,416	7	387	154,604	23	893	298,812
2006	28	1,291	498,767	7	419	162,307	21	872	336,460
2007	30	1,553	510,439	8	460	179,476	22	1,093	330,963
2008	35	1,575	618,566	10	416	170,875	25	1,159	447,691

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 10. Existing Mini-Sawmills 2000-2008\***  
(DRC and ALR in cubic meter)

Year	Total			Active			Inactive		
	Number	Daily Rated Capacity	Annual Log Requirement	Number	Daily Rated Capacity	Annual Log Requirement	Number	Daily Rated Capacity	Annual Log Requirement
2000	70	808	323,200	37	482	192,800	33	326	130,400
2001	124	995	397,347	47	380	148,133	77	65	249,214
2002	179	1,308	520,201	77	715	286,007	102	593	234,193
2003	216	1,685	670,651	86	601	238,504	130	1,084	432,147
2004	219	1,808	714,147	80	559	221,932	139	1,249	492,215
2005	236	1,379	557,756	105	742	306,901	131	637	250,855
2006	300	1,591	761,343	124	874	427,065	176	717	334,278
2007	353	1,979	963,093	136	986	462,119	217	993	500,974
2008	304	1,653	821,772	116	784	361,125	188	868	460,647

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 11. Wood-Based Panel Plants, Pulp and Paper Mills 2000-2008\***

Year	Veneer		Plywood		Blockboard		Particleboard		Fiberboard	
	No.	DRC (cu.m)	No.	DRC (cu.m)	No.	DRC (cu.m)	No.	DRC (cu.m)	No.	DRC (cu.m)
2000	19	934	27	1,803	8	NA	1	NA	NA	NA
2001	19	938	30	1,818	6	NA	1	NA	1	NA
2002	16	975	34	2,264	6	NA	1	NA	1	NA
2003	18	1,329	32	2,809	7	NA	1	NA	1	8
2004	20	1,395	32	2,809	7	NA	1	NA	1	8
2005	22	470	32	1,973	7	NA	1	NA	1	NA
2006	27	503	40	2,227	7	NA	NA	NA	1	NA
2007	31	784	41	2,920	5	33	NA	NA	1	6
2008	31	784	39	2,857	6	42	NA	NA	1	10

NA - No Data

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 12. Log Production by Region 2000-2008\***  
(in cubic meters)

Region	Year									Total	%
	2000	2001	2002	2003	2004	2005	2006	2007	2008		
CAR	648	6,599	10,388	15,762	21,331	1,225	17,657	16,305	19,745	109,660	1.66
NCR	0	0	0	0	0	0	0	0	0	0	0.00
1	2,731	2,195	1,872	2,424	1,853	2,507	1,469	2,177	1,693	18,921	0.29
2	17,472	14,061	18,797	17,942	12,331	2,439	20,296	24,703	20,960	149,001	2.25
3	420	293	152	10,171	8,384	1,982	13,881	9,421	15,553	60,257	0.91
4	19,569	13,412	0	-	-	-	-	-	-	32,981	0.50
4-A	-	-	817	467	718	504	3,776	2,541	4,044	12,867	0.19
4-B	-	-	402	140	414	99	568	31	120	1,774	0.03
5	359	595	514	629	563	1,565	506	913	3,214	8,858	0.13
6	15,928	321	2,742	2,506	52,520	32,461	124,198	58,494	61,656	350,826	5.30
7	2,395	1,825	8,242	6,649	5,327	13,114	34,254	34,879	2,050	108,735	1.64
8	754	1,377	2,283	6,077	8,385	5,015	3,925	3,827	4,521	36,164	0.55
9	17,210	34,877	33,084	26,878	57,060	18,087	47,077	92,583	69,571	396,427	5.99
10	13,123	34,662	49,903	35,165	18,094	50,508	78,884	68,277	60,459	409,075	6.18
11	64,617	42,515	39,697	51,359	93,593	85,395	72,621	69,807	152,162	671,766	10.15
12	14,112	16,540	20,951	17,850	21,818	19,897	22,566	35,556	23,978	193,268	2.92
13	621,691	401,618	208,654	311,684	465,277	606,182	594,358	461,160	375,499	4,046,123	61.11
ARMM	9,058	-	4,765	-	-	-	-	-	-	13,823	0.21
<b>Philippines</b>	<b>800,087</b>	<b>570,890</b>	<b>403,263</b>	<b>505,703</b>	<b>767,668</b>	<b>840,980</b>	<b>1,036,036</b>	<b>880,674</b>	<b>815,225</b>	<b>6,620,526</b>	<b>100.00</b>

Source; Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 13. Log Production by Type of Timber License/Permit 2000-2008\***  
(in cubic meters)

Year	Timber License/Permit											
	TLA			CBFM/ISF/CADC			SCP			PTLA		
	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted
2000	113,005	113,005	0	4,591	931	3,660	0	0	0	8,675	8,675	0
2001	106,594	106,594	0	7,358	7,143	215	0	0	0	7,859	7,859	0
2002	52,905	38,137	14,768	14,970	7,036	7,934	0	0	0	0	0	0
2003	40,821	38,526	2,295	22,285	4,815	17,470	5,067	33	5,034	0	0	0
2004	51,001	51,001	0	38,862	4,639	34,223	1,871	6	1,865	0	0	0
2005	51,930	51,930	0	11,079	847	10,232	456	22	434	0	0	0
2006	72,717	72,717	0	18,590	12,445	6,145	2,273	2,116	157	0	0	0
2007	57,645	57,645	0	11,288	2,908	8,380	0	0	0	0	0	0
2008	13,810	13,810	0	20,559	6,919	13,640	680	106	574	0	0	0
<b>Total</b>	<b>560,428</b>	<b>543,365</b>	<b>17,063</b>	<b>149,582</b>	<b>47,683</b>	<b>101,899</b>	<b>10,347</b>	<b>2,283</b>	<b>8,064</b>	<b>16,534</b>	<b>16,534</b>	<b>0</b>
%	8.46			2.26			0.16			0.25		

Year	Timber License/Permit											
	PFDA			PLTP			SPLTP			FLMA		
	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted
2000	1,819	1,819	0	10,214	10,214	0	756.00	756.00	0.00	30.00	30.00	0.00
2001	327	17	310	1,554	1,315	239	1,622.00	1,620.00	2.00	17.00	0.00	17.00
2002	0	0	0	1,287	1,254	33	192.00	145.00	47.00	1,171.00	302.00	869.00
2003	0	0	0	1,495	1,495	0	977.00	972.00	5.00	882.00	0.00	882.00
2004	0	0	0	3,074	2,883	191	877.00	816.00	61.00	6,427.00	0.00	6,427.00
2005	0	0	0	1,946	1,940	6	0.00	0.00	0.00	0.00	0.00	0.00
2006	0	0	0	4,777	4,777	0	0.00	0.00	0.00	0.00	0.00	0.00
2007	0	0	0	4,010	3,976	34	1,644.00	1,644.00	0.00	0.00	0.00	0.00
2008	0	0	0	2,998	2,998	0	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>2,146</b>	<b>1,836</b>	<b>310</b>	<b>31,355</b>	<b>30,852</b>	<b>503</b>	<b>6,068.00</b>	<b>5,953.00</b>	<b>115.00</b>	<b>8,527.00</b>	<b>332.00</b>	<b>8,195.00</b>
%	0.03			0.47			0.09			0.13		

**Table 13. Log Production by Type of Timber License/Permit 2000-2008\* (continued)**  
(in cubic meters)

Year	Timber License/Permit											
	SMF/CV			IFMA			Others <sup>1</sup>			Total		
	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted	Total	Naturally Grown	Planted
2000	338,003.00	34.00	337,969.00	308,659.00	93,221.00	215,438.00	14,335.00	36.00	14,299.00	800,087.00	228,721.00	571,366.00
2001	255,552.00	198.00	255,354.00	175,816.00	32,790.00	143,026.00	14,191.00	3,388.00	10,803.00	570,890.00	160,924.00	409,966.00
2002	244,848.00	118.00	244,730.00	77,770.00	37,834.00	39,936.00	11,118.00	4,143.00	6,975.00	404,261.00	88,969.00	315,292.00
2003	174,008.00	33.00	173,975.00	252,031.00	126,838.00	125,193.00	8,135.00	4,853.00	3,282.00	505,701.00	177,565.00	328,136.00
2004	299,309.00	330.00	298,979.00	353,012.00	156,393.00	196,619.00	13,233.00	1,002.00	12,231.00	767,666.00	217,070.00	550,596.00
2005	623,840.00	30.00	623,810.00	146,965.00	41,522.00	105,443.00	4,767.00	28.00	4,739.00	840,983.00	96,319.00	744,664.00
2006	704,920.00	0.00	704,920.00	228,051.00	76,546.00	151,505.00	4,706.00	2,538.00	2,168.00	1,036,034.00	171,139.00	864,895.00
2007	544,658.00	0.00	544,658.00	257,842.00	84,649.00	173,193.00	3,587.00	1,539.00	2,048.00	880,674.00	150,717.00	728,313.00
2008	620,471.00	1,072.00	619,399.00	153,100.00	78,657.00	74,443.00	3,606.00	644.00	2,962.00	815,224.00	104,206.00	711,018.00
<b>Total</b>	<b>3,805,609.00</b>	<b>1,815.00</b>	<b>3,803,794.00</b>	<b>1,953,246.00</b>	<b>728,450.00</b>	<b>1,224,796.00</b>	<b>77,678.00</b>	<b>18,171.00</b>	<b>59,507.00</b>	<b>6,621,520.00</b>	<b>1,395,630.00</b>	<b>5,224,246.00</b>
%	57.47			29.50			1.17			100.00	21.08	78.90

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 14. Log Production by Species 2000-2008\***  
(in cubic meters)

Species	Year									Total	%
	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Acacia	15,337	2238	1,543	2,121	3,884	3,736	18,923	13,673	5,107	66,562	1.01
Almon	5,652	6814	5,402	8,139	8,950	6,174	5,911	4,324	938	52,304	0.79
Antipolo	-	-	-	-	-	-	10,114	3,175	6,500	19,789	0.30
Apitong	3,372	4171	2,988	5,777	11,687	671	2,921	6,137	4,416	42,140	0.64
Bagras	16,320	7311	10,801	17,369	6,803	37,532	34,018	12,268	6,095	148,517	2.25
Bagtikan	2,599	7355	4,407	4,449	4,632	3,579	6,326	7,170	6,653	47,170	0.71
Binuang	3,089	7425	7,083	6,599	10,488	788	5,663	14,288	7,745	63,168	0.96
Falcata	385,737	250663	181,441	139,301	228,792	336,928	319,904	370,542	408,395	2,621,703	39.68
Gubas	22,473	28742	11,226	11,496	22,787	29,037	15,831	19,704	16,868	178,164	2.70
Ipil-ipil	3,893	2761	6,015	2,907	5,663	5,244	15,339	4,074	2,915	48,811	0.74
Loktob	1,634	2329	606	1,087	4,658	1,333	2,361	2,450	-	16,458	0.25
Mahogany	2,853	3259	9,632	7,402	28,966	45,062	78,081	53,177	45,255	273,687	4.14
Mangium	124,385	54372	16,091	61,761	128,617	78,253	101,361	71,053	29,665	665,558	10.07
Mayapis	14,108	15168	12,686	16,724	20,508	10,841	15,267	4,893	3,177	113,372	1.72
Nato	1,523	292	60	-	-	-	-	-	3,500	5,375	0.08
Para rubber	2,540	4074	6,471	6,038	-	-	7,177	1,761	1,534	29,595	0.45
Red Lauan	50,929	12487	14,324	14,491	24,072	10,613	24,300	10,831	2,779	164,826	2.49
Tanguile	9,806	5201	7,369	18,783	18,600	7,436	13,673	4,563	2,392	87,823	1.33
Toog	5,448	8934	4,092	9,272	12,231	3,116	2,962	1,661	-	47,716	0.72
White Lauan	3,715	9027	5,494	9,733	16,586	2,868	6,105	7,042	2,001	62,571	0.95
Yakal	2,845	2899	1,045	3,989	2,554	3,040	2,107	671	-	19,150	0.29
Yemane	46,370	52631	51,494	68,819	101,675	151,763	166,806	125,639	125,849	891,046	13.49
Others	66,403	82737	38,228	89,446	105,515	102,966	180,883	141,578	133,441	941,197	14.25
<b>Total</b>	<b>791,031</b>	<b>570,890</b>	<b>398,498</b>	<b>505,703</b>	<b>767,668</b>	<b>840,980</b>	<b>1,036,033</b>	<b>880,674</b>	<b>815,225</b>	<b>6,606,702</b>	<b>100.00</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)



**Table 15. Production of Naturally Grown and Planted Logs by Region 2000-2008\***  
(in cubic meters)

Year	Type						Total			
	Sawlog/Veneer log		Pulpwood		Poles and Piles					
	Naturally Grown	Planted	Naturally Grown	Planted	Naturally Grown	Planted	Naturally Grown	%	Planted	%
2000	154,067	229,883	74,100	325,887	485	15,665	228,652	3.45	571,435	8.63
2001	160,666	158,688	6	239,971	253	11,307	160,925	2.43	409,966	6.19
2002	88,085	199,611	807	105,438	79	9,244	88,971	1.34	314,293	4.75
2003	166,378	182,261	10,756	139,877	433	5,998	177,567	2.68	328,136	4.96
2004	207,708	201,900	9,106	345,479	259	3,216	217,073	3.28	550,595	8.32
2005	95,984	249,408	292	488,354	0	6,942	96,276	1.45	744,704	11.25
2006	171,071	367,812	0	471,985	68	25,097	171,139	2.58	864,894	13.06
2007	152,361	495,765	0	226,667	0	5,882	152,361	2.30	728,314	11.00
2008	104,088	369,840	0	338,178	119	3,000	104,207	1.57	711,018	10.74
Sub-Total	1,300,408	2,455,168	95,067	2,681,836	1,696	86,351	1,397,171	21.10	5,223,355	78.90
<b>Total</b>	<b>3,755,576</b>		<b>2,776,903</b>		<b>88,047</b>		<b>6,620,526</b>			
<b>%</b>	56.73		41.94		1.33		100			

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 16. Lumber Production by Region 2000-2008\***  
(in cubic meters)

Region	Year									Total	%
	2000	2001	2002	2003	2004	2005	2006	2007	2008		
NCR	48,984	43,190	37,423	62,248	36,079	52,560	54,950	38,526	30,270	404,230	15.94
CAR	334	5,743	6,952	19,004	14,967	384	11,575	7,987	20,920	87,866	3.47
1	2,848	2,808	4,643	5,948	6,152	3,267	2,652	874	787	29,979	1.18
2	1,447	4,598	4,996	7,680	3,191	143	8,108	9,258	5,896	45,317	1.79
3	4,437	22,807	1,297	9,759	13,484	1,529	4,089	9,139	6,522	73,063	2.88
4	6,116	7,692	6,320	0	0	0	0	0	0	20,128	0.79
4-A	-	-	-	3,055	26,315	23,637	6,268	23,768	38,694	121,737	4.80
4-B	-	-	-	0	0	0	0	0	0	0	0.00
5	50	293	1,070	354	713	1,961	1,475	1,854	2,594	10,364	0.41
6	1,110	2,533	3,108	15,190	34,802	22,883	63,699	34,772	34,548	212,645	8.39
7	2,289	3,468	2,326	892	1,815	11,108	21,319	21,416	22,590	87,223	3.44
8	0	0	0	0	246	400	256	139	206	1,247	0.05
9	1,065	3,150	1,692	3,635	4,621	492	2,124	2,074	1,889	20,742	0.82
10	1,274	3,074	3,044	11,991	34,593	6,144	157,865	99,255	101,533	418,773	16.52
11	13,884	20,008	16,734	20,314	67,348	38,015	24,795	25,694	26,563	253,355	9.99
12	183	1,215	1,162	5,472	7,487	11,185	13,937	14,494	9,281	64,416	2.54
13	62,298	76,571	64,682	80,656	87,457	114,147	58,533	72,588	55,405	672,337	26.52
ARMM	4,332	0	7,768	0	0	0	0	0	0	12,100	0.48
<b>Philippines</b>	<b>150,651</b>	<b>197,150</b>	<b>163,217</b>	<b>246,198</b>	<b>339,270</b>	<b>287,855</b>	<b>431,645</b>	<b>361,838</b>	<b>357,698</b>	<b>2,535,522</b>	<b>100.00</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 17. Plywood Production by Region 2000-2008\***  
(in cubic meters)

Region	Year									Total	%
	2000	2001	2002	2003	2004	2005	2006	2007	2008		
NCR	0	0	16,903	20,169	18,519	18,959	12,293	4,957	9,281	101,081	3.59
3	290	6,344	19,599	10,516	3,270	852	0	0	360	41,231	1.47
4	3,884	6,554	0	0	2,665	0	0	0	0	13,103	0.47
4-A			4,131	1,768	0	5,716	5,428	7,628	6,419	31,090	1.11
9	15,283	22,127	14,905	9,043	23,587	8,502	32,558	10,289	14,011	150,305	5.34
10	56,023	68,077	67,157	75,038	81,437	39,597	91,876	78,689	63,121	621,015	22.08
11	104,755	83,430	92,365	90,463	103,485	66,168	9,097	39,910	17,189	606,862	21.57
13	106,078	105,763	135,293	143,895	152,618	174,388	165,670	139,984	124,609	1,248,298	44.38
<b>Philippines</b>	<b>286,313</b>	<b>292,295</b>	<b>350,353</b>	<b>350,892</b>	<b>385,581</b>	<b>314,182</b>	<b>316,922</b>	<b>281,457</b>	<b>234,990</b>	<b>2,812,985</b>	<b>100.00</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 18. Veneer Production by Region 2000-2008\***  
(in cubic meters)

Region	Year									Total	%
	2000	2001	2002	2003	2004	2005	2006	2007	2008		
CAR	0	0	0	0	0	0	6,149	0	0	6,149	0.34
NCR	0	0	1,488	7,287	1,152	839	0	0	0	10,766	0.59
3	1,845	5,547	21,539	14,386	9,792	0	1,095	2,099	2,523	58,826	3.25
4	0	0	0	0	0	0	0	155	0	155	0.01
4-A	0	0	1,900	0	0	0	0	0	97	1,997	0.11
7	5,212	5,627	5,174	0	11	0	0	0	0	16,024	0.88
9	8,782	26,547	14,345	15,533	24,029	461	456	0	26	90,179	4.98
10	17,292	55,343	47,939	55,398	57,552	0	2,819	0	84	236,427	13.05
11	11,659	21,510	26,457	26,859	51,643	50,550	23,906	31,484	24,804	268,872	14.84
12	0	0	0	0	0	881	291	181	233	1,586	0.09
13	133,292	140,227	86,215	216,582	241,078	80,207	60,711	90,023	72,945	1,121,280	61.87
<b>Philippines</b>	<b>178,082</b>	<b>254,801</b>	<b>205,057</b>	<b>336,045</b>	<b>385,257</b>	<b>132,938</b>	<b>95,427</b>	<b>123,942</b>	<b>100,712</b>	<b>1,812,261</b>	<b>100.00</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 19. Production of Selected Non-Timber Forest Products 2000-2008\***

Year	Non-Timber Forest Products						
	Almaciga Resin (kilo)	Anahaw Leaves (piece)	Anahaw Poles (piece)	Bamboo Poles (piece)	Buri Midribs (kilo)	Boho (piece)	Nipa Shingles (piece)
2000	518,191	28,555	17,445	2,335,153	11,000	6,440	11,065,425
2001	519,625	121,150	8,055	537,324	77,500	4,000	12,092,842
2002	521,220	93,658	3,535	417,334	48,000	2,750	11,099,261
2003	292,334	53,960	15,592	293,075	11,500	0	11,879,829
2004	367,543	100,100	43,185	204,181	0	21,700	10,035,739
2005	50,545	132,600	306,071	865,438	1,000	0	10,340,314
2006	168,277	155,030	20,761	979,340	3,000	0	11,868,722
2007	254,989	303,200	40,737	1,528,090	0	0	17,150,184
2008	248,011	196,220	33,731	871,651	10,000	0	13,161,650
<b>Total</b>	<b>2,940,735</b>	<b>1,184,473</b>	<b>489,112</b>	<b>8,031,586</b>	<b>162,000</b>	<b>34,890</b>	<b>108,693,966</b>

Year	Non-Timber Forest Products						
	Unsplit Rattan (lm)	Split Rattan (kilo)	Diliman and Other Vines (piece)	Hingiw (kilo)	Kawayan Tinik (pieces)	Rono (piece)	Nipa Leaves (piece)
2000	32,335,617	97,289	54,150	0	0	0	0
2001	8,767,302	25,200	63,600	0	0	0	0
2002	6,640,590	0	67,600	0	0	0	0
2003	9,078,941	1,110	46,100	3,500	3,500	0	0
2004	16,074,394	17,296	2,100	1,872,250	15,400	4,700	0
2005	12,970,246	12,614	55,800	0	0	0	4,000
2006	9,773,259	5,135	40,400	0	0	0	247,600
2007	4,886,047	14,015	65,300	0	0	0	560,000
2008	5,150,894	17,795	3,200	0	0	0	672,000
<b>Total</b>	<b>105,677,290</b>	<b>190,454</b>	<b>398,250</b>	<b>1,875,750</b>	<b>18,900</b>	<b>4,700</b>	<b>1,483,600</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 20. Top Forest-Based Products Exports 2003-2008\***  
(Value in thousand US \$, FOB)

Products	Year						Total	%	Rank
	2003	2004	2005	2006	2007	2008			
Wood-Based Manufactured Articles	131,161	122,283	137,699	650,284	769,647	918,241	2,729,315	53.58	1
Forest-Based Furniture	122,037	230,258	239,459	205,869	174,701	154,574	1,126,898	22.12	2
Paper and Articles of Paper and Paperboard	71,260	78,774	108,918	136,877	142,692	144,422	682,943	13.41	3
Pulp and Waste Paper	4,491	40,998	52,588	53,266	49,526	63,726	264,595	5.19	4
Plywood and Plywood Veneered Panels	5,651	17,703	17,778	9,619	14,810	19,237	84,798	1.66	5
Selected Non-Timber Manufactured Articles	18,228	9,737	15,858	12,596	13,092	7,974	77,485	1.52	6
Lumber	12,120	0	8,487	13,198	14,342	11,602	59,749	1.17	7
Wood Charcoal whether or not agglomerated		7,457	7,798	7,323	8,574	8,526	39,678	0.78	8
Veneer and Other Wood Worked	2,389	3,251	3,712	4,018	3,833	2,003	19,206	0.38	9
Fiberboard	1,620	2,196	2,501	0	0	0	6,317	0.12	10
Non-Timber Forest Products	820	0	0	612	689	881	3,002	0.06	11
<b>Total</b>	<b>369,777</b>	<b>512,657</b>	<b>594,798</b>	<b>1,093,662</b>	<b>1,191,906</b>	<b>1,331,186</b>	<b>5,093,986</b>	<b>100.00</b>	

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 21. Forest and Forest Products Export Summary 2003-2008\***  
(Value in '000 US\$, FOB)

Products	Year							
	2003		2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Log (cu.m)	18	134	1,762	60	46	3	273	20
Lumber (cu.m)	119,414	12,120	124,847	9,737	130,175	8,487	184,386	13,198
Veneer and Other Wood Worked (cu.m.)	4,449	2,389	7,495	3,251	6,554	3,712	5,856	4,018
Plywood and Plywood Veneered Panels (cu.m.)	16,367	5,651	47,731	17,703	40,015	17,778	19,952	9,619
Fiberboard (nk)	5,366,783	1,620	9,798,100	2,196	10,226,386	2,501	1,795,137	552
Particleboard (gk)					-		140,101	17
Selected Non-Timber Manufactured Articles	9,437,856	18,228	8,133,365	20,429	7,359,192	15,858	m	12,596
Wood-Based Manufactured Articles	m	131,161	m	122,283	m	137,699	m	650,284
Pulp and Waste Paper (nk)	3,127,172	4,491	21,236	40,998	23,596,227	52,588	22,890,308	53,266
Paper and Articles of Paper and Paperboard (nk)	150,419,639	71,260	136,420,435	78,774	204,420,089	108,918	190,790,406	136,877
Forest-Based Furniture (pc)	2,841,781	122,037	4,599,587	230,258	3,992,463	239,459	3,362,252	205,869
Non-Timber Forest Products	615,245	820	420,831	440	434,427	474	423,831	612
Other Forest-Based Products	m	1,304	m	8,808	m	8,654	m	8,045
<b>Total Forest Products Exports</b>		<b>371,215</b>		<b>534,937</b>		<b>596,131</b>		<b>1,094,973</b>
<b>Total Exports</b>		<b>36,231,205</b>		<b>39,680,520</b>		<b>41,254,683</b>		<b>47,410,117</b>
<b>Forest Products Exports as % of the Total Exports (in terms of value)</b>		<b>1.02</b>		<b>1.35</b>		<b>1.45</b>		<b>2.31</b>

Products	Year				Total	
	2007		2008		Quantity	Value
	Quantity	Value	Quantity	Value		
Log (cu.m)	78	12.00	642	39.00	2,819.00	268.00
Lumber (cu.m)	207642	14,342.00	214534	11,602.00	980,998.00	69,486.00
Veneer and Other Wood Worked (cu.m.)	6714	3,833.00	3764	2,003.00	34,832.00	19,206.00
Plywood and Plywood Veneered Panels (cu.m.)	36759	14,810.00	38931	19,237.00	199,755.00	84,798.00
Fiberboard (nk)	558474	328.00	2945	5.00	27,747,825.00	7,202.00
Particleboard (gk)	5684	54.00	1499	4.00	147,284.00	75.00
Selected Non-Timber Manufactured Articles	m	13,092.00	m	7,974.00	25,018,590.00	88,177.00
Wood-Based Manufactured Articles	275271301	769,647.00	294068065	918,241.00	569,339,366.00	2,729,315.00
Pulp and Waste Paper (nk)	39551445	49,526.00	50108405	63,726.00	139,294,793.00	264,595.00
Paper and Articles of Paper and Paperboard (nk)	184795060	142,692.00	131809886	144,422.00	998,655,515.00	682,943.00
Forest-Based Furniture (pc)	155902886	174,701.00	42538608	154,574.00	213,237,577.00	1,126,898.00
Non-Timber Forest Products	472986	689.00	470143	881.00	2,837,463.00	3,916.00
Other Forest-Based Products	m	9,510.00	m	8,964.00	m	45,285.00
<b>Total Forest Products Exports</b>		<b>1,193,236.00</b>	<b>0</b>	<b>1,331,672.00</b>	<b>0.00</b>	<b>5,122,164.00</b>
<b>Total Exports</b>		<b>50,465,724.00</b>	<b>0</b>	<b>49,077,451.00</b>	<b>0.00</b>	<b>264,119,700.00</b>
<b>Forest Products Exports as % of the Total Exports (in terms of value)</b>		<b>2.36</b>	<b>0</b>	<b>2.71</b>	<b>0.00</b>	<b>1.94</b>

Note: "m" indicates miscellaneous unit of measurements

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 22. Top Forest-Based Products Imports 2003-2008\***  
(Value in thousand, US\$, CIF)

Products	Year						Total	%	Rank
	2003	2004	2005	2006	2007	2008			
Paper and Paperboard and Articles of Paper and Paperboard	389,533	414,007	429,416	492,156	675,032	596,077	2,996,221	64.21	1
Lumber	105,403	88,401	117,742	95,719	90,703	52,019	549,987	11.79	2
Pulp and Waste Paper	6,832	70,235	57,007	61,977	70,144	62,948	329,143	7.05	3
Plywood and Other Plywood and Veneered Panels	28,416	28,602	55,158	51,119	41,501	38,662	243,458	5.22	4
Log	33,108	17,877	23,868	19,742	23,959	18,543	137,097	2.94	5
Forest-based Furniture	6,240	19,419	21,172	25,430	27,690	34,163	134,114	2.87	6
Fiberboard	12,672	19,584	18,218	17,848	14,843	13,820	96,985	2.08	7
Veneer and Other Wood, worked not exceeding 6mm, n.e.s.	24,407	16,428	17,923	11,574	9,486	9,265	89,083	1.91	8
Wood Manufactured Articles	9,473	6,372	7,863	8,391	11,185	13,200	56,484	1.21	9
Particleboard		1,614	1,189		11,561	13,568	27,932	0.60	10
Wood chips and particles		0	0	3747	0	0	3,747	0.08	11
Wood continuously shaped along any of its edges or faces	1,793	0	0	0	0	0	1,793	0.04	12
<b>Total</b>	<b>617,877</b>	<b>682,539</b>	<b>749,556</b>	<b>787,703</b>	<b>976,104</b>	<b>852,265</b>	<b>4,666,044</b>	<b>100.00</b>	

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)



**Table 23. Forest and Forest Products Import Summary 2003-2008\***  
(Value in thousand US\$, FOB)

Products	Year							
	2003		2004		2005		2006	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Log	355,787	33,108	177,107	17,877	164,959	23,868	65,185	19,742
Lumber	338,064	105,403	246,685	88,401	362,509	117,742	261,193	95,719
Veneer and Other Wood Worked	92,949	24,407	59,858	16,428	66,864	17,923	37,220	11,574
Plywood and Plywood Veneered Panels	48,557	28,416	42,045	28,602	78,005	55,158	75,135	51,119
Particleboard	7,162,040	1,793	6,173,466	1,614	4,248,846	1,189	8,478,186	2,199
Fiberboard	39,310,536	12,672	53,327,150	19,584	47,937,247	18,218	47,981,034	17,848
Non-Timber Forest Products	695,184	1,739	477,069	1,249	443,965	1,052	315,591	698
Wood-Based Manufactured Articles	8,680,172	9,473	9,531,215	6,372	13,569,927	7,863	12,442,818	8,391
Pulp and Waste Paper	29,622,488	6,832	296,721,455	70,235	222,254,739	57,007	200,720,284	61,977
Paper and Articles of Paper and Paperboard	605,585,644	389,533	594,731,691	414,007	593,853,876	429,416	700,036,224	492,156
Forest-Based Furniture	470,803	6,240	1,696,501	19,419	1,763,698	21,172	14,609,743	25,430
Other Forest-Based Products	m	1,250	m	2,089	m	1,125	m	5,086
Selected Non-Timber Manufactured Articles								
<b>Total Forest Products Imports</b>		<b>620,866</b>		<b>685,877</b>		<b>751,733</b>		<b>791,939</b>
<b>Total Imports</b>		<b>112,489,510</b>		<b>46,102,141</b>		<b>49,487,422</b>		<b>51,773,684</b>
<b>Forest Products Imports as % of the Total Imports (in terms of value)</b>		<b>0.55</b>		<b>1.49</b>		<b>1.52</b>		<b>1.53</b>

Products	Year				Total	
	2007		2008			
	Quantity	Value	Quantity	Value	Quantity	Value
Log	93,183	23,959	77,557	18,543	933,778	137,097
Lumber	174,456	90,703	134,846	52,019	1,517,753	549,987
Veneer and Other Wood Worked	24,892	9,486	27,262	9,265	309,045	89,083
Plywood and Plywood Veneered Panels	58,517	41,501	57,189	38,662	359,448	243,458
Particleboard	31,412,489	11,561	34,480,251	13,568	91,955,278	31,924
Fiberboard	39,545,956	14,843	34,336,228	13,820	262,438,151	96,985
Non-Timber Forest Products	153,503	373	159,979	219	2,245,291	5,330
Wood-Based Manufactured Articles	14,815,457	11,185	15,817,515	13,200	74,857,104	56,484
Pulp and Waste Paper	262,036,489	70,144	174,252,746	62,948	1,185,608,201	329,143
Paper and Articles of Paper and Paperboard	889,133,553	675,032	736,295,364	596,077	4,119,636,352	2,996,221
Forest-Based Furniture	58,896,201	27,690	65,609,493	34,163	143,046,439	134,114
Other Forest-Based Products	m	4,492	m	7,005	m	21,047
Selected Non-Timber Manufactured Articles			m	8	m	8
Total Forest Products Imports		980,969	-	859,497		4,690,881
Total Imports		57,995,752	-	56,746,060		374,594,569
Forest Products Imports as % of the Total Imports (in terms of value)		1.69	-	1.51		1

Note: "m" indicates miscellaneous unit of measurements

Source: Philippine Forestry Statistics

\*2008 Preliminary Data

**Table 24. Forest Charges on Roundwood Harvested 2000-2008\***  
(in Php)

Year	Log				Fuelwood/ Charcoal	Total
	Sawlog/Veneer Log	Pulpwood	Poles and Piles	Total		
2000	134,487,715	70,916	528,185	135,086,816	13,595	135,100,411
2001	164,001,426	16,982	273,989	164,292,397	8,236	164,300,633
2002	105,727,339	123,426	279,475	106,130,240	291,172	106,421,412
2003	213,617,886	861,408	617,424	215,096,718	13,109	215,109,827
2004	227,662,596	1,045,224	471,485	229,179,305	76,336	229,255,641
2005	125,740,980	416,699	104,645	126,262,324	921,208	127,183,532
2006	191,672,059	0	96,957	191,769,016	109,465	191,878,481
2007	172,275,946	0	0	172,275,946	312,869	172,588,815
2008	162,030,507	0	0	162,030,507	341,892	162,372,399
<b>Total</b>	<b>1,497,216,454</b>	<b>2,534,655</b>	<b>2,372,160</b>	<b>1,502,123,269</b>	<b>2,087,882</b>	<b>1,504,211,151</b>
<b>%</b>	<b>99.53</b>	<b>0.17</b>	<b>0.16</b>	<b>99.86</b>	<b>0.14</b>	<b>100.00</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 25. Forest Charges on Non-Timber Products 2000-2008\***  
(in Php)

Year	Non-Timber Forest Products					Total
	Almaciga Resin	Bamboo Poles	Split Rattan	Unsplit Rattan	Boho	
2000	524,368	22,400	91,883	8,511,890	3,000	9,153,541
2001	573,912	26,179	35,512	8,671,992	400	9,307,995
2002	657,263	52,409	0	4,511,608	0	5,221,280
2003	420,456	13,148	4,125	7,003,288	0	7,441,017
2004	420,456	31,022	19,103	1,052,335	0	1,522,916
2005	73,826	9,160	7,044	9,104,170	0	9,194,200
2006	242,603	14,089	28,008	6,101,715	0	6,386,415
2007	350,582	20,264	31,255	3,500,738	0	3,902,839
2008	360,361	18,318	20,431	3,206,864	0	3,605,974
<b>Total</b>	<b>3,623,827</b>	<b>206,989</b>	<b>237,361</b>	<b>51,664,600</b>	<b>3,400</b>	<b>55,736,177</b>
<b>%</b>	<b>6.50</b>	<b>0.37</b>	<b>0.43</b>	<b>92.69</b>	<b>0.01</b>	<b>100</b>

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (Forest Economics Division)

**Table 26. Area Reforested by Sector, by Region 2000-2008\***  
(in hectares)

Region	Y e a r											
	2000		2001		2002		2003		2004		2005	
	Government	Private	Government	Private	Government	Private	Government	Private	Government	Private	Government	Private
NCR	130	0	251	0	52	0	18	0	10	9	0	0
CAR	5,272	346	3,715	514	3,051	409	737	156	483	301	502	190
1	1,162	173	533	724	38	209	58	0	230	114	181	144
2	748	127	1,452	144	398	3	92	143	50	1	491	0
3	1,615	887	1,861	7	294	2,268	473	0	626	74	1,617	0
4	2,476	335	1,036	329	0	0	0	0	0	0	0	0
4-A	0	0	0	0	1,419	85	410	111	630	190	164	0
4-B	0	0	0	0	59	36	2	0	109	0	239	64
5	433	0	1,103	134	1,267	0	2,977	0	504	10	785	0
6	1,470	199	1,386	37	135	0	331	0	270	33	210	0
7	1,126	6	4,782	14	2,970	0	4,576	0	537	20	560	0
8	1,229	0	2,285	228	848	112	147	0	806	13	380	0
9	2,015	480	1,771	522	879	774	726	350	1,430	539	190	0
10	628	517	325	191	501	1	487	40	347	575	268	176
11	2,845	498	1,164	393	276	79	921	0	3,199	1,794	449	0
12	90	85	1,729	0	602	35	1,212	0	3,090	273	170	0
13	405	2,239	1,699	1,683	7,800	908	43	1,093	124	3,956	981	8,737
<b>Philippines</b>	<b>21,644</b>	<b>5,892</b>	<b>25,092</b>	<b>4,920</b>	<b>20,589</b>	<b>4,919</b>	<b>13,210</b>	<b>1,893</b>	<b>12,445</b>	<b>7,902</b>	<b>7,187</b>	<b>9,311</b>
Grand Total	27,536		30,012		25,508		15,103		20,347		16,498	

**Table 26. Area Reforested by Sector, by Region 2000-2008\* (continued)**  
(in hectares)

Region	Y e a r						Total		Grand Total	%
	2006		2007		2008					
	Government	Private	Government	Private	Government	Private	Government	Private		
NCR	0	0	160	0	2	95	1,350	104	727	0
CAR	490	303	2,892	0	3,964	293	44,724	2,523	23,618	11
1	375	126	1,019	43	570	1,824	11,689	3,360	7,523	3
2	1,477	910	1,163	434	933	0	15,370	1,766	8,566	4
3	0	0	1,811	0	7,154	0	34,138	3,245	18,687	9
4	0	0	0	0	0	0	7,688	666	4,176	2
4-A	156	0	672	0	793	998	9,872	1,387	5,628	3
4-B	266	0	1,084	0	1,219	0	6,056	101	3,078	1
5	263	0	2,183	0	5,076	5,014	34,340	5,167	19,749	9
6	657	0	1,133	0	1,480	0	14,414	272	7,341	3
7	429	0	602	0	752	1,773	34,480	1,821	18,147	8
8	351	0	982	0	980	0	16,369	357	8,361	4
9	230	0	1,349	0	917	0	21,680	2,671	12,172	6
10	347	0	1,675	0	1,067	0	12,790	1,503	7,145	3
11	487	0	1,630	0	751	0	26,207	2,771	14,486	7
12	212	0	4,732	0	643	3,894	29,246	4,295	16,767	8
13	1,483	1,408	1,937	2,336	1,452	1,966	56,174	24,345	40,250	19
Philippines	7,223	2,747	25,024	2,813	27,753	15,857	160,167	56,254	216,421	100
Grand Total	9,970		27,837		43,610		74%	26%		

Source: Philippine Forestry Statistics

\*2008 Preliminary Data (PDED, PPSO)

**Table 27. Forest Disturbance by Cause: 2006-2008**

Cause	Year							
	2006				2007			
	Extent of Damage (ha)			Estimated	Extent of Damage (ha)			Estimated
	Total	Natural	Plantation	Value (Peso)	Total	Natural	Plantation	Value (Peso)
Fire	3,004.67	2,355.00	649.67	28,971,808.04	902.54	360.76	541.78	3,871,514.90
- incendiarism	191.15	0.00	191.15	1,464,518.00	228.00	200.00	28.00	308,196.00
- hunting (throwing cig. Butts)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
- forestfire/grassfire/fire	2,813.52	2,355.00	458.52	27,507,290.04	674.54	160.76	513.78	3,563,318.90
Kaingin/Illegal Entry	0.00	0.00	0.00	0.00	34.05	0.00	34.05	320,031.71
Illegal Cutting	0.00	0.00	0.00	0.00	1,552.00	1,526.00	26.00	339,000.00
Others /unknown	0.00	0.00	0.00	0.00	87.00	57.00	30.00	100,000.00
<b>Total</b>	<b>3,004.67</b>	<b>2,355.00</b>	<b>649.67</b>	<b>28,971,808.04</b>	<b>2,575.59</b>	<b>1,943.76</b>	<b>631.83</b>	<b>4,630,546.61</b>

Cause	Year				Philippines (2006-2008)			
	2008							
	Extent of Damage (ha)			Estimated	Extent of Damage (ha)			Estimated
	Total	Natural	Plantation	Value (Peso)	Total	Natural	Plantation	Value (Peso)
	Fire	34.58	28.00	6.58	55,472.63	3,941.79	2,743.76	1,198.03
- incendiarism	0.00	0.00	0.00	0.00	419.15	200.00	219.15	1,772,714.00
- hunting (throwing cig. Butts)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
- forestfire/grassfire/fire	34.58	28.00	6.58	55,472.63	3,522.64	2,543.76	978.88	31,126,081.57
Kaingin/Illegal Entry	15.00	0.00	15.00	40,000.00	49.05	0.00	49.05	360,031.71
Illegal Cutting	0.00	0.00	0.00	0.00	1,552.00	1,526.00	26.00	339,000.00
Others /unknown	365.75	247.70	118.05	570,958.00	452.75	304.70	148.05	670,958.00
Total	415.33	275.70	139.63	666,430.63	5,995.59	4,574.46	1,421.13	34,268,785.28

Source: Accomplishment Report  
PDED, PPSO, DENR

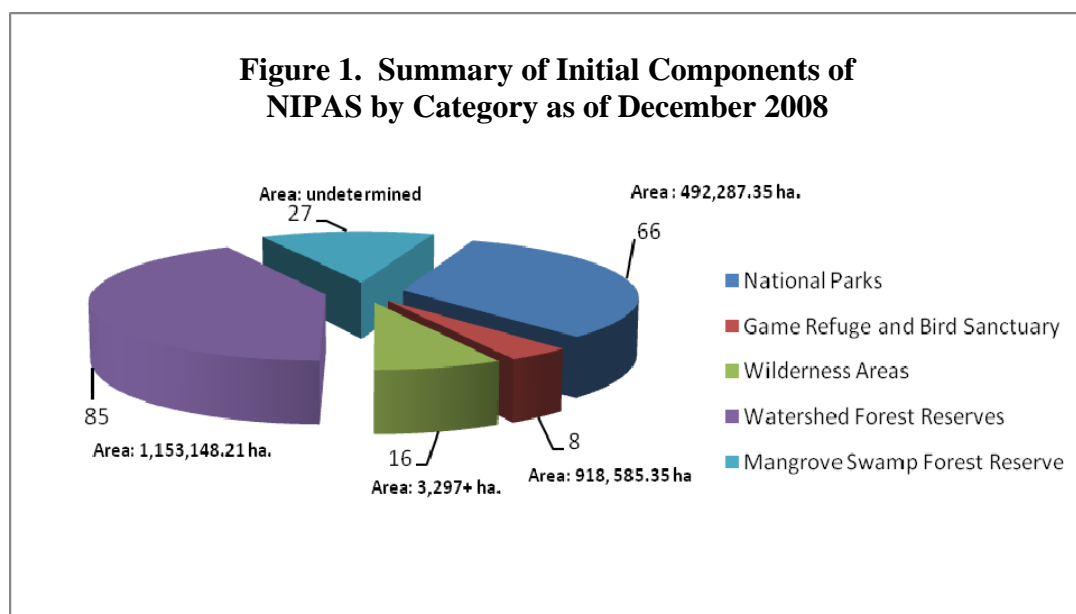
## Section B

### Biodiversity

#### Protected Areas

Republic Act 7586 otherwise known as National Integrated Protected Areas System (NIPAS) Act of 1992 provides the legal framework for the establishment and management of protected areas in the Philippines. The Law defines protected areas as the identified portions of land and/or water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation.

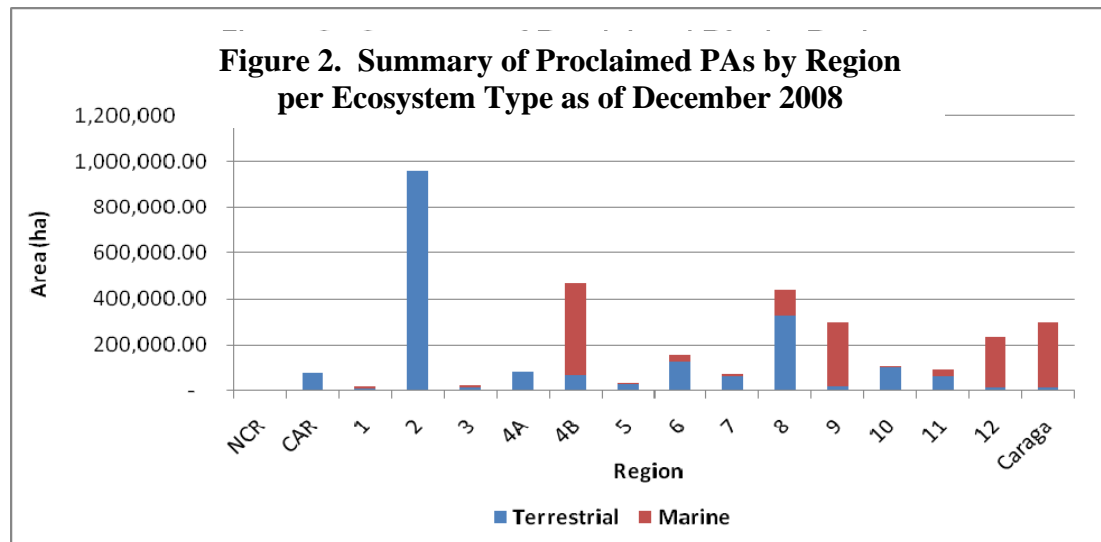
The NIPAS Act identified 202 initial components comprising of national parks, game refuge and wildlife sanctuaries, nature reserves, wilderness areas, mangrove reserves, watershed reservations, fish sanctuaries, protected landscapes and seascapes, among others, that were proclaimed prior to the effectivity of the NIPAS Act. The identified initial components of NIPAS cover an approximate area of 2.57 million hectares. These areas will be maintained as part of the NIPAS until such time that they are finally assessed as to their suitability for inclusion to the System. (*Figure 1 and Table 1*)



*Source: Protected Areas and Wildlife Bureau*

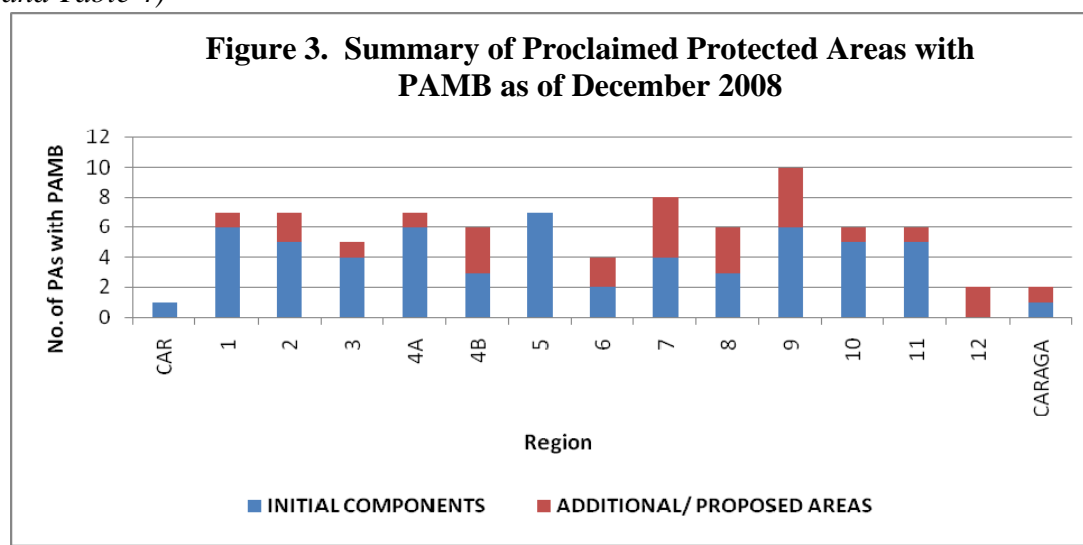
As of December 2008, there are one hundred and seven (107) protected areas formally proclaimed by the President under the System covering 3.34 million hectares. Sixty-nine (69) out of the 107 are initial components with an area of 1.89 million hectares and thirty-eight (38) additional areas with an area of 1.45 million hectares. Of the 107 proclaimed protected areas, 29 are marine protected areas with a total area of 1.37 million hectares while 78 are terrestrial protected areas covering an area of 1.97 million hectares. Ten (10) of these areas have been further established under specific laws, namely: Batanes Island Protected Landscape and Seascape in

Batanes; Northern Sierra Madre Natural Park in Isabela; Mt. Kanlaon Natural Park in Negros Occidental & Negros Oriental; Sagay Marine Reserve in Negros Occidental; Central Cebu Protected Landscape in Cebu; Mimbilisan Protected Landscape in Misamis Oriental; Mt. Kitanglad Natural Park in Bukidnon; Mt. Malindang Natural Park in Misamis Occidental; Mt. Apo Natural Park in Davao del Sur; and Mt. Hamiguitan Range Wildlife Sanctuary in Davao Oriental. (Figure 2 and Tables 2 & 3)



Source: Protected Areas and Wildlife Bureau

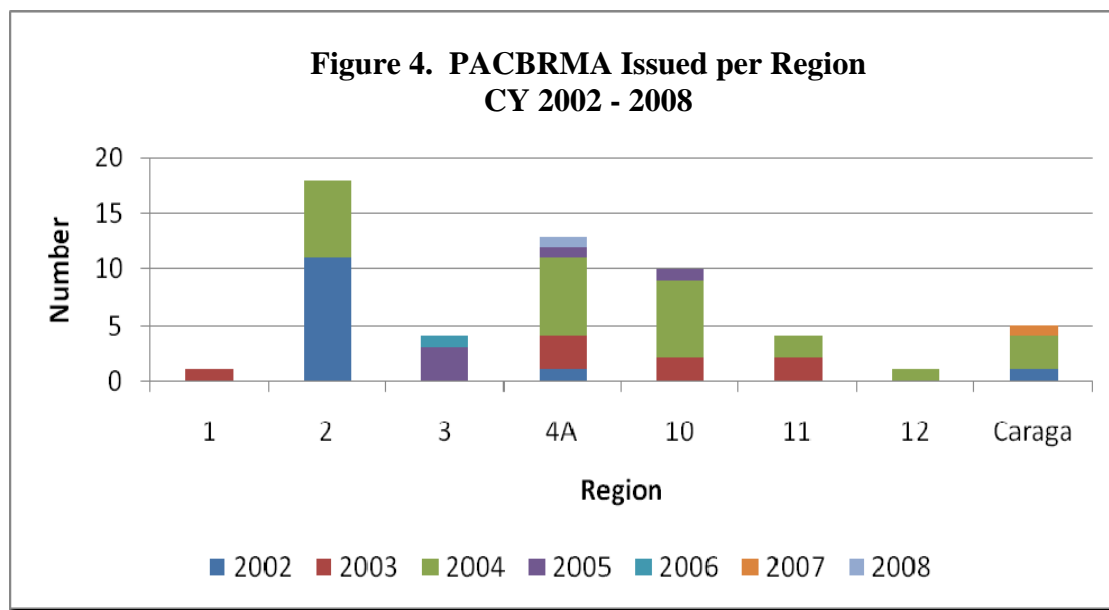
In terms of administration, the NIPAS Act requires the creation of a multi-sectoral Protected Area Management Board (PAMB) to serve as decision making body for each of the protected area established under the NIPAS. As of December 2008, there are one hundred sixty-six (166) protected areas with organized/appointed Management Boards: 84 PAs with PAMB are proclaimed under the NIPAS (58 PAs are initial components and 26 PAs are additional areas). Out of the 84 proclaimed PAs with PAMB, one is under the management of Palawan Council for Sustainable Development and another under the City Government of Puerto Princesa. (Figure 3 and Table 4)



Source: Protected Areas and Wildlife Bureau

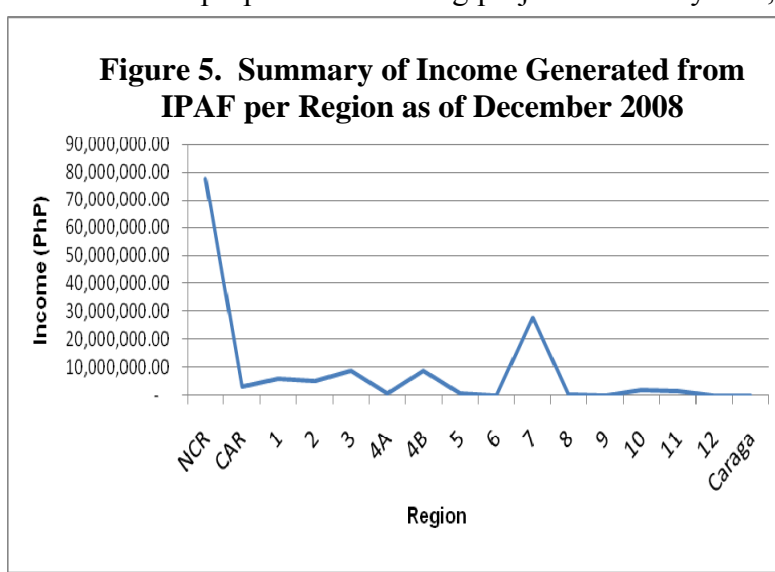


Upon the recommendation of the PAMB, the DENR may issue tenurial instrument called the Protected Area Community Based Resource Management Agreement (PACBRMA) to qualified tenured migrant communities and interested indigenous peoples within protected areas over established community-based program areas. Under this instrument, they can manage, develop, utilize, conserve and protect the resources within the multiple use zones of the protected area and buffer zones consistent with the protected area management plan. Since 2002, a total of 56 Peoples Organizations (POs) had been issued with PACBRMA. This involved 3,887 families and 10,897 individuals in sixteen (16) protected areas covering a total area of 21,905.79 ha. (Figure 4 and Tables 5 & 6)



Source: Protected Areas and Wildlife Bureau

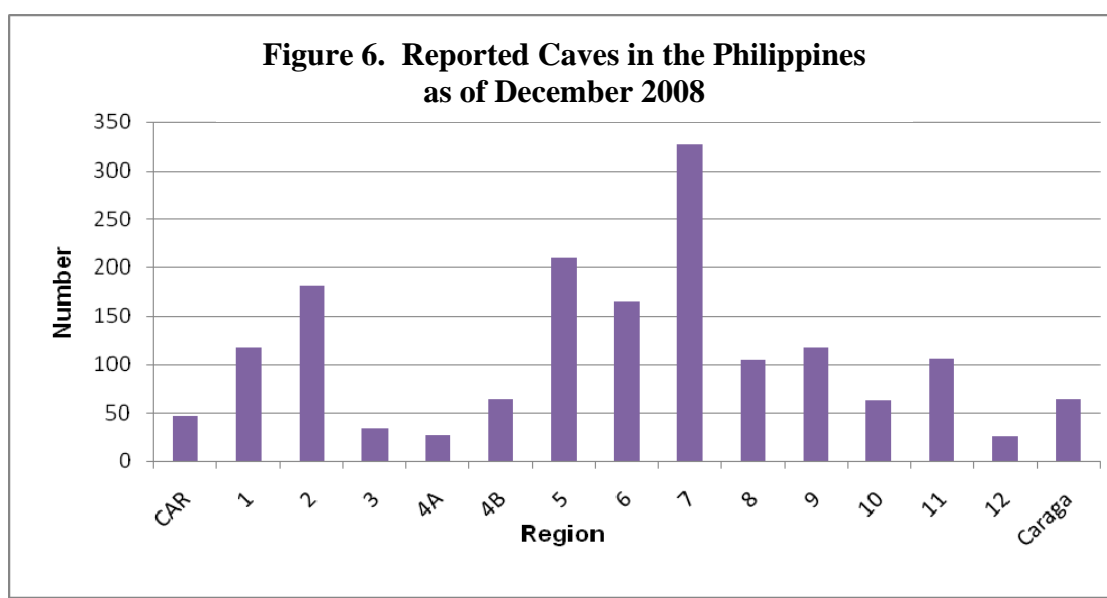
The NIPAS Act also provides for the establishment of the Integrated Protected Area Fund in each protected area for the purpose of financing projects of the System. As of December 2008, there are one hundred and forty-four (144) protected areas with Integrated Protected Area Fund (IPAF), of which 90 have active collection and utilization. As of this period, there is total income of Php 143.4 million and out of which, a total amount of Php 98.3 million hectares have been utilized by 23 protected areas. (Figure 5 and Tables 7 & 8)



Source: Protected Areas and Wildlife Bureau

## Caves

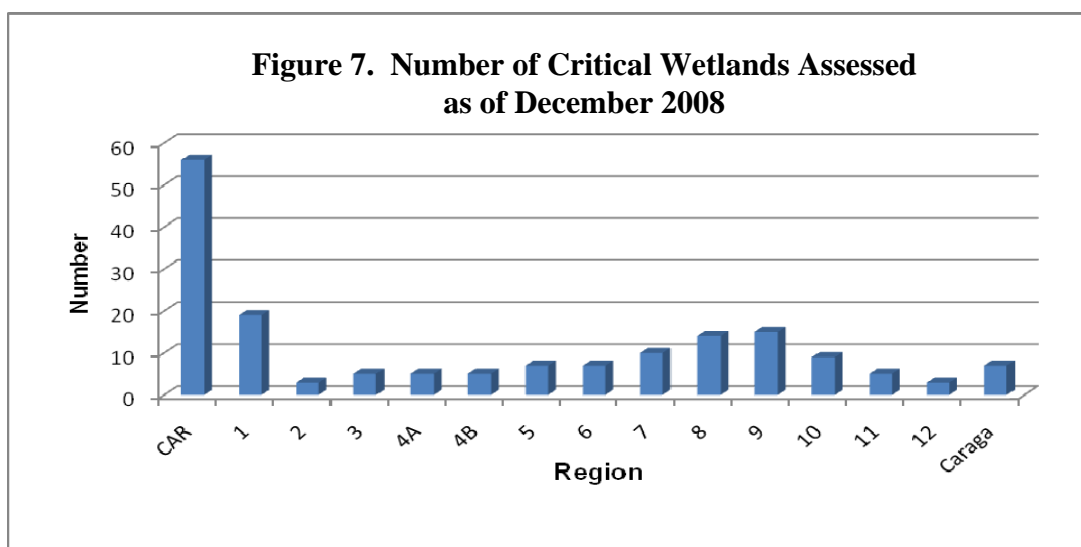
Recognizing the need to conserve, protect and manage caves and cave resources, the National Cave and Cave Resources Management and Protection Act (Republic Act 9072) was enacted in 2001. To date, over 1,500 caves have been recorded by the Department of Environment and Natural Resources (DENR) since the start of implementation of the Caves Management and Conservation Program (CMCP) in 1994, with still a significant number of caves yet to be discovered and mapped. These caves are considered unique, natural, and non-renewable resources with important scientific, economic, educational, cultural, historical, and aesthetic values. They are also home to specialized mineral formations with unique and diverse flora and fauna. Four (4) caves were proclaimed under the NIPAS, namely; Peñablanca Protected Landscape (Tuguegarao, Cagayan), Pamitinan Protected Landscape (Rodriguez, Rizal) Calbiga Protected Landscape (Northern Samar) and Banahaw San Cristobal Protected Landscape. (*Figure 6 and Table 9*)



*Source: Protected Areas and Wildlife Bureau*

## Wetlands

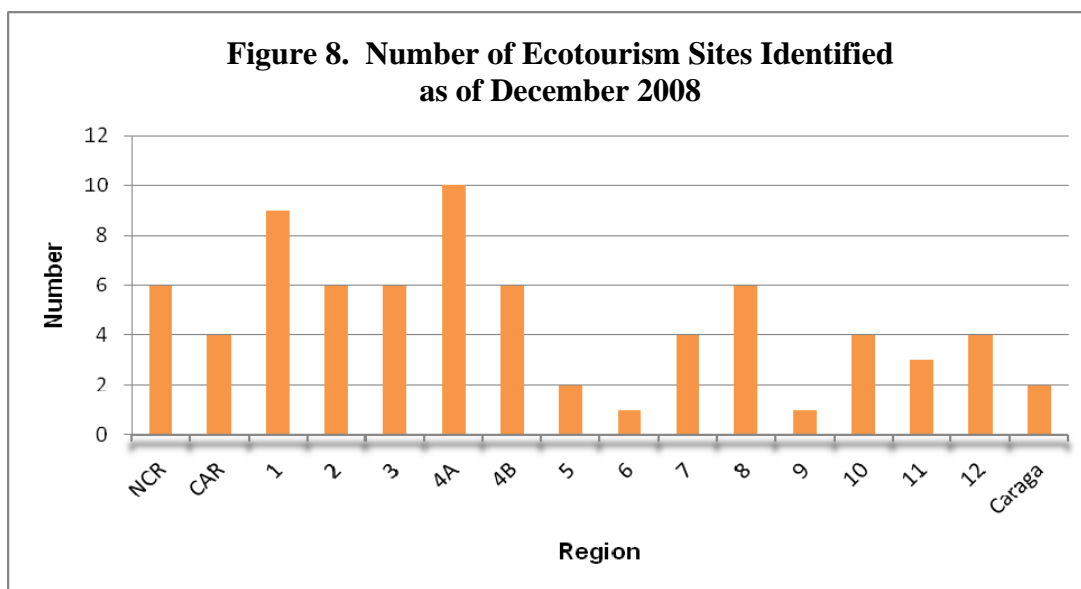
Likewise, in recognition of the importance of wetlands that serve as cradles of biological diversity, providing the water and primary productivity upon which countless species of plants and animals depend for survival, and supporting high concentrations of birds, mammals, reptiles, amphibians, fish and invertebrate species and important storehouses of plant genetic material, among others, an assessment of all critical wetlands found in the country is being conducted. As of CY 2008, a total of 170 wetlands have been assessed and identified as critical to biodiversity conservation. Four (4) Philippine wetlands of international importance were recognized under the Ramsar Convention, namely: Tubbataha Reef Natural Park in Palawan, Olango Island Wildlife Sanctuary in Cebu, Naujan Lake National Park in Oriental Mindoro, and, Agusan Marsh Wildlife Sanctuary in Northeastern Mindanao. (*Figure 7 and Table 10*)



Source: Protected Areas and Wildlife Bureau

### Ecotourism Sites

Ecotourism or ecological tourism is a form of sustainable tourism within a natural and cultural heritage area where community participation, protection and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics as well as economic benefits are fostered and pursued for the enrichment of host communities and satisfaction of visitors. A total of 74 ecotourism sites were identified nationwide from 2006-2008. Region 4A has most number of sites potential for ecotourism. (Figure 8 & Table 11)

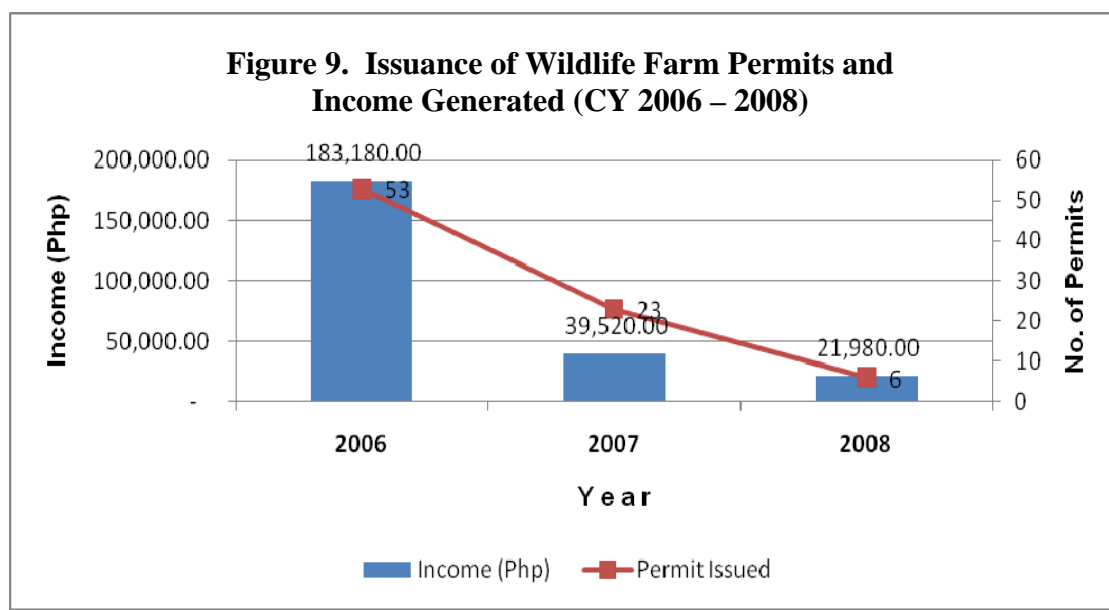


Source: Protected Areas and Wildlife Bureau

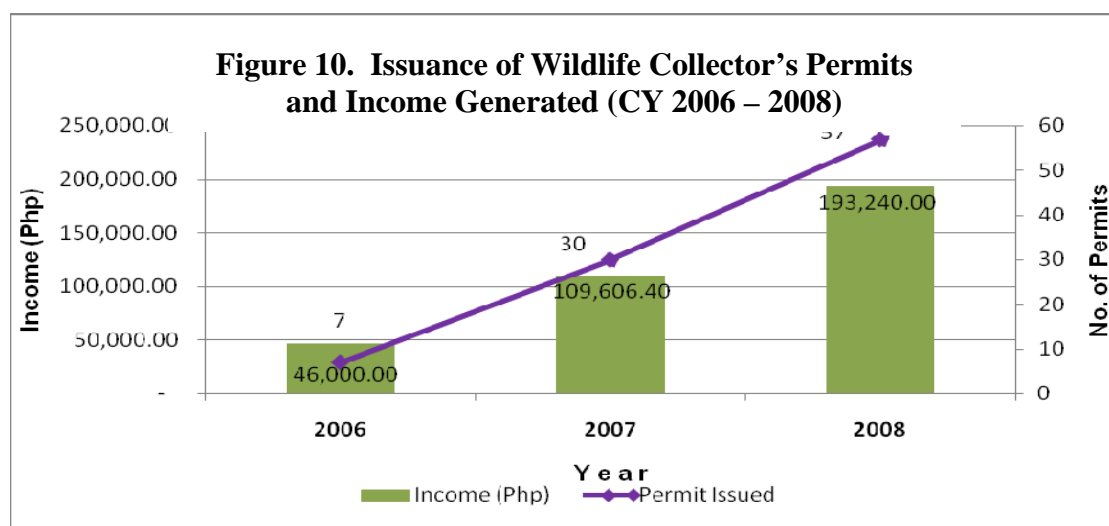
### Conservation and Protection of Wildlife Resources

Under the Wildlife Resources Conservation and Protection Act (Republic Act 9147), commercial breeding or propagation of wildlife is allowed provided, that only progenies of wildlife raised, as well as unproductive parent stock shall be utilized for

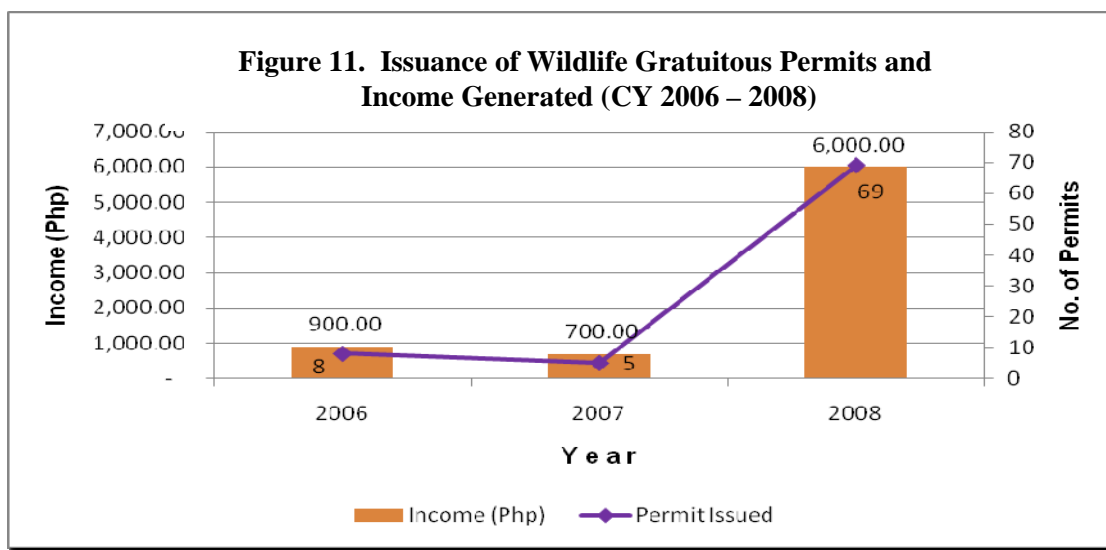
trade. Likewise, wildlife collection is also allowed provided, however, that appropriate and acceptable collection techniques with least or no detrimental effects to the existing wildlife population and their habitats are used. To avail of this privilege, Wildlife Collector's Permit (WCP) and Wildlife Farm Permit (WFP) have to be acquired by interested parties. Gratuitous Permits (GP) are also issued for the collection of wildlife for scientific researches/studies. From 2006 to 2008, a total of 82 WFPs, 94 WCPs and 82 GPs were issued with a total revenue of PhP601,126.40. (Figures 9 (WFP), 10 (WCP), 11 (GP) and Table 12)



Source: Protected Areas and Wildlife Bureau

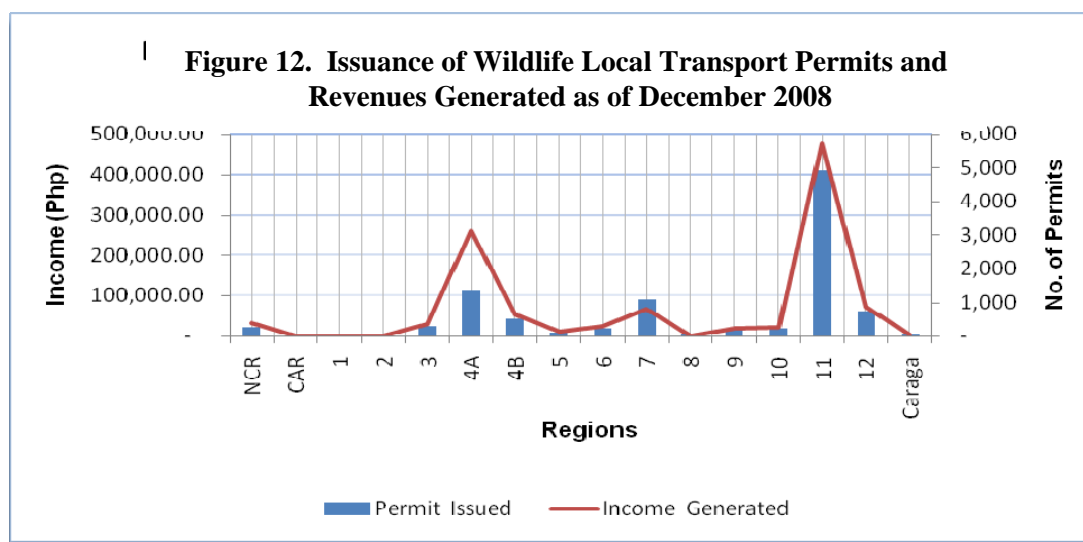


Source: Protected Areas and Wildlife Bureau



Source: Protected Areas and Wildlife Bureau

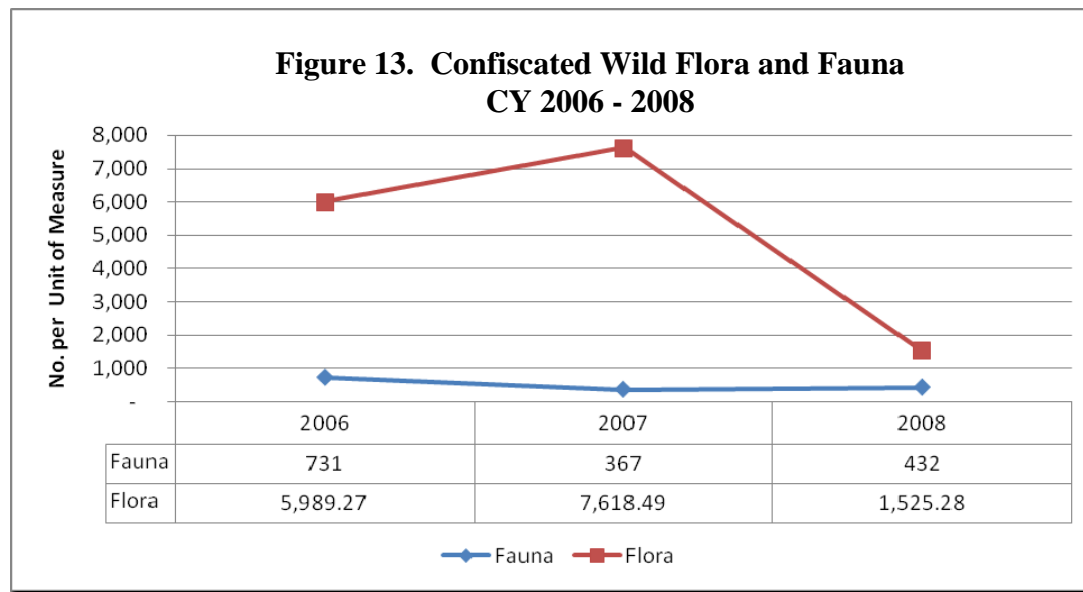
Moreover, transport of wildlife, by-products or derivatives from legal sources from the point of origin to the final destination within the country is also allowed through the issuance of Local Transport Permit (LTP). Permit to transport can be issued unless the transport is prejudicial to the wildlife and public health. A total of 9,964 LTPs were issued from 2006 to 2008 generating an income of PhP 1.07 M. Almost 50% of the permit was issued by DENR Region XI for the transport of orchids alone. (Figure 12 and Table 13)



Source: Protected Areas and Wildlife Bureau

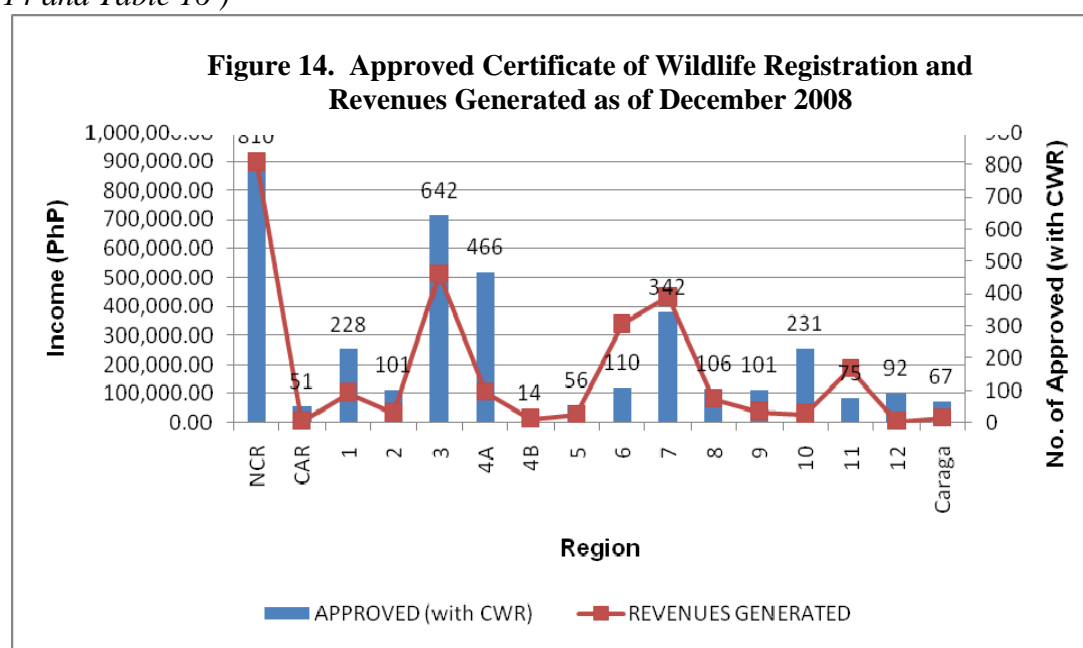
Similarly, the effective implementation of policies and laws governing the protection and conservation of biodiversity resulted to the tremendous decrease in illegal collection and trade of wildlife resources. From 2006-2008, a total of 1,526 heads and 4 pieces of illegally collected and traded fauna and 2,844 pcs, 205 bundles

and 12,084.04 bd. ft. of flora were confiscated in the country by the DENR Wildlife Monitoring Team. (Figure 13 and Tables 14 & 15)



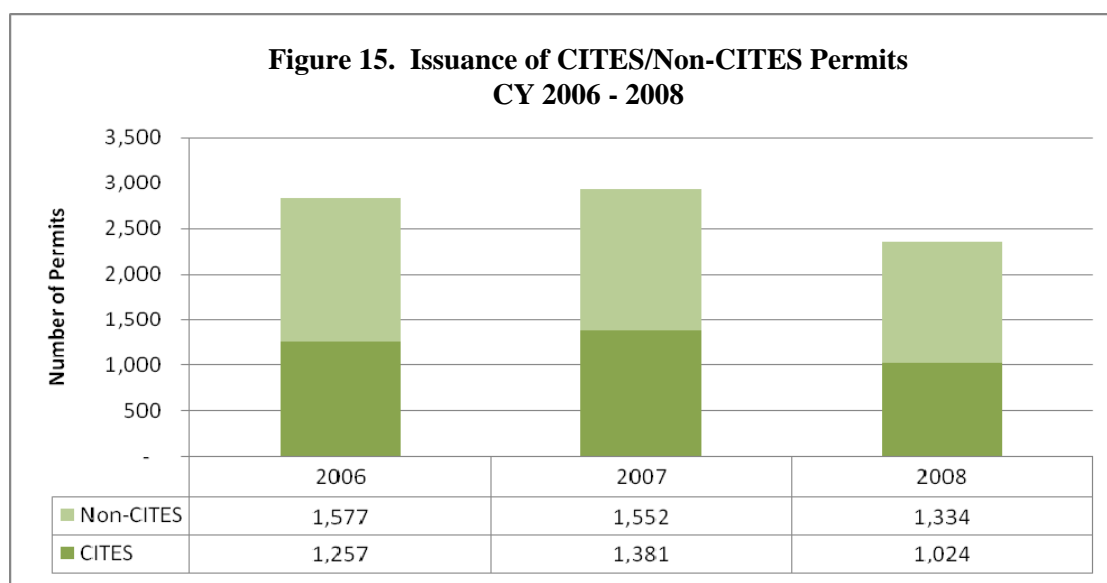
Source: Protected Areas and Wildlife Bureau

Furthermore, possession of all threatened and exotic species is prohibited under the Wildlife Act. Exceptions, however, are given to person or entity with financial, technical capability and have the facility to maintain said wildlife. Thus, all threatened indigenous and endemic fauna, and all exotic species in the possession of private individuals or entities without permit from the government agency concerned are required to register their stocks in 2004 thru the issuance of Certificate of Wildlife Registration (CWR). A total of 3,492 CWRs were issued during the period of registration realizing a total revenue of 2.8 million pesos. National Capital Region has generated the biggest income with a total amount of PhP 900 thousand. (Figure 14 and Table 16 )

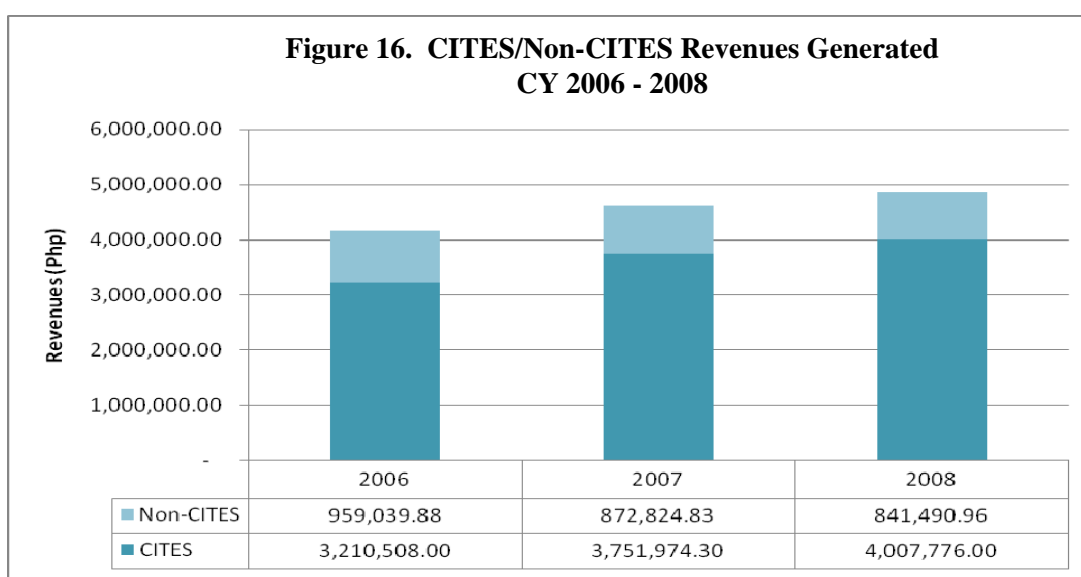


Source: Protected Areas and Wildlife Bureau

The Philippines is one of the signatories to the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES), a multilateral environmental agreement which regulates the international trade of plants and animals through a system of permits. The plant and animal species are subject to different degrees of regulation as listed in Appendices I and II of the CITES. The species listed under Appendix I are those threatened with extinction and for which trade must be subjected to strict regulation and may only be authorized in exceptional circumstances. Appendix II, on the other hand, includes species that are not necessarily now threatened with extinction but may become so unless trade on them is strictly regulated. From 2006-2008, PAWB as the CITES Management Authority for terrestrial species issued a total of 8,125 CITES/Non-CITES Permits generating a total revenue of PhP13.6 million. (Figures 15 & 16 and Table 17)

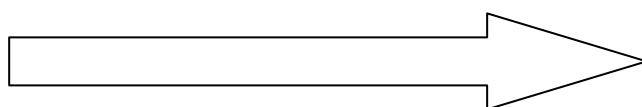


Source: Protected Areas and Wildlife Bureau



Source: Protected Areas and Wildlife Bureau

# Statistical Tables





**Table 1. Summary of Initial Components of NIPAS by Category  
As of December 2008**

Category	Under DENR		Under OGA		Grand Total	
	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)
National Parks	62	489,977.51	4	2,309.84	66	492,287.35
Game Refuge & Bird Sanctuary	8	918,585.35			8	918,585.35
Wilderness Areas	16	3,297+			16	3,297+
Watershed Forest Reserves	83	1,033,789.11	2	119,359.10	85	1,153,148.21
Mangrove Swamp Forest Reserve	27	undetermined			27	undetermined
<b>Philippines</b>	<b>196</b>	<b>2,445,648.97</b>	<b>6</b>	<b>121,668.94</b>	<b>202</b>	<b>2,567,317.91</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 2. Summary of Proclaimed Protected Areas by Region per Ecosystem Type**  
**As of December 2008**

Region	Terrestrial			Marine			Grand Total		
	No.	Area (ha)		No.	Area (ha)		No.	Area (ha)	
		PA	BZ		PA	BZ		PA	BZ
NCR	1	22.7	-	-	-	-	1	22.7	-
CAR	1	77,561.00	-	-	-	-	1	77,561.00	-
1	7	7,942.51	3,329.88	1	10,513.30	135.64	8	18,455.81	3,465.52
2	7	955,136.02	-	1	7,415.48	-	8	962,551.50	-
3	5	16,421.21	-	1	7,568.00	-	6	23,989.21	-
4A	8	79,185.34	-	-	-	-	8	79,185.34	-
4B	5	66,294.63	-	4	401,869.76	11,677.00	9	468,164.39	-
5	9	30988.24	-	1	120.62	-	10	31,108.86	11,677.00
6	4	122,363.26	169	1	32,000.00	-	5	154,363.26	169
7	4	61675.65	-	5	9,148.15	-	9	70,823.80	-
8	7	330,780.02	125,400.00	3	106,440.00	-	10	437,220.02	125,400.00
9	6	20,926.54	8,693.05	6	273,039.77	7,900.22	12	293,966.31	16,593.27
10	7	101,526.28	50554.25	2	1,595.78	800.45	9	103,122.06	51,354.70
11	5	64,211.61	9,614.88	2	27,306.00	-	7	91,517.61	9,614.88
12	1	15,600.00	-	1	215,950.00	-	2	231,550.00	-
Caraga	1	14,835.99	4,360.57	1	278,914.13	-	2	293,750.12	4,360.57
<b>Philippines</b>	<b>78</b>	<b>1,965,471.00</b>	<b>202,121.63</b>	<b>29</b>	<b>1,371,880.99</b>	<b>20,513.31</b>	<b>107</b>	<b>3,337,351.99</b>	<b>222,634.94</b>

Source: Protected Areas and Wildlife Bureau

**Table 3. Summary of Proclaimed Protected Areas under NIPAS  
by Category per Ecosystem Type as of December 2008**

Categories	Terrestrial			Marine			Grand Total		
	No.	PA	BZ	No.	PA	BZ	No.	PA	BZ
Resource Reserve	2	78,354.74	186.66	-	-	-	2	78,354.74	186.66
Protected Landscape/ Seascape	2	332,359.58	-	20	695,390.08	8,836.31	22	1,027,749.66	8,836.31
Protected Landscape	32	420,552.15	2,212.24	-	-	-	32	420,552.15	2,212.24
Protected Seascape	-	-	-	3	216,785.67	-	3	216,785.67	-
Natural Monument/ Landmark	4	23,741.50	610.69	-	-	-	4	23741.5	610.69
Natural Park	25	1,052,097.70	192,262.47	2	112,620.00	11,677.00	27	1,164,717.70	203,939.47
Marine Reserve	-	-	-	2	14,983.48	-	2	14,983.48	-
Managed Resource Reserve	-	-	-	1	89,134.76	-	1	89,134.76	-
Natural Biotic Area	4	11,456.72	2,489.00	-	-	-	4	11,456.72	2,489.00
Wildlife Sanctuary	8	46,885.91	4,360.57	1	242,967.00	-	9	289,852.91	4,360.57
Parks and Wildlife Center	1	22.7	-	-	-	-	1	22.7	-
<b>Philippines</b>	<b>78</b>	<b>1,965,471.00</b>	<b>202,121.63</b>	<b>29</b>	<b>1,371,880.99</b>	<b>20,513.31</b>	<b>107</b>	<b>3,337,351.99</b>	<b>222,634.94</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 4. Summary of Proclaimed Protected Areas with PAMB  
As of December 2008**

Region	Initial Components	Additional/Proposed Areas	Total
CAR	1	-	1
1	6	1	7
2	5	2	7
3	4	1	5
4A	6	1	7
4B	3	3	6
5	7	-	7
6	2	2	4
7	4	4	8
8	3	3	6
9	6	4	10
10	5	1	6
11	5	1	6
12	-	2	2
Caraga	1	1	2
<b>Philippines</b>	<b>58</b>	<b>26</b>	<b>84</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 5. PACBRMA Issued per Region (CY 2002 – 2008)**

Region	Number of PACBRMA Issued							
	2002	2003	2004	2005	2006	2007	2008	Total
1	-	1	-	-	-	-	-	1
2	11	-	7	-	-	-	-	18
3	-	-	-	3	1	-	-	4
4A	1	3	7	1	-	-	1	13
10	-	2	7	1	-	-	-	10
11	-	2	2	-	-	-	-	4
12	-	-	1	-	-	-	-	1
Caraga	1		3			1		5
<b>Philippines</b>	<b>13</b>	<b>8</b>	<b>27</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>56</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 6. Summary of PACBRMA Issued per Protected Area  
As of December 2008**

Region	Year	Name of PA	PACBRMA Issued (No.)	Area (ha)	Beneficiaries	
					No. of Families	No. of Individuals
1	2003	Manleluag Spring Protected Landscape	1	8.12	20	79
		Sub-Total	1	8.12	20	79
2	2002	Northern Sierra Madre NP	11	4,621.27	604	3,295
	2004	Northern Sierra Madre NP	7	1,330.00	171	845
		Sub-Total	18	5,951.27	775	4,140
3	2005	Bataan National Park	3	630	129	167
	2006	Mt. Arayat National Park	1	56.8	36	36
		Sub-Total	4	686.8	165	203
4A	2002	Pres. Proclamation 1636	1	500	36	65
	2003	Marikina Watershed	1	542	364	1,495
		Mts. Palay-Palay-Matas-na Gulod Protected Landscape	1	240	26	28
		Kaliwa Forest Reserve	1	430	50	91
	2004	Kaliwa Forest Reserve	6	6,642.15	393	687
		Mts. Banahaw-San Cristobal Protected Landscape/Seascape (Laguna side)	1	200	231	231
		Maulawin Spring Protected Lanscape	1	45	40	40
	2008	Mts. Banahaw-San Cristobal Protected Landscape/Seascape (Laguna side)	1	110.25	47	178
		Sub-Total	13	8,709.40	1,187	2,815

**Table 6. Summary of PACBRMA Issued per Protected Area (Continued)**  
**As of December 2008**

Region	Year	Name of PA	PACBRMA Issued (No.)	Area (ha)	Beneficiaries	
					No. of Families	No. of Individuals
10	2003	Mt. Malindang Natural Park	2	269.4	85	
	2004	Mt. Malindang Natural Park	5	2,115.03	197	
		Mt. Kitanglad Range Natural Park	1	300	55	125
		Mt. Kalatungan Range Natural Park	1	703.79	127	
	2005	Mt. Kalatungan Range Natural Park	1	594	64	185
		Sub-Total	10	3,982.22	528	310
11	2003	Mati Protected Landscape	2	412.38	40	201
	2004	Mati Portected Landscape	2	399.06	24	134
		Sub-Total	4	811.44	64	335
12	2004	Mt. Matutum Protected Landscape	1	422	164	312
		Sub-Total	1	422	164	312
Caraga	2002	Siargao islands Protected Landsscape and Seascape	1	139	52	102
	2004	Siargao Islands Protected Landscape and Seascape	3	1,112.00	893	2,562
	2007	Siargao Islands Protected Landscape and Seascape	1	83.54	39	39
		Sub-Total	5	1,334.54	984	2,703
<b>Philippines</b>			<b>56</b>	<b>21,905.79</b>	<b>3,887</b>	<b>10,897</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 7. Summary of Income Generated from IPAF by Region  
As of December 2008**

Region	Total Income	PA Sub-Fund			Central Fund			Total Balance
		Deposited	Disbursed	Sub-Total	Deposited	Disbursed	Sub-Total	
NCR	77,742,032.35	58,306,524.26	62,388,835.83	(4,082,311.57)	19,435,508.09	-	19,435,508.09	15,353,196.52
CAR	3,336,174.84	2,502,131.13	2,448,661.80	53,469.33	834,043.71	-	834,043.71	887,513.04
1	6,050,750.17	4,538,062.63	4,059,658.00	478,404.63	1,512,687.54	-	1,512,687.54	1,991,092.17
2	5,293,283.08	3,969,962.31	2,997,538.35	972,423.96	1,323,320.77	-	1,323,320.77	2,295,744.73
3	8,677,342.75	6,508,007.06	5,207,814.00	1,300,193.06	2,169,335.69	-	2,169,335.69	3,469,528.75
4A	917,919.86	688,439.90	-	688,439.90	229,479.97	-	229,479.97	917,919.86
4B	8,643,939.78	6,482,954.84	3,899,750.00	2,583,204.84	2,160,984.95	-	2,160,984.95	4,744,189.78
5	657,361.00	493,020.75	85,768.00	407,252.75	164,340.25	-	164,340.25	571,593.00
6	106,205.00	79,653.75	-	79,653.75	26,551.25	-	26,551.25	106,205.00
7	27,571,283.35	20,678,462.51	16,894,908.50	3,783,554.01	6,892,820.84	-	6,892,820.84	10,676,374.85
8	496,632.35	372,474.26	-	372,474.26	124,158.09	-	124,158.09	496,632.35
9	13,105.00	9,828.75	-	9,828.75	3,276.25	-	3,276.25	13,105.00
10	2,120,305.50	1,590,229.13	296,713.00	1,293,516.13	530,076.38	-	530,076.38	1,823,592.50
11	1,628,403.14	1,221,302.36	-	1,221,302.36	407,100.79	-	407,100.79	1,628,403.14
12	-	-	-	-	-	-	-	-
Caraga	121,305.06	90,978.80	-	90,978.80	30,326.27	-	30,326.27	121,305.06
<b>Philippines</b>	<b>143,376,043.23</b>	<b>107,532,032.42</b>	<b>98,279,032.42</b>	<b>9,252,384.94</b>	<b>35,844,010.81</b>	<b>595,350.00</b>	<b>35,844,010.81</b>	<b>44,501,045.75</b>

*Source: Protected Areas and Wildlife Bureau*



**Table 8. Summary of Income Generated from IPAF**  
**As of December 2008**

<b>Total Income</b>	<b>143,376,043.23</b>
PA Sub-Fund (75%)	9,252,384.94
Deposited	107,532,032.42
Disbursed	98,279,647.48
Central Fund (75%)	35,248,660.81
Deposited	35,844,010.81
Disbursed	595,350.00
<b>Total Balance</b>	<b>44,501,045.75</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 9. Summary of Reported Caves in the Philippines  
As of December 2008**

Region	Reported Caves (No.)
CAR	47
1	118
2	181
3	34
4A	26
4B	64
5	210
6	164
7	327
8	104
9	118
10	62
11	105
12	25
Caraga	64
<b>Philippines</b>	<b>1,649</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 10. Summary of Critical Wetlands Assessed  
As of December 2008**

Region	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
CAR	-	20	7	9	2	5	2	5	-	6	-	-	56
1	8	2	3	5	-	-	-	-	-	1	-	-	19
2	3	-	-	-	-	-	-	-	-	-	-	-	3
3	4	-	-	-	-	-	-	-	-	1	-	-	5
4A	-	1	-	-	1	1	1	1	-	-	-	-	5
4B	-	3	-	-	-	1	1	-	-	-	-	-	5
5	3	-	-	-	-	1	-	-	-	-	3	-	7
6	1	2	3	-	-	1	-	-	-	-	-	-	7
7	6	3	-	1	-	-	-	-	-	-	-	-	10
8	5	2	3	2	-	2	-	-	-	-	-	-	14
9	4	1	7	-	-	1	-	-	-	2	-	-	15
10	3	1	1	-	-	1	-	-	1	1	1	-	9
11	2	1	1	1	-	-	-	-	-	-	-	-	5
12	1	1	1	-	-	-	-	-	-	-	-	-	3
Caraga	1	1	1	2	1	1	-	-	-	-	-	-	7
<b>Philippines</b>	<b>41</b>	<b>38</b>	<b>27</b>	<b>20</b>	<b>4</b>	<b>14</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>11</b>	<b>4</b>	<b>0</b>	<b>170</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 11. Summary of Ecotourism Sites Identified  
CY 2006 – 2008**

Region	2006	2007	2008	Total
NCR	0	3	3	6
CAR	1	3	0	4
1	4	2	3	9
2	2	1	3	6
3	3	0	3	6
4A	6	0	4	10
4B	6	0	0	6
5	2	0	0	2
6	1	0	0	1
7	4	0	0	4
8	2	2	2	6
9	1	0	0	1
10	2	2	0	4
11	3	0	0	3
12	2	0	2	4
Caraga	2	0	0	2
<b>Philippines</b>	<b>41</b>	<b>13</b>	<b>20</b>	<b>74</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 12. Summary of Issuances of Wildlife Permits and Revenues Generated  
CY 2006 – 2008**

Type of Permit	2006		2007		2008		Total	
	Permit Issued	Income Generated	Permit Issued	Income Generated	Permit Issued	Income Generated	Permit Issued	Income Generated
Wildlife Farm	53	183,180.00	23	39,520.00	6	21,980.00	82	244,680.00
Wildlife Collector's	7	46,000.00	30	109,606.00	57	193,240.00	94	348,846.00
Gratuitous/ Research	8	900	5	700	69	6,000.00	82	7,600.00
<b>Total</b>	<b>68</b>	<b>230,080.00</b>	<b>58</b>	<b>149,826.00</b>	<b>132</b>	<b>221,220.00</b>	<b>258</b>	<b>601,126.00</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 13. Issuance of Wildlife Local Transport Permit and Revenues Generated  
CY 2006 – 2008**

Region	2006		2007		2008		Total	
	Permit Issued	Income Generated	Permit Issued	Income Generated	Permit Issued	Income Generated	Permit Issued	Income Generated
NCR	109	16,900.00	84	8,400.00	74	7,002.00	267	32,302.00
CAR	2	380	-	-	-	-	2	380
1	3	200	-	-	-	-	3	200
2	5	240	-	-	1	100	6	340
3	71	6,100.00	98	12,400.00	122	11,700.00	291	30,200.00
4A	800	98,720.00	284	96,150.00	245	64,560.00	1,329	259,430.00
4B	245	24,400.00	-	-	276	27,860.00	521	52,260.00
5	42	4,390.00	28	3,880.00	28	3,620.00	98	11,890.00
6	95	8,800.00	82	9,000.00	55	5,700.00	232	23,500.00
7	588	28,950.00	263	15,850.00	216	21,052.00	1,067	65,852.00
8	9	500	6	600	3	300	18	1,400.00
9	89	8,900.00	52	5,100.00	55	5,400.00	196	19,400.00
10	91	9,250.00	92	8,600.00	31	3,100.00	214	20,950.00
11	1,942	177,330.00	1,582	158,400.00	1,406	140,420.00	4,930	476,150.00
12	61	5,750.00	193	18,150.00	490	48,700.00	744	72,600.00
Caraga	16	1,110.00	17	1,150.00	13	1,200.00	46	3,460.00
<b>Philippines</b>	<b>4,168</b>	<b>391,920.00</b>	<b>2,781</b>	<b>337,680.00</b>	<b>3,015</b>	<b>340,714.00</b>	<b>9,964</b>	<b>1,070,314.00</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 14. Summary of Confiscated Wild Fauna  
CY 2006 – 2008**

<b>Region</b>	<b>Unit of Measure</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>Total</b>
NCR	heads	88	42	20	150
CAR	heads	1	3	-	4
1	heads	13	30	30	73
2	heads	-	-	-	-
3	heads	41	11	9	61
4A	heads	6	14	238	258
4B	heads	41	14	2	57
5	heads	12	5	-	17
	pcs	4	-	-	4
6	heads	159	3	1	163
7	heads	2	126	61	189
8	heads	2	25	8	35
9	heads	1	-	3	4
10	heads	33	56	31	120
11	heads	23	13	15	51
12	heads	3	4	2	9
Caraga	heads	302	21	12	335
<b>Philippines</b>	<b>heads</b>	<b>727</b>	<b>367</b>	<b>432</b>	<b>1,526</b>
	<b>pcs</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>4</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 15. Summary of Confiscated Wild Flora**  
**CY 2006 – 2008**

Region	Unit of Measure	2006	2007	2008	Total
NCR	pcs	115	36	156	307
	bundles	2	-	-	2
R-1	pcs	30	-	9	39
3	pcs	50	420	-	470
	bd. ft.	148	415	-	563
5	bd. ft.	5,266.27	5,084.49	1,170.28	11,521.04
	bundles	-	-	10	10
	pcs	133	1,499	122	1,754
6	pcs	25	43	58	126
7	pcs	13	91	-	104
10	pcs	14	-	-	14
11	pcs	-	7	-	7
12	bundles	193	-	-	193
	pcs	-	23	-	23
<b>Philippines</b>	<b>pcs</b>	<b>380</b>	<b>2,119</b>	<b>345</b>	<b>2,844</b>
	<b>bundles</b>	<b>195</b>	<b>-</b>	<b>10</b>	<b>205</b>
	<b>bd. ft.</b>	<b>5,414.27</b>	<b>5,499.49</b>	<b>1,170</b>	<b>12,084.04</b>

*Source: Protected Areas and Wildlife Bureau*



**Table 16. Summary of Approved Certificate of Wildlife Registration and Revenue Generated by Region  
As of December 2008**

Region	Approved (with CWR)	Revenues Generated
NCR	810	900,043.00
CAR	51	5,100.00
1	228	102,550.00
2	101	34,530.00
3	642	511,920.00
4A	466	105,050.00
4B	14	13,950.00
5	56	28,690.00
6	110	338,950.00
7	342	432,315.00
8	106	82,550.00
9	101	36,900.00
10	231	30,900.00
11	75	185,450.00
12	92	4,600.00
Caraga	67	16,100.00
<b>Philippines</b>	<b>3,492</b>	<b>2,829,598.00</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 17. Issuance of CITES/Non-CITES Permits and Revenues Generated**  
**CY 2006 – 2008**

Year	Total		CITES		Non-CITES	
	Permit Issued	Income Generated	Permit Issued	Income Generated	Permit Issued	Income Generated
2006	2,834	4,169,547.88	1,257	3,210,508.00	1,577	959,039.88
2007	2,933	4,624,799.13	1,381	3,751,974.30	1,552	872,824.83
2008	2,358	4,849,266.96	1,024	4,007,776.00	1,334	841,490.96
<b>Total</b>	<b>8,125</b>	<b>13,643,613.97</b>	<b>3,662</b>	<b>10,970,258.30</b>	<b>4,463</b>	<b>2,673,355.67</b>

*Source: Protected Areas and Wildlife Bureau*

## **Section C**

### **Costal and Marine Resources**

The Philippines, being situated at the coral triangle, hosts one of the most biodiverse marine ecosystems among other countries characterized by vast, rich and diverse coastal and marine resources composing of coral reefs, seagrass beds, mangrove and beach forests, fisheries, invertebrates, seaweeds, marine mammals and many others. Its coastline which extends to 36, 289 km is considered as one of the longest coastlines in the world. The coastal zone has served as the lifeblood of communities for centuries and has played a crucial role in the economic, social and cultural development of the country. It provides opportunities for trade, commerce and economic growth which in turns bind the people together through common beliefs, practices and traditions.

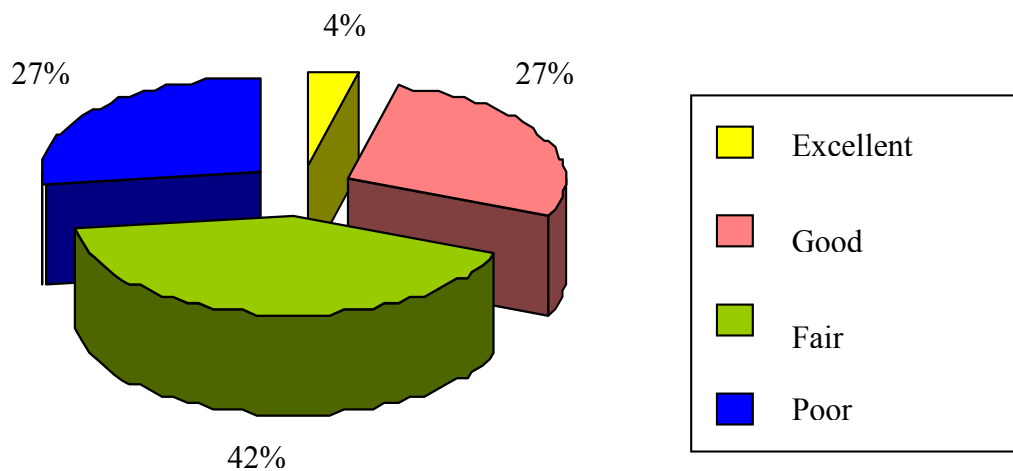
Given the Philippines' strategic geography and abundant resources, it is not surprising that 832 of 1541 or 54% of municipalities are in the coastal zone where 62% of the population also lives. Filipinos depend a great deal on coastal resources for food, livelihood and other needs. More than 50% of animal protein intake in the Philippines is derived from marine fishes. Healthy coral reefs along with the seagrass beds support the valuable multi-species fisheries in the country. Mangrove areas provide a wide range of benefits including clean water, food, medicines, and shoreline protection. However, despite all the direct and indirect importance of these coastal habitats to humans, coastal resources are severely being degraded (DENR, et. al., 2001). The government through the Protected Areas, Wildlife and Coastal Zone Management of the DENR is scrambling for solutions to help solve the impending problem on coastal and marine degradation. Because of these threats posed to coastal environment in the country, finding ways to achieve food security, sustainable development, alleviate poverty and reduce vulnerability to natural hazards has been a major challenge faced by the country. To respond to this challenge, wide range of action plans have drafted for the coastal and marine environment over the past few years, both at the national and local level. These actions plans were prepared with the support and assistance of donor agencies such as UNDP, USAID, international financial institutions such as the World Bank and ADB, and international NGOs such as World Wildlife Fund and Conservation International – Philippines.

To be able to appreciate and understand the status of the coastal resources in the Philippines, its extent/condition is highlighted in the following indicated by various authors:

## Coastal and Marine Resources of the Philippines: Latest Status and Trends

### A. Coral Reefs

- Considered to be one of the highly threatened reef areas in the world
- 468 species scleractinian corals (DA-BFAR-NFRDI-PAWB, 2005; Fishbase 2008)
- 50+ species soft coral
- 25,000 km<sup>2</sup> estimated cover, with most diverse and most extensive in the southern and central parts of the country (Spalding, 2001).
- 70% in poor/fair condition; less than 5% in good condition (Licuanan & Gomez 2000) *Figure 1*.
- Philippine reefs may be in a steady state of decline (from 5% to 3% to >1%) although better reefs can still be found in Celebes Sea, Southern Philippine Sea, Sulu Sea and the Visayas Biogeographic regions (Nanola, *et al*, 2004).
- Coral reefs contribute from 8-20% to about 70% for some island reefs to the total fishery production (Aliño, *et al*, 2004).
- About 62% of the population living along coastal areas are directly dependent on reefs for their livelihood (Barut *et al*, 2004).

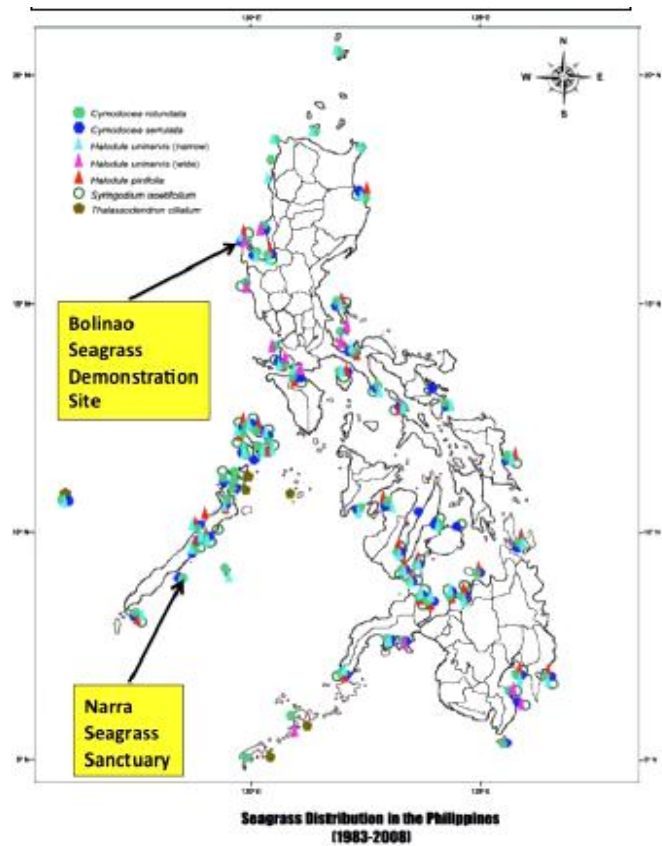


**Figure 1. Status of Philippine Coral Reefs**

(Licuanan & Gomez. 2000)

### B. Seagrasses

- Philippines has the second highest seagrass diversity in the world, second only to Australia
- 19 out 60 species in the world (4NR on CBD, 2009) but not all species are found at any single site
- 27,282 km<sup>2</sup> cover (Fortes, 2008 as cited in 4NR on CBD, 2009) *Figure 2*
- In the last 50 years, about 30-40% of seagrass areas in the Philippines have been lost (Fortes, 2008).



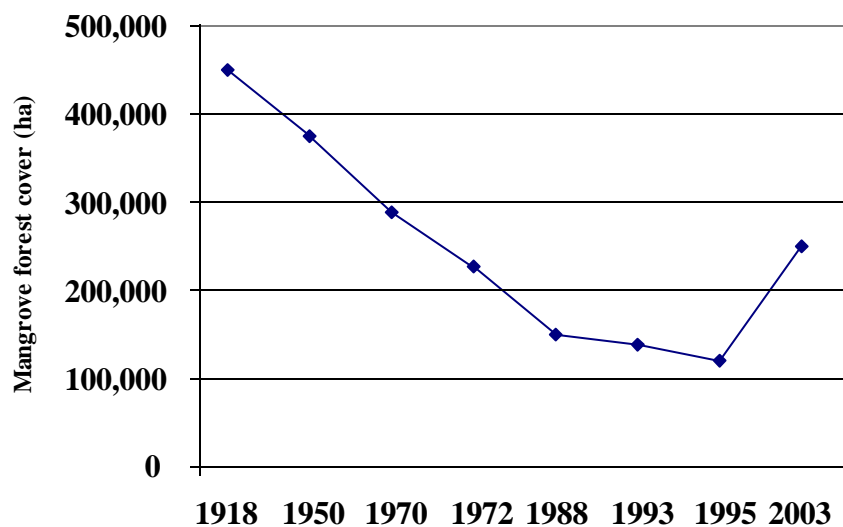
**Figure 2. Seagrass Distribution in the Philippines**  
(Fortes, et al, 2008)

### C. Mangroves

- Separate estimates showed the following data on the coverage of Philippine forested mangrove area:

**Table 1. Estimates of mangrove forest in the Philippines (1918-2009)**

Year	Estimated Area (ha.)	Sources
1918	450,000	Brown and Fischer, 1920
1950	375,020	Aerial photographs (unpublished data)
1970	288,000	DENR, <i>et al</i> , 2001b as cited in BFAR-NFRDI-PAWB, 2005
1972	227,947	LANDSAT
1988	149,400	SPOT
1993	138,000	DENR 1998; as cited in BFAR-NFRDI-PAWB, 2005
1995	120,000	DENR 1998; as cited in BFAR-NFRDI-PAWB, 2005
2003	249,540	Based on Satellite imagery interpreted by NAMRIA/FMB



**Figure 3. State of mangrove cover for all mangrove sites in the Philippines**

Based on the foregoing data, there has been a significant decrease in mangrove forest cover from 450,000 ha in 1918 to about 120,000 ha in 1995 and if post-1980 trend continues, it is expected that there will be less than 100,000 ha by the year 2030 (4NR-CBD, 2009 citing PEM, 2005; White and de Leon, 2004). This significant decline was mainly due to the conversion of mangrove forests to fishponds wherein the Bureau of Fisheries and Aquatic Resources (BFAR) issued Fishpond Lease Agreements (FLAs) in all regions nationwide. A total of 62,834.34 ha of mangrove forest area were

issued with FLAs during the period of 1973 to September 2002 (NAMRIA).

Realizing the considerable loss and the damage that will be brought by the decline of mangrove forest area to the ecosystem and to the community, mangrove replanting/rehabilitation programs have thus been popular, from community initiatives (1930s to 1950s) to government sponsored projects (1970s) to large scale international development assistance programs (1980s to present) (Primavera, 2008). The data reflecting the total cover of mangrove forest area after 2003 onwards are yet to be validated on the ground

***Other Marine Resources/Indicator species for status of Coastal and Marine Resources***

- 5 species of Marine turtles. *Marine turtle nesting sites on beaches have been reduced in area.* (Alcala, 2009)
- 1755 reef-associated fishes species (Fishbase 2008, BFAR-NFRDI-PAWB, 2005)
- 168 species or 10% of cartilaginous fishes in the world
- 820 species of algae (Fishbase 2008, BFAR-NFRDI-PAWB, 2005)
- 648 species of mollusks
- 1062 of seaweeds including sea algae
- 25 species of marine mammals

## Section D

### Mines and Geosciences

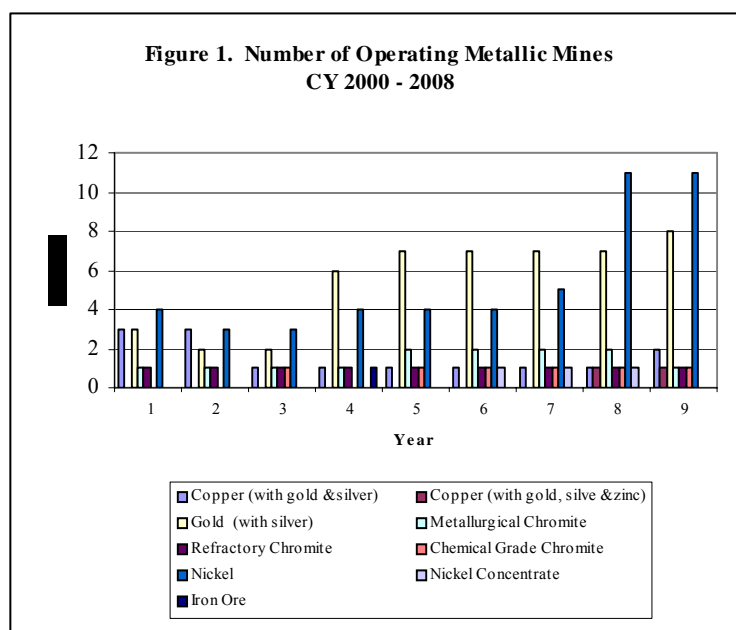
#### Mineral Resources

The Philippines is one of the world's richly endowed countries in terms of mineral resources. According to the Mines and Geosciences Bureau, thirty percent or 9 million hectares of the total land area of the Philippines was identified to be potential sites for mineral deposits. As of 2006, the total metallic mineral resources of the Philippines was estimated at 10.9 billion tons, while the non-metallic mineral resources was estimated at 48.5 billion metric tons and 20.8 billion cubic meters for marbleized limestone and aggregates (Table 1).

According to the Mines and Geosciences Bureau, mineral resources are the lifeblood of any mining operation and their ultimate development spell the success of any mining operation. Technically, however, declared mineral reserves should not be taken as the total mineable reserves because only a few of these are recoverable under a particular mining design and set of operating parameters.

#### Operating Metallic Mines

For the years reviewed, 2000-2008, the number of companies engaged in metallic mining was noted highest in 2007. These totaled to 25, nickel and gold operating mines number the most eleven (11) or 44% of the total for nickel and seven (7) or 28% of the total for gold. The production main stream was composed of eleven (11) nickel mines, seven (7) primary gold with silver by product, two (2) copper mines with gold, silver and zinc by-product, two (2) chromite mines, a processing plant, and a polymetallic mine. According to the Mineral Production Review, Mines and Geosciences Bureau, this positive outlook enjoyed by the metallic mining sector was due to the overwhelming increase in the world metal prices of gold, silver, copper and nickel which began in 2006. Mineral analyst attribute this dramatic change in the world metal prices to the demand for metal and base metal of the growing economies in Asia, particularly in industrialized China vis-à-vis the world supply's inability to cope with current demand. Figure 1.



Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau (MGB)

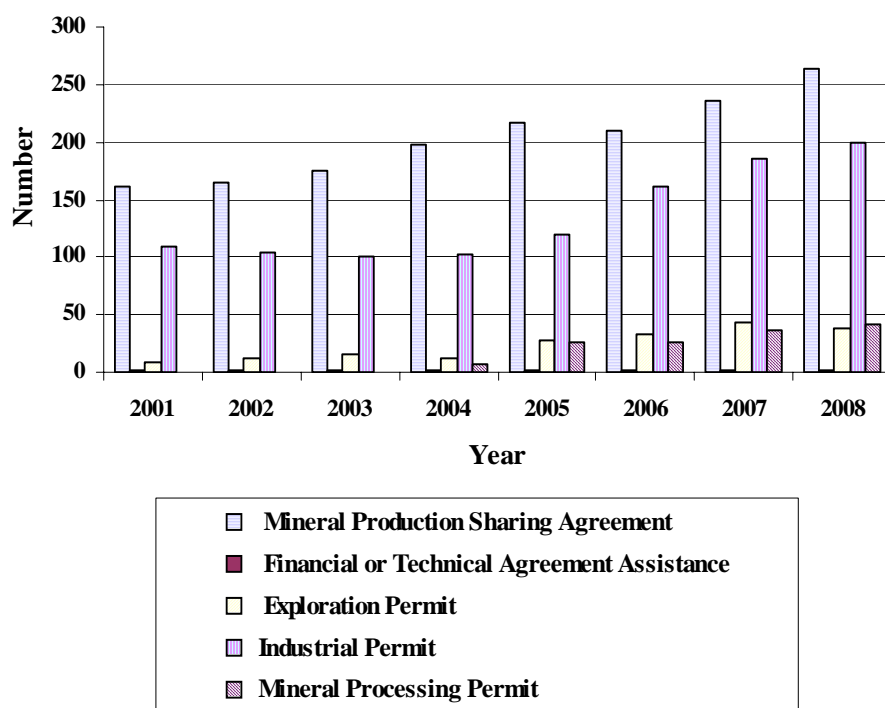


Table 2 shows that while the total number of operating metallic mines at an increasing trend, noted that the biggest increased was in 2007 by 38.89% from 18 in 2006 to 25 in 2007. The increase resulted from an expansion of the number of operating nickel mines from five (5) to eleven (11) and the addition of a new operating copper mines with gold, silver & zinc. This is due to the favorable prices of these metals in the world market. The average world price of nickel increased by 54.78% from \$10.88/lb in 2006 to \$16.84/lb in 2007 (Mineral Industry Statistics as of 15 January 2010, Mines and Geosciences Bureau).

### Approved/Registered Mining Permits/Agreements

As of 2008, total number of approved/registered mining permits/agreements posted an 8.13% increase from last year's 504. This was affected by the consistent efforts of the Bureau of Mines and Geosciences to revitalize the mining industry. The continued simplification of procedures in the processing and the cleansing of idle mining applications have contributed to the overall positive performance of the sector. These numbers of approved/registered mining permits/agreements resulted in the additional investment of some Php 600 M for the next two to three years.

**Figure 2. Number of Permits/Agreements Approved/Registered  
As of 2008**



Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau

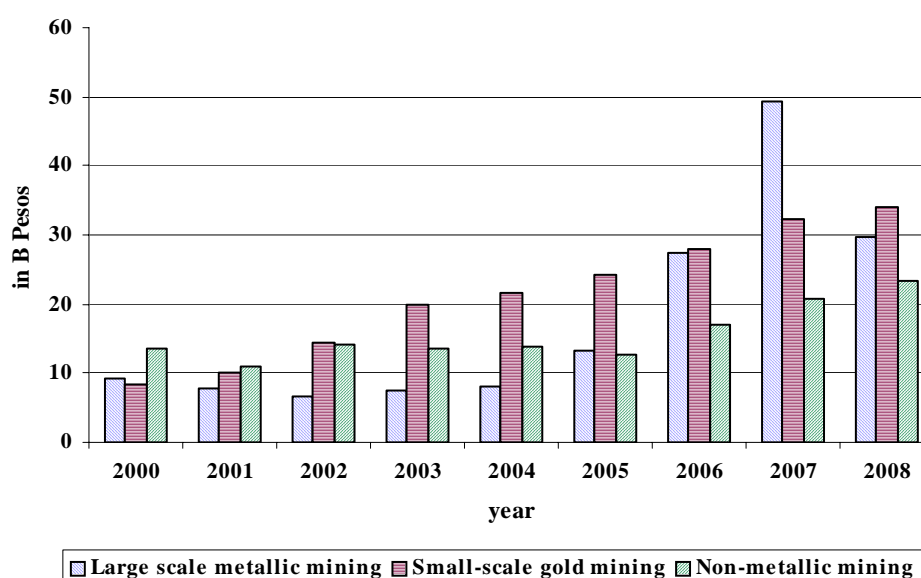
Table 3 shows the total number of permits/agreements approved/registered from 2001 to 2008. The increase was highest in 2007 by 16.94% or seventy-three (73) permits/agreements more, from 431 in 2006 to 504 in 2007. Correspondingly the number of Mineral Production Sharing Agreements (MPSA) rose in 2007 by 27 from 209 in 2006, Exploration Permits (EP) by 10 from 33, Industrial Permits (IP) by 24 from 161 and Mineral Processing Permits (MPP) by 35 from 2006 (Mineral Industry Statistics as of 15 January 2010, Mines and Geosciences Bureau).

## Mineral Production

Since metal demand depends largely on the industrialization of the local and international economies, for the years reviewed 2000-2005, it was observed that the overall performance of the gross production value of large scale metallic mining and small scale gold mining grew in a lackluster pace as the economies of the world suffered from the global financial crises.

The years 2006-2008 painted a different picture, however, as the prices of metals in the world market made a jumpstart due to demand for metals by growing economies began to increase. Noted that for the same years the gross production value of non-metallic mining exhibited steady gains as the construction industry created a high market demand for sand, gravel and cement raw materials (Mineral Production Review and Mineral Industry Statistics) (Figure 3).

**Figure 3. Gross Production Value in Mining  
of Large-Scale Metallic Mining, Small-Scale Gold Mining  
& Non-Metallic Mining  
CY 2000-2008**



Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau (MGB)

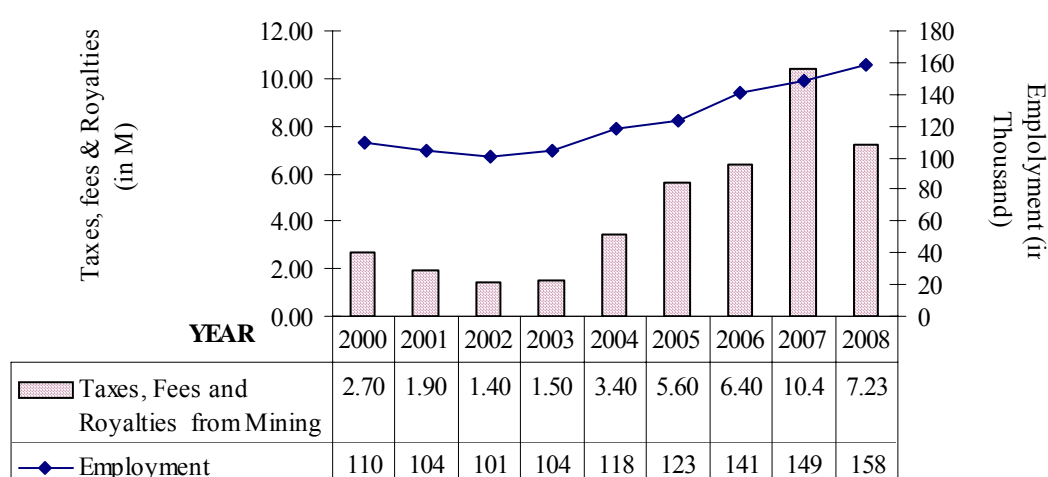
Table 4. shows gross production value in mining of large-scale metallic mining, small-scale gold mining and non-metallic mining, CY 2001-2008. The biggest increase posted by the gross production value in mining was in 2007 by 40.96% or 29.7 billion pesos from 72.5 billion pesos in 2006. . The overall increase in the gross production value in mining is seen as the result of the revitalization of the industry and the increasing trend of the metal prices in the world market.

For 2007, gross production value of the large-scale metallic mining of 49.2 billion pesos accounted for 48.14% of the total 102.2 billion pesos. Small-scale gold mining gross production value posted 32.2 billion pesos which accounted for 31.51% of the total. The gross production value of non-metallic mining contributed 20.35% of the total or 20.8 billion pesos.

### Benefits from the Mining Industry

Figure 4 shows the trend of the industry's contribution to the local and national government by way of employment and taxes, fees and royalties. During the years in review, employment in mining and quarrying sector was on an increasing trend at an average rate of 4.83% per year. The highest employment recorded was noted during 2008 at 158 Thousand. However, employment in 2006 posted the highest percent increase of 14.63% from the 123,000 employed in 2005 to 141,000 in 2006. The highest taxes, fees and royalties collected by the industry during the nine year period was recorded in 2007 amounting to Php 10.4 M, 12.50% increase from the Php 6.4 M collected in 2006. Noted that in 2007, the gross production value also posted its highest level for the years reviewed.

**Figure 4 . Employment and Taxes, Fees & Royalties  
from Mining CY 2000 -2008**



Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau (MGB)

## **Geohazard**

Geohazard assessment and mapping aims to generate information on the vulnerability of certain areas to various types of geologic and natural hazards and make this basic information available to authorities responsible for physical framework and land use planning, land use classification and allocation (by LGUs), project development and disaster preparedness, management and mitigation.

Table 5 is the summary of the number of municipalities/cities assessed and mapped for geohazard vulnerability from pre CY2005 to CY2008, while Table 5.a. shows the provinces and number of municipalities/cities assessed and mapped for geohazard vulnerability, for CY 2006 to 2008 from the Mines and Geosciences Bureau.

2006 posted the most number of municipalities/cities assessed and mapped for geohazard vulnerability, 486 regionwide and 13.99% or 68 of these were in Region 8. Included were the municipalities/cities in the provinces of Biliran, Eastern Samar, Leyte, Northern Samar, Samar and Southern Leyte. While Regions 8 and 12 posted the least, with 13 municipalities/cities each, assessed and mapped for geohazard vulnerability. In Region 6, included were the municipalities/cities in the provinces Capiz & Iloilo and Sarangani, South Cotabato and Sultan Kudarat for Region 12.

In 2008, the central office of the Bureau conducted their own assessment and mapping activities for geohazard vulnerability in eight provinces nationwide. Included were the province of Laguna, Batangas, Zamboanga del Sur, Antique Province, Zambales, Bulacan, Cagayan and Isabela. This were done in a total of seventy-four (74) municipalities/cities and they accounts for 29.36% of the total 252 municipalities/cities assessed and mapped for geohazard vulnerability for 2008.

Cited in the Accomplishment Report for CY 2008 of the Bureau, a total of 252 municipalities covering 4,585 barangays were assessed for susceptibility to landslides as well as flooding/flashflooding. Advisories and appropriate warnings were given to each barangays assessed by the MGB technical personnel Central and Regional Office. Areas covered during the period resulted in the completion of the mapping in the provinces of Cagayan Valley, Isabela, Zambales, Laguna, Antique and Zamboanga del Sur. Thirty (30) 1:10,000 scale geohazard maps have been prepared, six of which include the quadrangles covering Cavite province..

Detailed (1:10,000 scale) landslide geohazard mapping were conducted in Rizal Province covering three (3) quadrangles: Montalban, San Mateo and San Rafael.

Results of recently completed geohazard assessment and mapping of priority municipalities were presented in a province-wide seminar/workshop on Community-based Hazard Mapping and Disaster Preparedness in Bohol, Cavite, Aurora, Pampanga, Ilocos Norte and Laguna. These seminar/workshop were participated by Barangay officials, representatives from municipalities/cities and teachers/ educators with the province concerned. Geohazard IEC materials such as maps, posters, VCD's, pamphlets were disseminated to concerned LGUs.

Advisories/appropriate warnings were given to each barangay assessed. Advisory letters were also given to barangay officials informing them of the geohazards in their areas together with landslide awareness posters and flyers on floods.

The bureau have assessed at least 170 relocation sites identified in the region and some were recommended favorable for relocation sites. Among the observations during the assessment are sites considered suitable for housing development and sites excluded from development due to steep slopes.

Detailed landside hazard zonation identified sites that are most prone to landslides. Warning signages were installed in these sites to warn the populace of such events.

The MGB provides resource persons to the National Disaster Coordination Council to provide technical information on geological hazards. Thru the READY project, the bureau provides assistance to the Council in terms of technical assistance and when needed by sending a team to evaluate geohazards in affected areas.

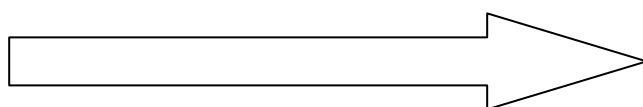
### **Mine Waste and Mill Tailings**

The mining operation generates mine waste and mill tailings in recovering the desired minerals from the ores. During the period 2000-2008 about 21M MT of mine waste and 99M MT of mill tailings were disposed in mine waste dumps and tailing ponds, respectively amounting to 10.2 million pesos. These were generated various from operating mines and quarries in the country (Table 6).

According to the Mining Environment & Safety Division (MESD), of the Mines & Geosciences Bureau (MGB) the contingent liability mechanism for damages resulting from mill tailings and mine waste dumps is provided for in Republic Act No. 7942, also known as the Mining Act of 1995, and is incorporated in the Contingent Liability and Rehabilitation Fund (CLRF). It imposes Mine Waste and Tailings Fees (MWTF) on operating mining companies in the Philippines in the amount of P0.05/MT for mine waste and P0.10/MT for mill tailings. The amount collected accrues to a Reserve Funds utilized to compensate for the pollution related damages caused by mining. The penalty of P50.00/MT for the unauthorized release of tailings is also imposed. However, engineered and well maintained mine waste and mill tailings disposal systems and volumes of mine waste and mill tailings utilized for mine related infrastructures or projects are exempted from payments of fees.

Compensable damages under the Mining Act refer to those damages cause by mine waste and mill tailings on lives and personal safety, lands, agricultural crops and forest products, marine life and aquatic resources, cultural and human resources; and infrastructures and the revegetation and rehabilitation of silted farm land and other areas devoted to agriculture and fishing.

# Statistical Tables



**Table 1. Metallic and Non-Metallic Mineral Resources/Reserves of the Philippines, CY 2006**

Mineral Resources/Reserves	Unit Used	Estimated Resources
<b>Metallic</b>		
Gold	Tonnage	3,868,729,379
Copper	Tonnage	5,050,616,007
Nickel	Tonnage	782,776,125
Chromite	Tonnage	37,892,797
Iron	Tonnage	483,410,402
Manganese	Tonnage	2,839,810
Aluminum (Bauxite)	Tonnage	433,880,640
Zinc	Tonnage	11,447,121
Molybdenum	Tonnage	306,081,200
<b>Non-Metallic</b>		
Limestone	Metric tons	43,058,026,276
Marblized /Limestone Marble	cu.m.	12,043,174,018
Aggregate	cu.m.	8,813,715,426
Shale	Metric tons	2,536,375,523
Silica	Metric tons	2,162,155,104
Clay	Metric tons	496,064,365
Magnesite	Metric tons	79,091,340
Sulphur	Metric tons	63,197,464
Feldspar	Metric tons	32,743,530
Bentonite	Metric tons	17,096,115
Zeolite	Metric tons	13,765,939
Perlite	Metric tons	8,616,264
Abestos	Metric tons	5,767,120
Diatomeous Earth	Metric tons	4,725,300
Gypsum	Metric tons	2,437,910
Guano/Rock Phosphate	Metric tons	811,160
Talc	Metric tons	511,650

*Source: Mines Feasibility Evaluation Section, Mining Technology Division, Mines and Geo-sciences Bureau*

**Table 2. Number of Operating Metallic Mines  
CY 2000-2008**

Resources	Years								
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Copper (with gold & silver)	3	3	1	1	1	1	1	1	2
Copper (with gold, silve & zinc)	0	0	0	0	0	0	0	1	1
Gold (with silver)	3	2	2	6	7	7	7	7	8
Metallurgical Chromite (ore & concentrate)	1	1	1	1	2	2	2	2	1
Refractory Chromite	1	1	1	1	1	1	1	1	1
Chemical Grade Chromite	0	0	1	0	1	1	1	1	1
Nickel	4	3	3	4	4	4	5	11	11
Nickel Concentrate	0	0	0	0	0	1	1	1	0
Iron Ore	0	0	0	1	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>10</b>	<b>9</b>	<b>14</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>25</b>	<b>25</b>

*Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau (MGB)*



**Table 3. Number of Permits/ Agreements Approved/Registered**  
**As of 2008**

Type of Permits/ Agreements Approved/Registered	Years							
	2001	2002	2003	2004	2005	2006	2007	2008
Mineral Production Sharing Agreement	162	164	175	198	216	209	236	264
Financial or Technical Agreement Assistance	2	2	2	2	2	2	2	2
Exploration Permit	9	13	16	13	28	33	44	39
Industrial Permit	109	104	101	103	120	161	185	199
Mineral Processing Permit	0	0	0	7	26	26	37	41
<b>Total</b>	<b>282</b>	<b>283</b>	<b>294</b>	<b>323</b>	<b>392</b>	<b>431</b>	<b>504</b>	<b>545</b>

*Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau (MGB)*

**Table 4. Gross Production Value in Mining of Large-Scale Metallic Mining, Small-Scale Gold Mining  
Non-Metallic Mining: CY 2001 - 2008  
(in Billion Pesos)**

Type of Mining Operation	Years								
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Large scale metallic mining	9.2	7.8	6.7	7.5	8.0	13.2	27.4	49.2	29.7
Small-scale gold mining	8.3	10.0	14.3	19.9	21.5	24.2	28.1	32.2	33.9
Non-metallic mining	13.5	10.9	14.2	13.7	13.9	12.8	17.0	20.8	23.4
<b>Total</b>	<b>31.0</b>	<b>28.7</b>	<b>35.2</b>	<b>41.1</b>	<b>43.4</b>	<b>50.2</b>	<b>72.5</b>	<b>102.2</b>	<b>87.0</b>

*Source: Mineral Economics, Information & Publication Division (MEIPD), Mines & Geosciences Bureau (MGB)*

**Table 5. Summary of the Number of Municipalities/Cities Assessed  
and Mapped for Geohazard Vulnerability  
Pre-CY2005 -CY2008**

Year	Municipalities/ Cities
Pre-2005	65
2005	145
2006	486
2007	291
2008	252

*Source: Planning and Policy, Mines and Geosciences Bureau*

**Table 5.a. Number of Province and Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability**  
**CY 2006 -2008**

Office/Region	Province	2006	2007	2008
Central Office	Laguna			74
	Batangas			4
	Zamboanga del Sur			9
	Antique Province			8
	Zambales			11
	Bulacan			9
	Cagayan			14
	Isabela			7
				12
CAR		24	25	10
	Abra	8	20	
	Apayao	5		4
	Benguet	5	2	4
	Ifugao			2
	Kalinga	3	2	
	Mt. Province	3	1	
1		25	33	10
	Ilocos Norte	8	23	
	Ilocos Sur	4		8
	La Union	5	10	
	Pangasinan	8		2

**Table 5.a. Number of Province and Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability (continued)**  
**CY 2006 -2008**

Office/Region	Province	2006	2007	2008
2		29	14	10
	Cagayan	13		6
	Isabela	10	3	4
	Nueva Vizcaya	3	4	
	Quirino	3	7	
3		49	38	20
	Aurora		8	
	Bataan	2	4	2
	Bulacan	8	1	2
	Nueva Ecija	17	14	6
	Pampanga	14	9	
	Tarlac	8		7
	Zambales		2	3
4A		43	23	15
	Batangas	2	2	8
	Cavite		3	7
	Laguna	9	18	
	Quezon	29		
	Rizal	3		
4B		42	15	10
	Marinduque	6		
	Occidental Mindoro	9		4
	Oriental Mindoro	14	2	
	Palwan		13	6
	Romblon	13		

**Table 5.a. Number of Province and Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability (continued)**  
**CY 2006 -2008**

Office/Region	Province	2006	2007	2008
5		50	21	18
	Albay	12	2	
	Camarines Norte	12		
	Camarines Sur	21	5	
	Catanduanes		8	
	Masbate			18
	Sorsogon	5	6	
6		13	17	11
	Aklan		1	
	Antique			6
	Capiz	6		
	Iloilo	7	15	5
	Negros Occidental		1	
7		21	48	15
	Bohol	5	46	
	Cebu	4	2	15
	Negros Occ.	6		
	Negros Or.	6		
8		68	2	10
	Biliran	8		
	Eastern Samar	3		
	Leyte	33		
	Northern Samar	2	2	10
	Samar	3		
	Southern Leyte	19		

**Table 5.a. Number of Province and Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability (continued)**  
**CY 2006 -2008**

Office/Region	Province	2006	2007	2008
9		18	10	10
	Zamboanga del Norte	2	4	
	Zamboanga del Sur	7	3	10
	Zamboanga Sibugay	9	3	
10		15	2	10
	Bukidnon			3
	Camiguin	3		
	Lanao del Norte	3		
	Misamis Occidental	6		
	Misamis Oriental	3	2	7
11		22	1	10
	Compostela Valley	8		2
	Davao del Norte		1	1
	Davao del Sur	3		7
	Davao Oriental	11		
12		13	32	12
	North Cotabato		18	
	Saranggani	4		7
	South Cotabato	5	11	1
	Sultan Kudarat	4	3	3

**Table 5.a. Number of Province and Municipalities/Cities Assessed and Mapped for Geohazard Vulnerability (continued)**  
**CY 2006 -2008**

Office/Region	Province	2006	2007	2008
13		54	10	7
	Agusan del Norte	12		
	Agusan del Sur	14		
	Siargao			7
	Surigao del Norte	9	10	
	Surigao del Sur	19		
<b>Philippines</b>		<b>486</b>	<b>291</b>	<b>252</b>

*Source: Planning and Policy, Mines and Geosciences Bureau*



**Table 6. Summary of the Volume of Mine Waste\* and Mill Tailings\*\*  
in MT and the Amount Collected in Pesos  
CY 2000 - 2008**

<b>Year</b>	<b>Mine Waste (MT)</b>	<b>Mill Tailings (MT)</b>	<b>Amount Collected (PhP)</b>
2000	3,797,611	14,352,634	1,758,112
2001	5,994,384	17,464,478	1,081,490
2002	2,410,578	8,652,864	727,479
2003	1,809,761	12,562,052	999,858
2004	529,568	4,903,875	1,000,287
2005	1,047,276	9,630,052	1,033,586
2006	1,518,621	9,677,183	1,131,590
2007	3,311,440	11,324,833	1,298,729
2008	939,693	10,715,738	1,124,557
<b>Total</b>	<b>21,358,932</b>	<b>99,283,709</b>	<b>10,155,688</b>

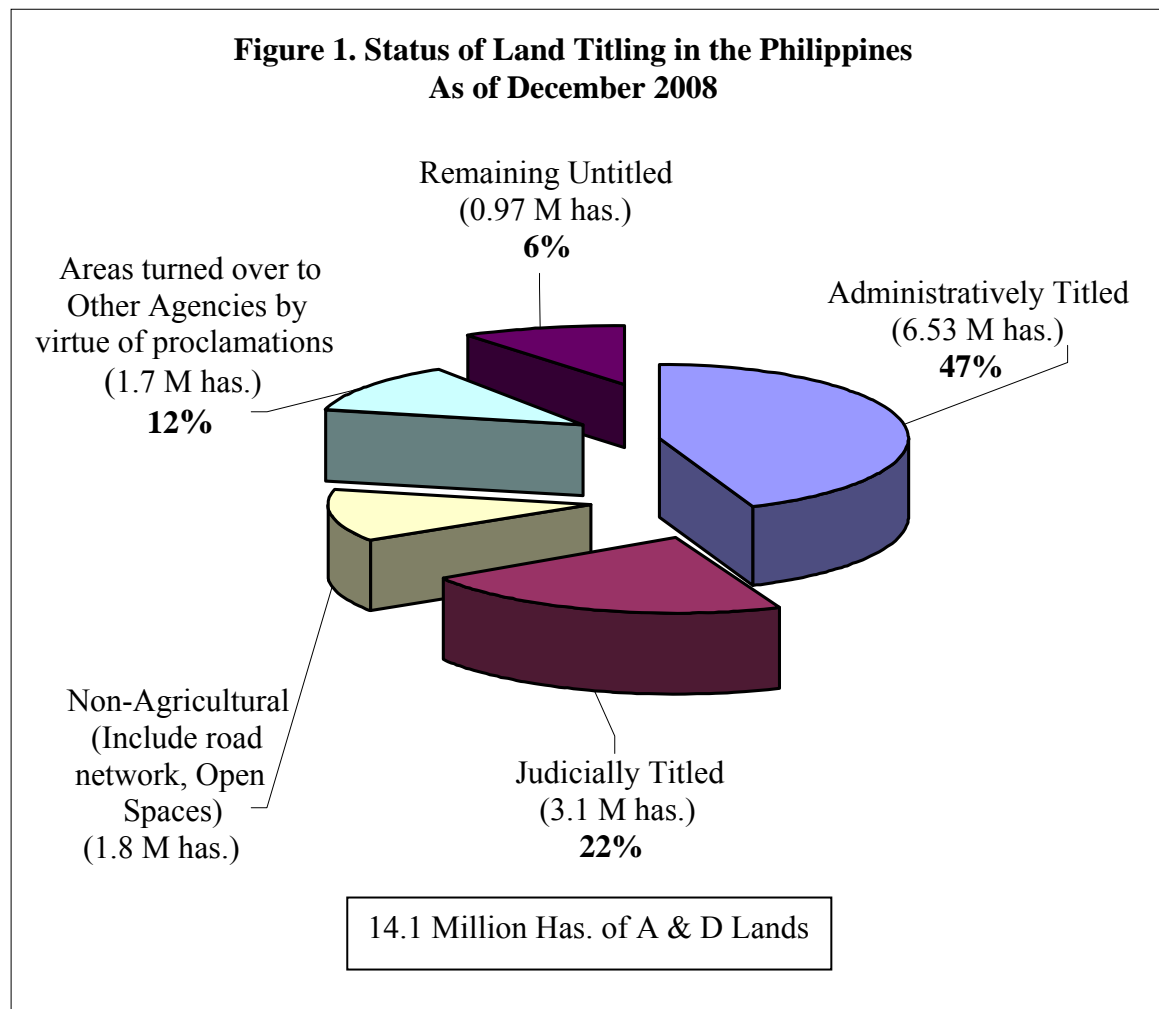
Source: Mining Environment and Safety Division, Mines and Geo-Sciences Bureau

## Section E

### Lands

Our land resources are finite. Based on the land classification data of NAMRIA, we have a total land area of about 30 million hectares. However, only 47 percent or 14.1 million hectares of this area can be alienated, disposed or be subjected to settlements, production and other purposes. Out of the 14.1 million hectares of A & D lands, 9.63 million hectares have been titled; from the remaining untitled, around 1.8 million hectares are non-agricultural lands that include road networks and open spaces and 1.7 million hectares are covered by Presidential Proclamations. The remaining 0.97 million hectares are targeted for disposition in the next four years (Figure I, Table I).

The survey, management and disposition of Alienable and Disposable (A & D) lands and other government lands not placed under the jurisdiction of other government agencies is the responsibility of the Lands Management Bureau (LMB).

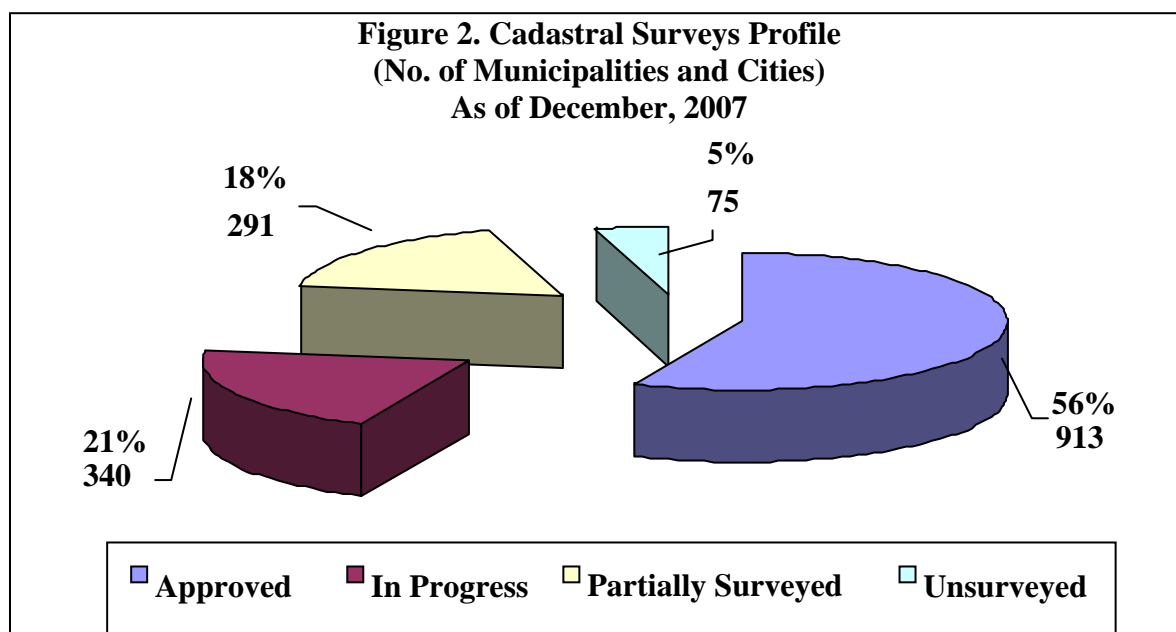


Source: 2008 Accomplishment Report, PDED-PPSO

## Land Surveys

As of December 31, 2007, out of 1,619 municipalities and cities in the country, 913 cities/municipalities or 56.10 percent were the approved cadastral surveys, 340 cities/municipalities or 20.90 percent were work in progress, 291 cities/municipalities or 17.88 percent were partially surveyed, 75 municipalities or 4.60 percent were unsurveyed and the remaining 8 or 0.50 percent were still uncategorized. (See Figure 2, Table 2). In 2007 the total no. of municipalities/cities have change in number of approved cadastral survey from 916 to 913 and Office Verification/In Progress municipalities./cities from 336 to 340 due to discrepancies on reports from regional offices. Change in total number of municipalities/cities from 1,617 to 1618 CY 2004-2006 is due to the newly created municipality of Lumbaca-Unayan carved out from the municipalities of Bayang Landing and Lumbatan both in the Province of Lanao del Sur. Change in total number of municipalities/cities from 1,618 to 1,627 is attributed to the creation of 9 municipalities of ARMM, wherein the DENR-LMB ARMM Director did not categorized 8 out of 9 whether it is AS/PS/IP/US.

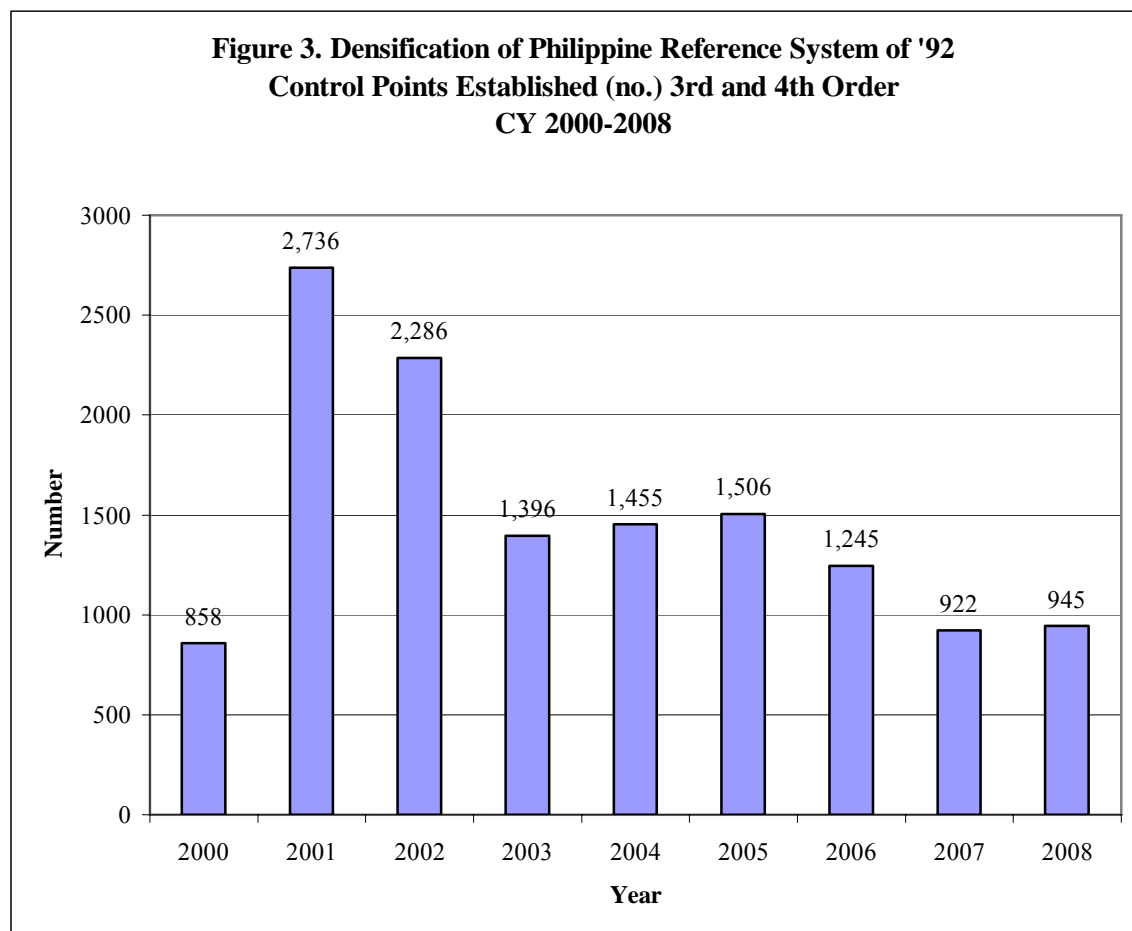
The DENR's Issuance of Administrative Order No. 2001-23 dated August 29, 2001 returned to the DENR, through the Lands Management Bureau the devolved survey functions which is expected to hasten the completion of the cadastral survey of the entire country that remained stagnant for almost 10 years.



Source: Technical Bulletin No. 7, Geodetic Survey Division, LMB

Pursuant to Executive Order (EO) No. 45 dated January 5, 1993 and amended by EO 321 dated July 2, 2004, which prescribes the adoption of the Philippine Reference System (PRS) of '92 as the standard reference systems of survey in the Philippines, a total number of 945 reference points for the 3<sup>rd</sup> and 4<sup>th</sup> orders were already established as of December 2008. This brings the total reference points established to 16,045 or 12.74 percent of the total target of 125,859 reference points which are programmed to be established all over the country up to 2012 (Figure 3).

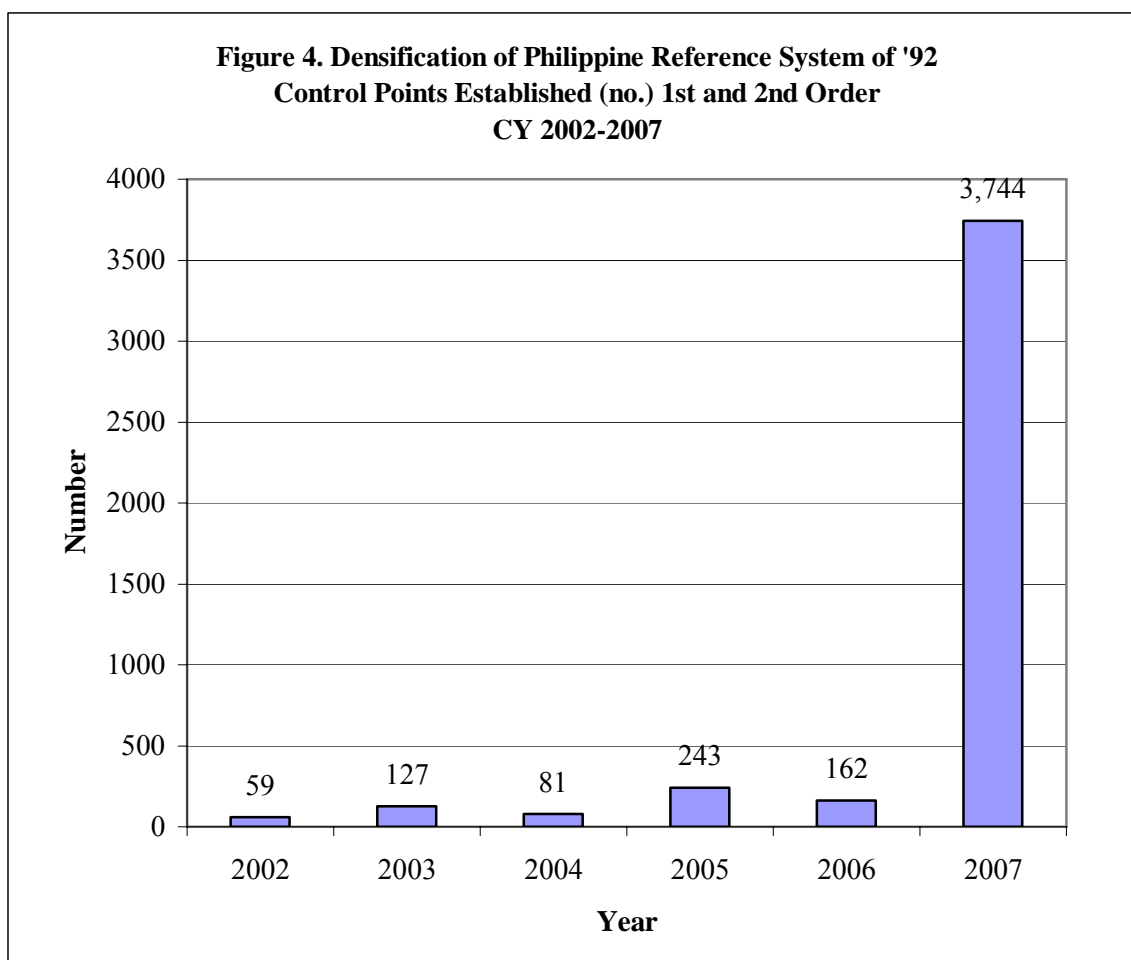
At the regional front, Regions 7 and 13 (Caraga) registered the highest number of reference points established with 114 each as of December 2008. Region 9 followed with 106 and Regions 2 and 3 with 100 each. Region 1 registered the lowest established



reference points with only 9 (Table 3).

*Source: Accomplishment Report, PDED-PPSO*

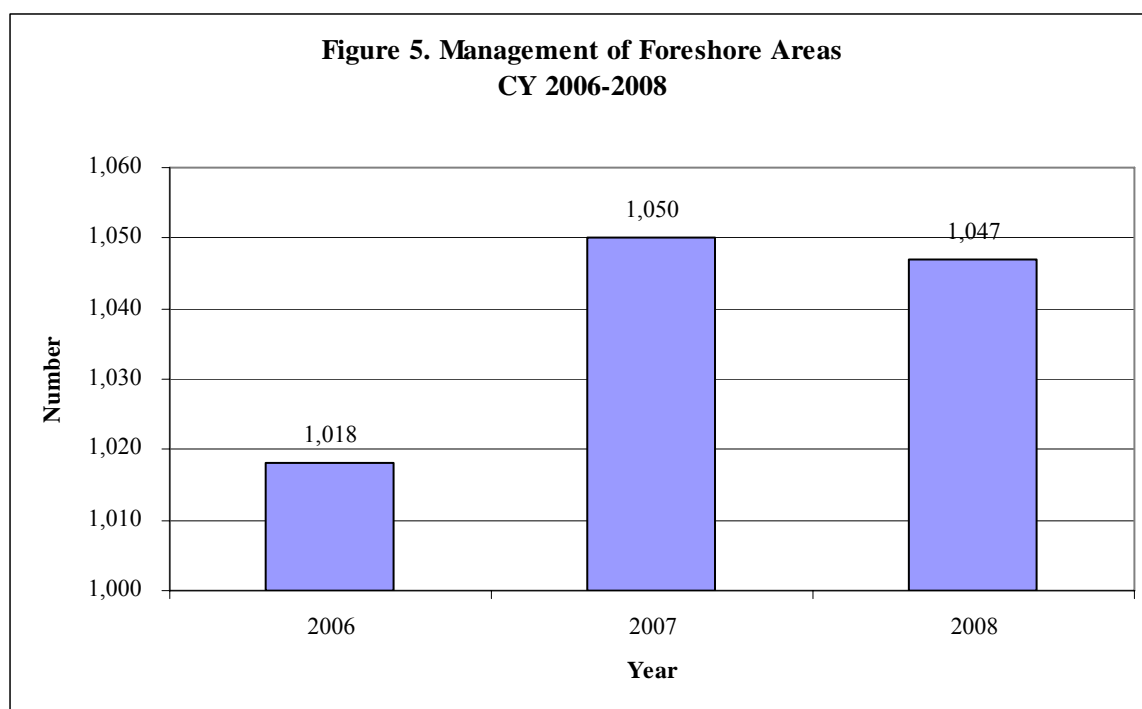
In relation to amended E.O. # 321 dated July 2, 2004 which mandates the adoption of PRS '92 as the standard system for all surveys in the country, the National Mapping and Resource Information Authority (NAMRIA) established 162 Geodetic Control Points for the 1<sup>st</sup> and 2<sup>nd</sup> Orders under the Philippine Geodetic Network for CY 2007 with a total no. of 5,236 Geodetic Control Points established or 127 percent of the total target of 4,117 Geodetic Control Points to be established up to 2010. (Figure 4, Table 4)



*Source: Accomplishment Report, PDED-PPSO*

Foreshore areas are part of the shore, which is alternately covered and uncovered by the ebb and flow of the tide. The improper management of foreshore areas has contributed to the economy's financial crisis due to loss in income caused by non-collection of rental fees from lease of public lands, foreshore lands and other valuation of lands subject to disposition and lease agreement.

To properly manage and increase revenue collection, the government gave priority activities on the issuance of lease contracts or provisional permits to those occupants of foreshore areas. As shown in Figure 5, there were 1,047 contract/permits issued for the use/occupation and management of foreshore areas nationwide with 120 percent accomplishment of the target for the year. On a regional basis, Region 5 had the most number of contract/permits issued with 202 followed by Region 1 with 189, While Regions 11 and 9 had the least number of contract/permits issued with 9 and 6, respectively. (Table 5)



Source: Accomplishment Report, PDED-PPSO

On the other hand, the Foreshore Areas inventoried from 2000 to 2006 totaled, 15,307 hectares averaging at 2,187 hectares per year. For 2006, a total of 74 hectares of foreshore area was inventoried by Region 6 and Region 7 with 47 and 27 of foreshore areas inventoried respectively. In calendar year 2007, only Region 5 reported foreshore areas with six (6) coastal municipalities in the Bicol Region were inventoried. (Table 5.1)

With regards to patrimonial properties (residential, commercial, and industrial) owned by the government in its private capacity and disposed through lease/sale to actual occupants and qualified beneficiaries had been managed. From 2006 to 2008 a total of 898 number of deeds/lease contracts processed/issued (Table 6). Ascending trend can be observed in the period covered. In 2008, a total of 373 number of deeds/lease contracts issued. Region 3 had the most number of deed/lease issued with 150, followed by Region 7 with 83 and Regions 12 and 9 had the least number of deeds/lease contract issued with 2 and 1, respectively.

## Land Disposition

In an effort to fast track the issuance/approval of land patents/titles, the DENR formally issued Administrative Order (DAO) No. 2002-20 which restored the signing authority from the DENR Secretary to the Regional Executive Directors (RED). As a result of this, patents issued for Public Agricultural Lands significantly accelerated from 2,137 in 2001 to 81,936 in 2002 or a 3,734 percent increase. From 2002 to 2008, patent issuances posted an annual average increase of 10.61 percent (Table 7). For 2008, Region 8 issued the highest number of patents with 11,297 while Region 6 issued the least numbers with 4,074 patents. In addition a total of 8,580 patents covering 2,975.72 hectares were issued under the Land Administration and Management Project (LAMP) in CY 2008. (Table 7.1)

With the issuance of DAO No. 2003-15 which reaffirmed the authority for the REDs and Provincial Environment and Natural Resources Officers to approve titles for residential, commercial and industrial lands, 3,977 lots were issued titles in 2008 compared to 3,282 issuances in 2007. Region 3 issued 1,000 titles in 2008 while only 43 were issued in Region 5 during the same period. (Table 7.2)

The Issuance of special patents for School Sites is another priority program of President Gloria Macapagal Arroyo. Prior to the issuance of special patents, a Presidential Proclamation is required and the preliminary activities such as investigation, sketches or plan of the area of location, certifications and clearances from other government agencies and preparation of draft proclamation are done in the regional level. The identification of School Sites is a Regional Offices activity undertaken by the Land Management Division. For CY 2008, the Regional Offices identified and processed two hundred twenty one (221) applications for school sites with 118 percent accomplishment for CY 2007 with 187. A draft proclamation for each lot was prepared for endorsement to the Land Management Bureau (LMB), who will review the validity prior to the proclamation and issuance of Special Patent. (Table 8)

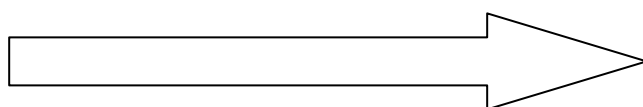
One of the ten-point agenda of the Arroyo Government is to provide socialized housing. In calendar year 2007 the regional offices was given a target to identify at least three sites. The Land Management Division in the regional offices identified three sites and prepared draft proclamation for each site and endorsed to the Land Management Bureau. For CY 2008 there were 59 sites identified for socialized housing nationwide, with 107 percent accomplishment of the target for the year. (Table 9)

The disposition of land cases is performed by the bureau to resolve land cases involving rights conflicts of public land applicants. From 2000 to 2007, a total of 5,382 claims and conflicts were investigated. In 2007, 86 land claims and conflict cases investigated, with 866 cases resolved/decided in calendar year 2008. (Table 10) A descending trend can be observed in the cases investigated in the period covered. CAR had the most number of cases investigated with 661 followed by Region 1 with 646.

In terms of the number of cases resolved, a total of 4,870 cases were resolved from 2000 to 2008. Most of these resolved cases were in region 3 with 120 followed by Region 13 (Caraga) with 80. On the other hand, the region with the least number of land cases resolved was Region 4-B with 23 cases.

The DENR likewise launched the Oplan Fake Titles Project with the issuance of Special Order No. 2002 – 308 dated April 19, 2002 to stop or minimize the rising incidence of land frauds and land titling anomalies in the country. Preventive action is undertaken by keeping people informed on how to detect fake titles. It created a Special committee to look into fake titling. With this, the Bureau investigated a total of 5,503 cases from 2000 to 2007 with Region 7 reporting 1,329 cases and Region 10 with 33 cases. In 2000, there were 2,177 cases of fake titles investigated while only 5 cases were investigated in 2007. A decreasing trend of cases on fake title can be observed from 2000 to 2007. Likewise, decreasing trend of cases of fake titles were filed in the Office of the Solicitor General (OSG) from 2000 to 2007. In 2000, the number of cases filed in the OSG posted a total of 1,656 while 14 were posted in 2007. Most of these cases were reported in Region 7 with 627 while only 1 case was reported in Region 12 (Table 11).

# Statistical Tables





**Table 1. Status of Land Titling in the Philippines**  
**As of December 2008**

Land Titling Status	Area (in million has.)
Administratively Titled	6.53
Judicially Titled *	3.1
Non-Agricultural (include road, network, open spaces) *	1.8
Areas Turned Over to Other Agencies by Virtue of Proclamations *	1.7
Remaining Untitled	0.97
<b>Total</b>	<b>14.1</b>

Note: \* As of December 2005

Source: *Accomplishment Report, Project Development and Evaluation Division*  
*Planning and Policy Service*

**Table 2. Cadastral Surveys Profile**  
**CY 2003-2007**

Municipality/City	2003					2004					2005				
	AS	IP	PS	US	Total	AS	IP	PS	US	Total	AS	IP	PS	US	Total
Municipalities	827	321	280	72	<b>1,500</b>	827	320	282	74	<b>1,503</b>	827	320	282	74	<b>1,503</b>
Cities	89	16	9	0	<b>114</b>	89	16	9	0	<b>114</b>	89	16	9	0	<b>114</b>
Total No. of Municipalites./Cities	916	337	289	72	<b>1,614</b>	916	336	291	74	<b>1,617</b>	916	336	291	74	<b>1,617</b>

Municipality/City	2006					2007				
	AS	IP	PS	US	Total	AS	IP	PS	US	Total
Municipalities	825	323	282	74	<b>1,504</b>	811	321	281	75	<b>1,488</b>
Cities	88	17	9	0	<b>114</b>	102	19	10	0	<b>131</b>
Total No. of Municipalites./Cities	913	340	291	74	<b>1,618</b>	913	340	291	75	<b>1,619</b>

Legend: AS - Approved Cadastral Surveyed  
IP - In Progress Cadastral Surveys  
PS - Partially Surveyed  
US - Unsurveyed (Cadastre)

*Source: Technical Bulletin No. 7, Lands Management Bureau*

**Table 3. Densification of Philippine Reference System of '92, Control Points Established, 3rd & 4th Order  
CY 2000-2008**

Region	PRS '92 Control Points Established (no.) 3rd and 4 <sup>th</sup> Order								
	2000	2001	2002	2003	2004	2005	2006	2007	2008
NCR	-	-	-	-	-	5	6	6	-
CAR	-	-	185	145	188	115	101	60	62
1	15	120	83	60	64	65	64	9	9
2	47	448	157	180	162	198	164	100	100
3	54	150	100	100	100	109	88	90	100
4-A	117	226	-	32	25	30	72	30	30
4-B	*	*	112	34	24	30	30	16	12
5	84	74	75	94	91	88	190	90	90
6	131	230	200	156	175	213	103	56	59
7	-	126	238	158	90	118	86	114	114
8	88	160	86	77	34	22	12	12	12
9	60	186	168	76	101	115	54	130	106
10	-	174	115	142	176	126	114	48	52
11	176	444	698	100	126	139	76	48	39
12	14	190	35	28	84	85	68	53	46
Caraga	72	208	34	14	15	48	17	60	114
<b>Philippines</b>	<b>858</b>	<b>2,736</b>	<b>2,286</b>	<b>1,396</b>	<b>1,455</b>	<b>1,506</b>	<b>1,245</b>	<b>922</b>	<b>945</b>

\* included in Region 4-A

- no activity

Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service

**Table 4. Densification of Philippine Reference System of '92  
Control Points Established, 1st and 2nd Order**

Region	PRS '92 Control Points Established (no.)					
	1st and 2nd Order					
	2002	2003	2004	2005	2006	2007
Total	59	127	81	243	162	3,744

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 5. Management of Foreshore Areas**  
**CY 2006-2008**

Region	Contract/Permits Issued (no.)		
	2006	2007	2008
NCR	1	-	
1	138	91	189
2	30	30	32
3	28	38	30
4-A	39	42	30
4-B	55	66	77
5	163	152	202
6	82	81	63
7	29	232	72
8	47	104	103
9	10	9	6
10	203	60	68
11	20	9	9
12	31	74	10
Caraga	142	62	66
<b>Philippines</b>	<b>1,018</b>	<b>1,050</b>	<b>1,047</b>

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 5.1. Inventory of Foreshore Areas**  
**CY 2000-2007**

Region	Area Inventoried (ha)							
	2000	2001	2002	2003	2004	2005	2006	2007
NCR	-	-	-	-	-	-	-	-
CAR	Not Applicable							
1	85	99	100	105	-	141	-	-
2	47	19	5	214	67	78	-	-
3	200	336	222	38	200	133	-	-
4-A	459	262	117	126	77	62	-	-
4-B	*	*	290	284	40	128	-	-
5	91	118	330	516	459	458	-	6
6	476	644	772	694	331	817	47	-
7	95	97	76	104	184	286	27	-
8	32	28	17	7	13	78	-	-
9	384	362	358	272	358	100	-	-
10	275	370	174	94	94	478	-	-
11	201	115	68	119	100	60	-	-
12	11	37	23	-	-	68	-	-
Caraga	97	65	45	56	-	192	-	-
<b>Philippines</b>	<b>2,453</b>	<b>2,552</b>	<b>2,597</b>	<b>2,629</b>	<b>1,923</b>	<b>3,079</b>	<b>74</b>	<b>6</b>

\* included in Region 4-A

- no activity

*Source: Accomplishment Report, Project Development and Evaluation Division*  
*Planning and Policy Service*

**Table 6. Management of Patrimonial Properties**  
**CY 2006-2008**

Region	Deeds/ Lease Contracts Processed/Issued (no.)		
	2006	2007	2008
NCR	-	-	-
CAR	26	12	14
1	43	21	42
2	-	30	27
3	90	97	150
4-A	-	8	11
4-B	10	10	5
5	-	-	-
6	-	-	-
7	10	32	83
8	-	-	-
9	3	1	1
10	-	-	-
11	77	51	38
12	2	2	2
Caraga	-	-	-
<b>Philippines</b>	<b>261</b>	<b>264</b>	<b>373</b>

- no activity

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 7. Land Disposition – Patent Issuance (Public Agricultural Lands)**  
**CY 2001 -2008**

Region	2001		2002		2003		2004	
	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.
NCR	-	-	604	10.96	379	6	504	5.66
CAR	-	-	6,342	3,027.44	5,353	2,269.68	6,995	3,419.88
1	541	264	7,960	3,239.95	7,406	2,561.73	9,624	3,486.22
2	409	555	6,347	3,959.63	7,474	9,684.24	8,112	10,685.24
3	-	-	6,140	4,100.01	5,610	3,918.26	6,027	4,611.12
4-A	221	49	4,554	3,546.23	11,292	14,941.51	8,139	8,908.65
4-B	-	-	4,894	5,065.54	4,196	5,339.54	7,240	7,685.47
5	269	202.78	7,760	9,310.19	4,788	8,768.69	5,937	5,970.81
6	10	25	7,317	10,809.16	4,327	6,216.15	4,556	5,357.78
7	145	37.33	3,826	1,921.71	3,572	2,098.19	6,067	3,463.67
8	63	74.65	2,954	2,384.24	7,471	6,806.10	7,443	7,402.29
9	-	-	3,032	5,358.32	6,921	11,746.62	7,706	9,225.89
10		493	5,237	4,721.63	10,581	12,293.11	10,037	12,762.12
11	175	-	2,098	3,983.58	5,538	10,375.04	7,331	12,755.47
12	-	368.21	1,552	7,162.93	5,408	16,344.03	5,152	14,548.56
Caraga	304	-	11,319	17,035.25	8,549	17,167.08	8,450	15,972.56
<b>Philippines</b>	<b>2,137</b>	<b>2,068.97</b>	<b>81,936</b>	<b>85,636.77</b>	<b>98,865</b>	<b>130,535.97</b>	<b>109,320</b>	<b>126,261.39</b>



**Table 7. Land Disposition – Patent Issuance (Public Agricultural Lands) (continued)**  
**CY 2001 -2008**

Region	2005		2006		2007		2008	
	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.
NCR	168	3.96	-	-	-	-		
CAR	6,515	2,895.86	9,602	4,368.54	10,943	4,856	10,360	3,130.47
1	6,654	2,231.64	9,218	3,031.52	10,950	3,475	10,165	4,699.95
2	6,811	7,991.56	9,953	10,927.51	9,463	10,000	6,928	6,974.79
3	7,813	4,933.32	6,631	4,927.26	7,719	5,933	5,273	4,146.80
4-A	9,650	9,286.65	11,046	10,156.76	9,322	8,911	8,189	7,428.97
4-B	7,296	7,638.93	8,761	9,363.75	10,613	10,216	7,682	7,550.49
5	5,178	6,212.84	3,828	5,167.91	4,567	6,813	4,344	6,013.34
6	4,034	4,271.58	5,578	5,615.15	5,490	6,017	4,074	4,037.21
7	5,216	2,849.63	7,341	3,911.00	8,697	4,511	7,687	4,418.03
8	9,190	9,690.34	8,914	8185.83	10,892	10,074	11,297	9,595.74
9	6,752	8,633.35	9,184	11,347.34	9,556	12,493	9,907	10,118.97
10	7,546	9,263.76	10,044	12,673.28	10,395	13,154	6,589	7,223.93
11	4,582	6,575.19	5,154	7,941.99	5,459	7,000	5,885	6,713.32
12	4,375	12,177.70	3,971	10,415.86	4,084	11,296	5,266	12,829.44
Caraga	7,434	12,066.71	5,751	9,258.02	7,555	10,715	9,329	11,696.83
<b>Philippines</b>	<b>99,214</b>	<b>106,723.02</b>	<b>114,976</b>	<b>117,291.71</b>	<b>125,705</b>	<b>125,464.00</b>	<b>112,975</b>	<b>106,578.27</b>

- no activity

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 7.1. Land Disposition – Patent Issuance (LAMP)**  
**CY 2006-2008**

Region	Patents Issued					
	2006		2007		2008	
	No.	Ha	No.	Ha	No.	Ha
LAMP (Region 8)	2,530	1,827	7,806	4,684	8,580	2,975.72

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 7.2. Land Disposition – Patent Issuance (Regular)**  
**CY 2003-2008**

Region	2003		2004		2005		2006		2007		2008	
	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.	No.	Ha.
NCR	600	6	304	3	204	4	401	4	600	7	605	5
CAR	585	150	422	384	352	43	535	28	612	25	586	29
1	364	155	126	11	103	10	165	10	150	10	178	6
2	39	2	71	3	96	5	70	3	72	2	95	2
3	1,030	462	340	26	372	74	676	33	353	16	1,000	18
4-A	-	-	-	-	252	16	246	10	213	5	233	4
4-B	-	-	-	-	48	1	54	70	80	5	54	18
5	45	-	-	-	12	1	22	2	21	6	43	1
6	-	-	-	-	-	-	92	2	136	3	104	2
7	2		11	6	12	9	45	3	41	2	60	2
8	292	177	146	125	91	7	89	4	115	3	120	3
9	155	155	105	132	76	28	35	2	189	13	140	29
10	-	-	101	3	173	10	151	5	130	18	164	14
11	235	51	230	30	271	32	189	13	216	10	191	8
12	210	1,365	203	485	172	33	92	3	134	13	156	7
Caraga	500	411	389	66	337	32	263	67	220	9	248	21
<b>Philippines</b>	<b>4,057</b>	<b>2,934</b>	<b>2,448</b>	<b>1,274</b>	<b>2,571</b>	<b>307</b>	<b>3,125</b>	<b>259</b>	<b>3,282</b>	<b>147</b>	<b>3,977</b>	<b>170</b>

- no activity

*Source: Accomplishment Report, Project Development and Evaluation Division*  
*Planning and Policy Service*

**Table 8. Identification of School sites**  
**CY 2007-2008**

Region	Sites Identified with Draft Proclamations (no.)	
	2007	2008
NCR	2	1
CAR	4	6
1	12	40
2	13	16
3	10	5
4-A	-	5
4-B	25	6
5	22	25
6	7	5
7	9	13
8	-	5
9	16	19
10	53	53
11	-	-
12	8	16
Caraga	6	6
<b>Philippines</b>	<b>187</b>	<b>221</b>

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 9. Identification of Socialized Housing**  
**CY 2007-2008**

Region	Sites Identified with Draft Proclamations (no.)	
	2007	2008
NCR	2	5
CAR	2	0
1	4	3
2	3	8
3	3	4
4-A	-	0
4-B	-	1
5	3	0
6	-	5
7	4	10
8	-	5
9	7	8
10	12	9
11	-	0
12	2	0
Caraga	1	1
<b>Philippines</b>	<b>43</b>	<b>59</b>

*Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service*

**Table 10. Disposition of Land Cases**  
**CY 2000-2008**

Region	Claims and Conflict Cases Investigated (no.)								Cases Resolved/ Decided (no.)								
	2000	2001	2002	2003	2004	2005	2006	2007	2000	2001	2002	2003	2004	2005	2006	2007	2008
NCR	41	61	40	35	51	42	10	20	41	61	40	35	51	42	48	35	40
CAR	251	52	102	85	77	94	-	-	32	52	82	46	57	62	48	44	38
1	147	237	195		29	38	-	-	34	28	-	-	29	38	42	43	60
2	19	54	46	53	78	47	-	-	-	6	-	-	-	128	94	72	66
3	42	40	50	85	80	90	-	-	-	-	-	-	-	46	47	132	120
4-A	189	75	86	44	52	27	-	-	27	25	-	-	-	19	42	64	58
4-B	*	*	40	41	42	33	-	-	*	*	-	36	24	15	19	24	23
5	80	-	29	23	28	7	66	-	145	-	-	-	-	5	42	113	43
6	40	37	34	36	12	8	25	23	30	21	14	46	31	38	36	39	32
7	48	39	36	49	1	128	-	43	17	-	-	49	1	171	59	32	70
8	36	25	8	32	35	25	-	-	14	9	-	-	-	23	25	28	26
9	41	36	48	71	37	29	2	-	40	32	41	52	57	30	34	35	39
10	60	6	50	46	110	1	-	-	46	-	-	-	58	76	35	76	67
11	42	80	14	25	33	69	-	-	43	21	6	7	4	11	32	53	40
12	52	60	61	68	28	20	-	-	3	4	-	14	13	20	38	37	37
Caraga	110	60	88	57	55	50	-	-	10	40	-	40	40	41	44	73	80
LMB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27
<b>Philippines</b>	<b>1,198</b>	<b>862</b>	<b>927</b>	<b>750</b>	<b>748</b>	<b>708</b>	<b>103</b>	<b>86</b>	<b>482</b>	<b>299</b>	<b>183</b>	<b>325</b>	<b>365</b>	<b>765</b>	<b>685</b>	<b>900</b>	<b>866</b>

\* included in Region 4A

- no activity

*Source: Accomplishment Report, Project Development and Evaluation Division*  
*Planning and Policy Service*

**Table 11. Implementation of Oplan-Fake Titles  
CY 2000-2007**

Region	Cases Investigated (no.)								Cases Filed to OSG (no.)							
	2000	2001	2002	2003	2004	2005	2006	2007	2000	2001	2002	2003	2004	2005	2006	2007
NCR	32	61	10	10	10	10	5	5	23	20	7	-	-	-	-	-
CAR	48	-	5	2	4	-	-	-	-	1	1	-	-	-	-	-
1	12	15	8	5	6	11	-	-	14	-	8	1	1	5	-	-
2	-	4	18	5	11	6	-	-	-	-	-	-	-	7	-	-
3	160	120	80	80	50	81	80	-	160	120	98	-	-	41	-	-
4-A	448	116	121	55	29	25	-	-	448	-	72	27	-	-	-	-
4-B	*	*	111	109	73	56	-	-	*	-	30	-	-	-	-	-
5	7	2	48	83	62	49	-	-	5	2	-	-	-	-	-	-
6	235	155	83	41	15	51	-	-	219	166	18	23	13	21	-	-
7	464	339	266	130	87	43	-	-	538	-	-	-	89	-	-	-
8	272	43	2	2	4	4	-	-	101	1	2	-	-	-	-	-
9	58	34	24	30	7	3	-	-	39	3	3	-	3	1	-	-
10	12	12	9	-	-	-	-	-	25	8	6	18	-	-	-	14
11	140	14	6	2	1	-	-	-	-	4	45	7	1	-	-	-
12	6	10	2	17	11	1	-	-	-	-	1	-	-	-	-	-
Caraga	283	64	86	51	36	-	-	-	84	80	80	30	16	-	-	-
<b>Philippines</b>	<b>2,177</b>	<b>989</b>	<b>879</b>	<b>622</b>	<b>406</b>	<b>340</b>	<b>85</b>	<b>5</b>	<b>1,656</b>	<b>405</b>	<b>371</b>	<b>106</b>	<b>123</b>	<b>75</b>	<b>-</b>	<b>14</b>

\* included in Region 4-A

- no activity

Source: Accomplishment Report, Project Development and Evaluation Division  
Planning and Policy Service

## **Section F**

### **Environment**

#### **Air Quality**

Air pollution is consistently a perennial major problem that insinuates itself unnoticed in our daily lives. The worsening air quality condition is more evidently felt particularly in Metro Manila and other urban centers.

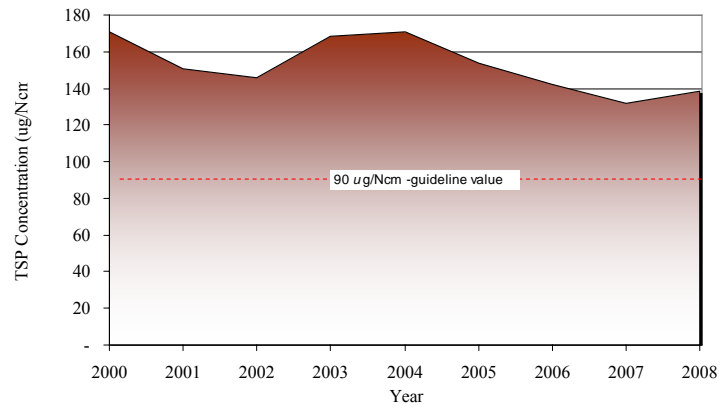
In an effort to monitor and improve the quality of air, the Environmental Management Bureau (EMB) - National Capital Region (NCR) regularly monitors roadside Total Suspended Particulates (TSP) concentrations through its sampling stations in Metro Manila, while EMB regional offices monitors the same on a nationwide scale. In addition to this, monitoring of ambient concentrations of air pollutants other than TSP is conducted only in Metro Manila and in the cities of Cebu, Cagayan de Oro, Davao, and Iloilo Baguio because of the high cost it entails in putting up the automatic/telemetry monitoring equipment and maintaining its operations (EMB Accomplishment Report CY 2008).

Total Suspended Particulates (TSP) is one of the criteria pollutants for which National Ambient Air Quality Guideline Values have been established for the protection of public health, safety and general welfare. TSP are small solid and liquid particulates suspended in the air include primarily dust, smoke, metallic and mineral particulates, soot, mist, and acid fumes. These airborne particulates are usually produced by motor vehicles and fuel burning facilities (2002 National Air Quality Status Report). The national guideline values for TSP are 230  $\mu\text{g}/\text{Ncm}$  maximum for a 24-hour exposure and 90  $\mu\text{g}/\text{Ncm}$  maximum for a one-year exposure. The two-tiered guidelines are premised on the assumption that one can tolerate higher levels of exposure to an air pollutant if the exposure is for a shorter period only (National Air Quality Report 2003-2004).

Based on the assessment results gathered from the ten (10) monitoring stations in Metro Manila, the air quality has improved with a reduction of 14.81 percent in Total Suspended Particulates (TSP) level, from an annual geometric mean of 162  $\mu\text{g}/\text{Ncm}$  in CY 2003 to 138  $\mu\text{g}/\text{Ncm}$  in CY 2008 (Figure 1, Table 1a). This reduction was reflected in 8 stations namely: Edsa-NPO, Edsa-East Avenue, Valenzuela, Pasig, Makati, Mandaluyong, Manila and Ateneo. Of the 10 stations, Edsa-East Avenue recorded the highest reduction of 40.22 percent.

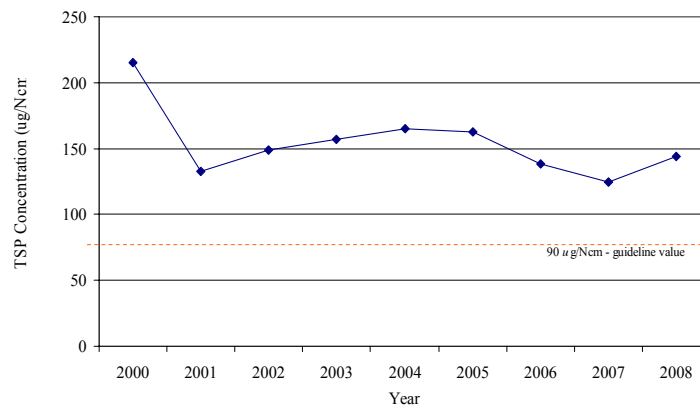


Figure 1 - Annual Average of Total Suspended Particulates (TSP) in the National Capital Region:  
2000-2008



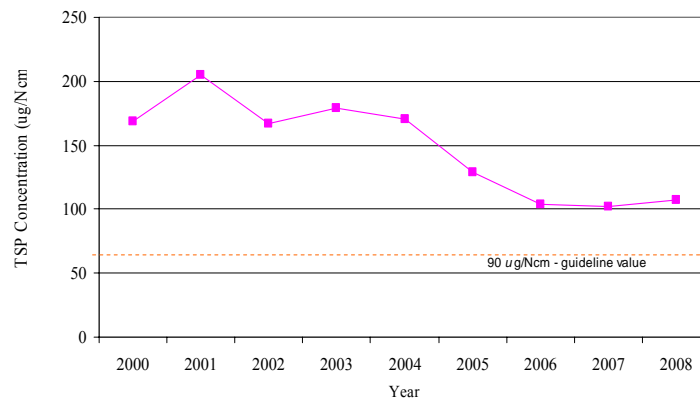
Source: EMB Accomplishment Reports

Figure 1a - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in EDSA-  
NPO Station: 2000-2008



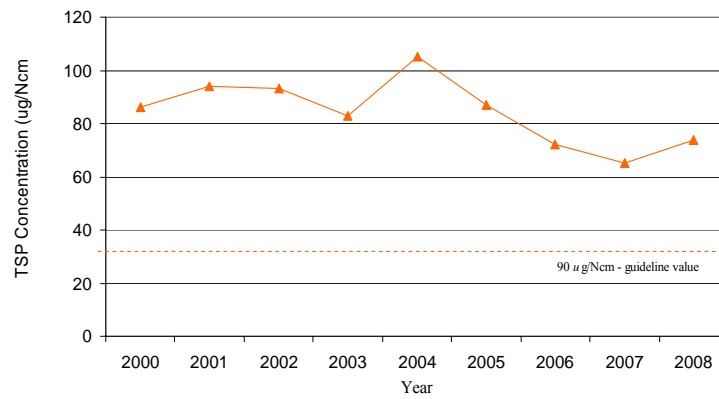
Source: EMB Accomplishment Reports

Figure 1b - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in EDSA-  
East Avenue Station: 2000-2008



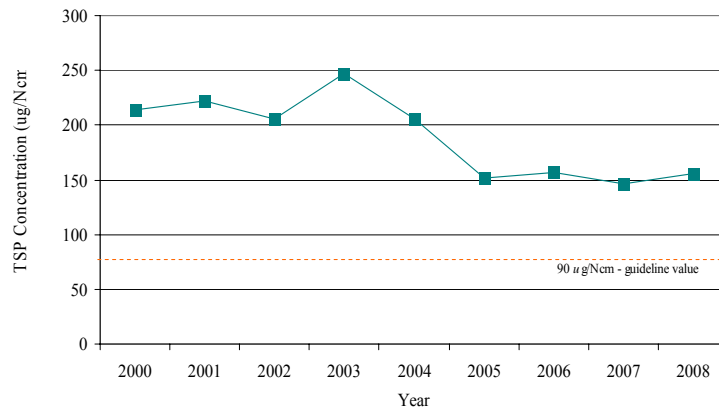
Source: EMB Accomplishment Reports

Figure 1c - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Ateneo Station: 2000-2008



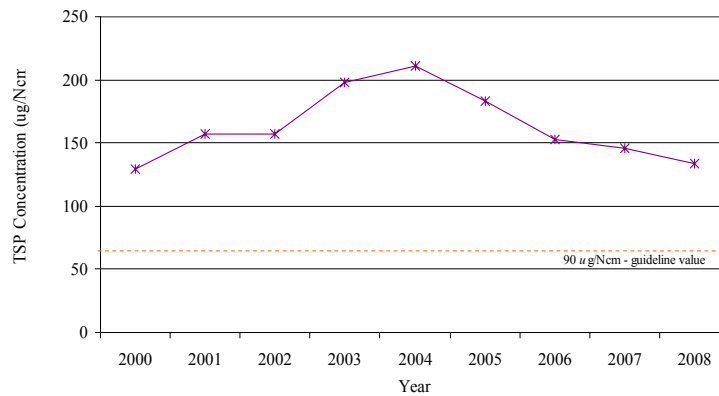
Source: EMB Accomplishment Reports

Figure 1d - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Valenzuela: 2000-2008



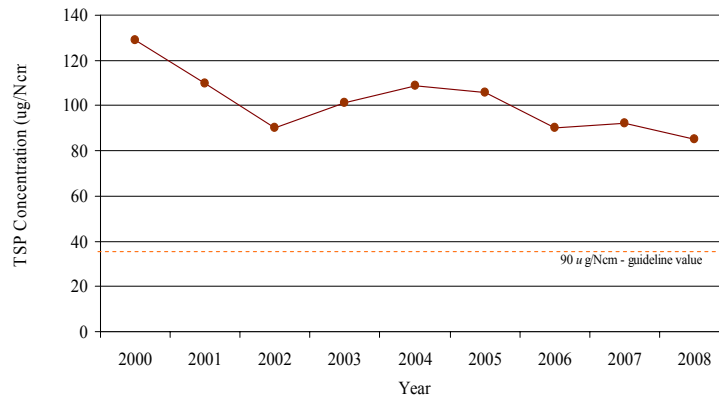
Source: EMB Accomplishment Reports

Figure 1e - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Makati City Station: 2000-2008



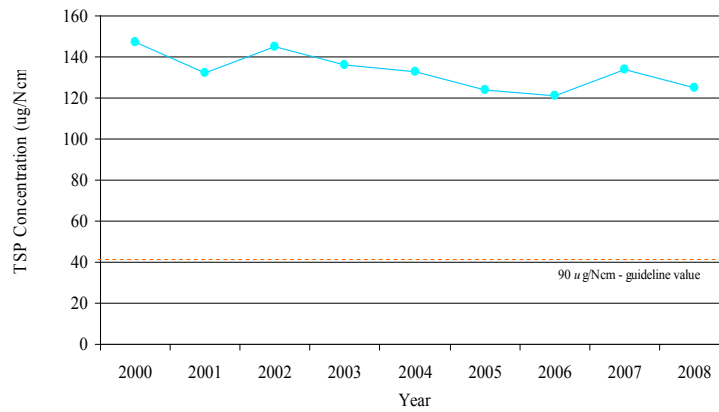
Source: EMB Accomplishment Reports

Figure 1f - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Pasig Station: 2000-2008



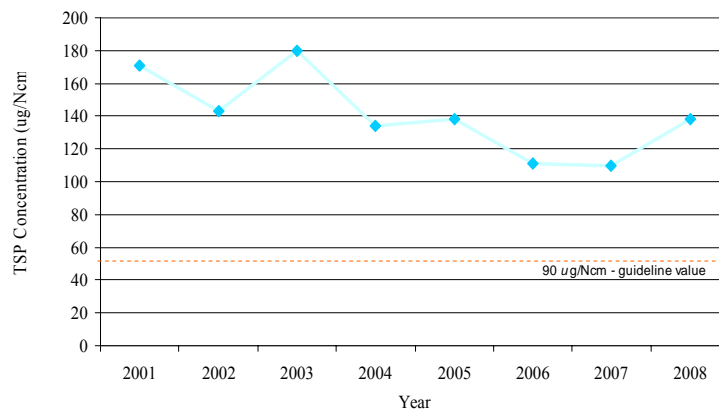
Source: EMB Accomplishment Reports

Figure 1g - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Mandaluyong Station: 2000-2008



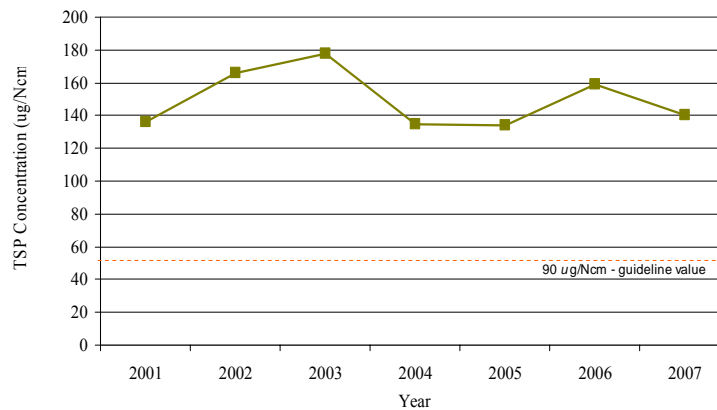
Source: EMB Accomplishment Reports

Figure 1h - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Manila Station: 2001-2008



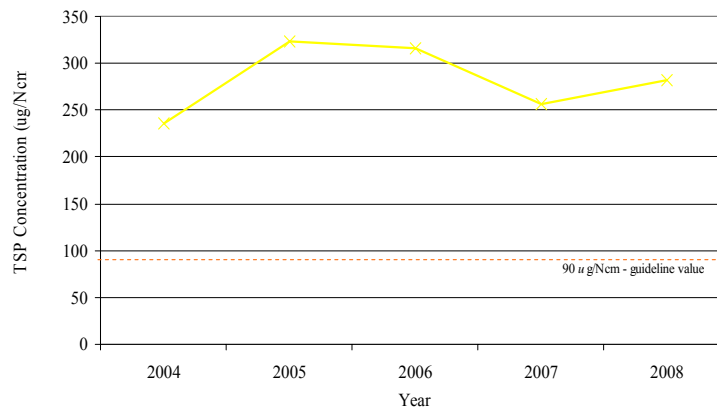
Source: EMB Accomplishment Reports

Figure 1i - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in Pasay Station: 2001-2007



Source: EMB Accomplishment Reports

Figure 1j - Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Levels in EDSA-MRT Station: 2004-2008



Source: EMB Accomplishment Reports

However, despite the said reduction, the long-term guideline value of 90  $\mu\text{g}/\text{Ncm}$  for TSP was exceeded in almost all monitoring stations indicating generally fair (ranges from 81-230  $\mu\text{g}/\text{Ncm}$ ) to unhealthy (ranges from 231-349  $\mu\text{g}/\text{Ncm}$ ) air quality conditions. Only Ateneo and Pasig stations with 74  $\mu\text{g}/\text{Ncm}$  and 85  $\mu\text{g}/\text{Ncm}$  (Figure 1c and 1f) respectively were recorded with TSP level within the 90  $\mu\text{g}/\text{Ncm}$  TSP guideline value in CY 2008. On the other hand, the EDSA MRT station showed with the highest TSP concentration of 282  $\mu\text{g}/\text{Ncm}$  for the same period (Figure 1j). This scenario can be attributed to the fact that the station is near major road intersection and large motor vehicles and pedestrians densities further aggravate the problem of air pollution in the vicinity of the station.

From the 24 sampling stations monitored located in major urban centers outside Metro Manila, 19 stations showed improvements in TSP levels in CY 2003 and CY 2008. The highest reduction recorded among the stations monitored with TSP level within the guideline value was in Alangilang, Batangas with 50  $\mu\text{g}/\text{Ncm}$  in CY 2008 from 127  $\mu\text{g}/\text{Ncm}$  in CY 2003. Moreover, in 2008 a notable observation was that sixteen (16) monitoring stations (Tuguegarao City; Batangas; Quezon; Legazpi City; Iriga City; Panganiban Drive, Naga City; Jaro Iloilo; CITCOM, Cebu

City; Panacan, Davao City; Purok Amparo Subdv., Davao City; TESDA Compound, Davao City; Barangay Bunawan, Davao City; Tupi Municipal Hall, S. Cotabato City; Cotabato City; Midsayap, Cotabato City; and New Asia, Butuan City) were reported with levels lower than the required standard. Meanwhile the Intercity Industrial Subdv. Wakas in San Fernando, Pampanga monitoring station reflected the highest TSP level in CY 2008 with 254  $\mu\text{g}/\text{Ncm}$  (Table 1b).

The data on TSP levels has to be viewed as an indication of the pollution level at the vicinity where the monitoring stations are located and not as representative of the TSP concentration of the city or province where the stations are located. Stations, which recorded very high TSP levels, are in general, located on the roadsides. Roadside TSP includes vehicle exhaust and resuspended dust.

## **Water Quality**

The country's water resources are persistently approaching its critical condition if not to be managed effectively and efficiently. In line with the importance of clean water to our economy and to public health, the management has been strengthening its policies and programs toward clean and safe water.

As a way of maintaining the safety and satisfactory condition of the water resources, classification of water bodies are being undertaken by the DENR based on the criteria provided in DAO 34, series of 1990 - Revised Water Usage and Classification/Water Quality Criteria.

Classification/reclassification of Philippine waters is the categorization of all water bodies to maintain its safe quality and satisfactory condition according to their best usages. Most beneficial existing and future use of said bodies of water and lands bordering them includes residential, agricultural, aquacultural, commercial, industrial, navigational, recreational, wildlife conservation and aesthetics purposes.

As of CY 2008, there were 623 water bodies classified by EMB. These included the 283 principal rivers (67.22% of the total 421 principal rivers nationwide) and 340 lakes/small rivers/bays.

In the Philippines, these water bodies under fresh surface waters (i.e. rivers, lakes, reservoir, etc.) are classified into five (5) types based on its best usage:

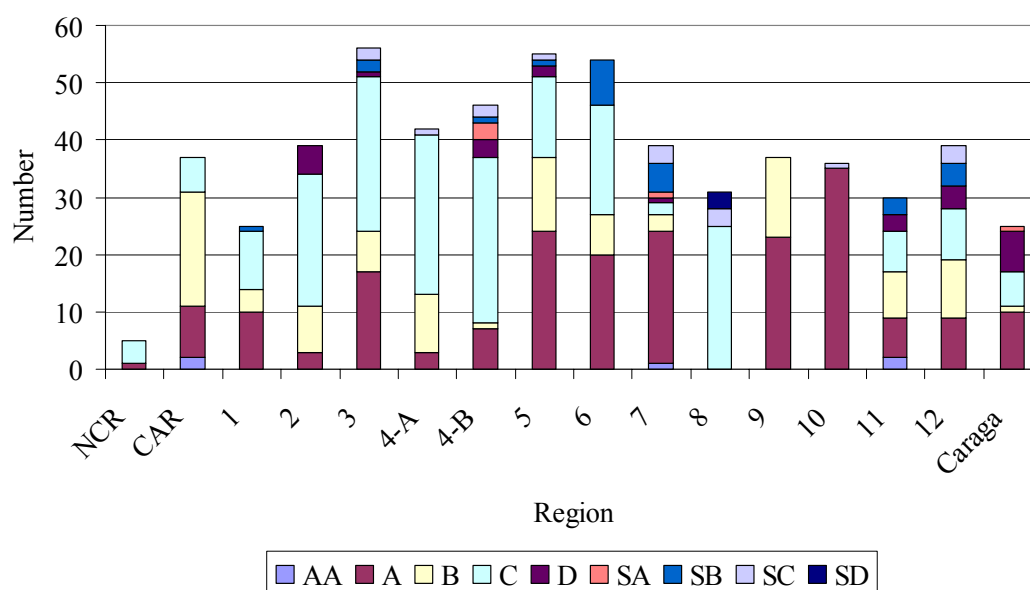
- 1) Class AA or waters which require only approved disinfection in order to meet the Philippine National Standards for Drinking Water (PNSDW);
- 2) Class A or waters which require complete treatment (coagulation, sedimentation, filtration and disinfection) in order to meet the PNSDW;
- 3) Class B or waters that can be used for primary recreation such as bathing and swimming, skin diving, etc.
- 4) Class C or fishery water for propagation and growth of fish and other aquatic resources;
- 5) Class D category as being allowed for agriculture, irrigation, livestock watering and cooling in industrial facilities.

For the classified coastal and marine waters group (i.e. coastal, offshore and estuarine):

- 1) Class SA or waters suitable for propagation, survival and harvesting of shellfish for commercial purposes and designated as marine parks and reserves;
- 2) Class SB or waters suitable for bathing, swimming and skin diving;
- 3) Class SC described as Recreational Water Class II suited for boating and commercial sustenance fishing; and
- 4) Class SD waters rated as Industrial Water Supply Class II for cooling purposes in industrial facilities

Among the nine (9) classifications, two (2) were ranked with the most number of classification. Out of the 623 classified water bodies, 35.6% belongs to Class C and 32.9% Class A. Moreover, on a regional basis, Region 6 was recorded to exhibit the highest number of 58 classified water bodies followed by Regions 3 and 5 both with 56 each and Region 4-B with 50 (Figure 2, Table 2b).

Figure 2 - Number of Classified Water Bodies (Including Principal and Small Rivers): CY 2007



### Assessment of Water Quality

The Biochemical Oxygen Demand (BOD) and Dissolved Oxygen (DO) are among those parameters being used in assessing water quality. Biochemical Oxygen Demand is a measure of the amount of oxygen used by microorganisms to decompose organic waste. BOD criteria standard is 5.0 mg/L (maximum) for Class 'A' and 'B', 7.0 mg/L (maximum) for Class 'C' and 10.0 mg/L (maximum) for Class 'D'. On the other hand, Dissolved Oxygen is an indicator of how well the water can support aquatic life. DO criteria standard is 5.0 mg/L (minimum) for Class 'AA to C' and 3.0 mg/L (minimum) for Class D.

Regular water quality monitoring is mainly focused on the identified nineteen (19) priority rivers under the Sagip Ilog Program. The 19 priority rivers in the country are the following: 1) Balili River, Baguio; 2) Meycauyan River, Bulacan; 3) Marilao River, Bulacan; 4) Bocaue River, Bulacan; 5) Imus River, Cavite; 6) Ylang-Ylang River, Cavite; 7) Mogpog River, Marinduque; 8) Calapan River, Oriental Mindoro; 9) Anayan River, Camarines Sur; 10) Panique River, Masbate; 11) Malaguit River, Camarines Norte; 12) Iloilo River, Iloilo; 13) Luyang River, Cebu; 14) Sapangdaku River, Cebu; 15) Cagayan de Oro River, Cagayan de Oro; 16) Pasig River; 17) Paranaque River; 18) Marikina River; and 19) San Juan River.

Results of assessment revealed that all 19 priority rivers have improved significantly from CY 2003 - 2008 in terms of DO level. Of which, the Cagayan de Oro River classified as Class 'A' consistently passed the DO criteria standard (Table 3b-3d). It was also noted that for the period CY 2006-2008, six (6) rivers which include Anayan River; Malaguit River; Panique River; Luyang River; Sapangdaku River; and Cagayan de Oro River have sustained the acceptable DO level (Table 3d).

On the other hand, two (2) rivers, San Juan River and Meycauyan River maintained to exhibit high BOD level exceeding the standard from CY 2003 - 2008 (Table 3b-d). While for the period CY 2006-2008, seven (7) rivers namely Calapan River; Anayan River; Malaguit River; Panique River; Iloilo River; Luyang River; and Sapangdaku River were assessed to conform with BOD criteria standard of 7.0 mg/L (maximum) (Table 3d).

Moreover, water quality monitoring of the different stations established along the Pasig River System, Manila Bay Area and Laguna Lake was also conducted in CY 2008. The monitoring activity covers measurements of the physical, chemical parameters (i.e. pH, temp, DO, salinity, conductivity secchi depth) and collection of samples for laboratory analyses (EMB Accomplishment Report CY 2008).

For the Pasig River System, assessment results for the period CY 2004-2008 showed that the general water quality of Pasig River system consistently failed to meet the 7mg/L BOD and 5mg/L DO criteria/guidelines set by DENR for Class "C" waters. The most polluted parts of the river system are located downstreams of San Juan River and Marikina River (EMB Accomplishment Report CY 2008).

In the Manila Bay Area, regular monitoring of the quality of coastal waters is based in terms of fecal coliform. The Fecal Coliform (FC) counts in Manila Bay from the period 2000 to 2008 showed exceedances from the maximum limit of 200MPN/100ml in all 14 stations. High values consistently registered in Eastern part of Manila Bay (Navotas Fishport, Luneta Park, Celebrity Beach and Costa Eugenia Beach). On the other hand, the measured FC values in Western part of the Bay (Mattel, Villa Carmen, Villa Leonora and Brgy. Wawa Beaches) indicate lower values in which Mattel Beach Station satisfied the maximum 200 MPN/100ml for Class "SB" waters in 2007 (EMB Accomplishment Report CY 2008).

On the other hand, the BOD and DO levels of Laguna Lake for CY 2008 consistently passed the criteria for Class "C" waters. The result of analysis was consistent with the findings of LLDA. Class "C" waters which is intended for the

propagation and growth of fish and other aquatic resources (EMB Accomplishment Report CY 2008).

On a regional basis, a total of 54 water bodies monitored with complete sample results of BOD and DO levels were recorded from CY 2006-2008. Of this, 31 water bodies have passed the BOD criteria standards in water quality while 9 failed the standards. On the other hand, there were 41 water bodies that conformed with the DO level standards while 4 failed the standards (Table 3d).

## **Solid Waste**

Solid waste problem is seen to be more evident in urban centers, particularly in Metro Manila. These areas are characterized with high population density, high consumption rates and presence of large number of commercial establishments.

### **Wastes Generation**

It is estimated that 0.5 kilograms (kg) is the average wastes generated per person per day in Metro Manila. This is equivalent to 7,000 tons of wastes generated per day (Philippine Environment Monitor 2004).

In CY 2007, the reported solid waste contribution based on a national scale revealed that NCR has the highest waste generation at 2.86 million tons per year, the Southern Tagalog at 1.69 million tons ranked second, followed by the Central Luzon at 1.21 million tons.

### **Collection and Transport of Solid Wastes**

The Local Government Units (LGUs) as mandated in R.A. 9003 or Ecological Solid Waste Management Act of 2000 is responsible for the collection of solid wastes. The collection of municipal solid wastes is done in two ways, either by self-administration or through private contractors.

Based on estimates on a national scale, the average collection efficiency rates in urban areas is about 70%, for rural areas is 40% and for Metro Manila 83% (Philippine Environment Monitor 2004).

### **Recovery and Recycling**

According to an ADB study conducted in 2003 on Waste Analysis and Characterization Survey (WACS), of the total solid waste generated from households, a whopping 95% can still be reused or recycled or turned into compost. The remaining 5% are made up of residuals and special/hazardous waste that no longer have use or not biodegradable.

### **Existing Solid Wastes Disposal Facilities**

As of 2008, there were 3,388 different solid waste disposal facilities, i.e. open dump sites, controlled dump sites, materials recovery facility and sanitary landfills in

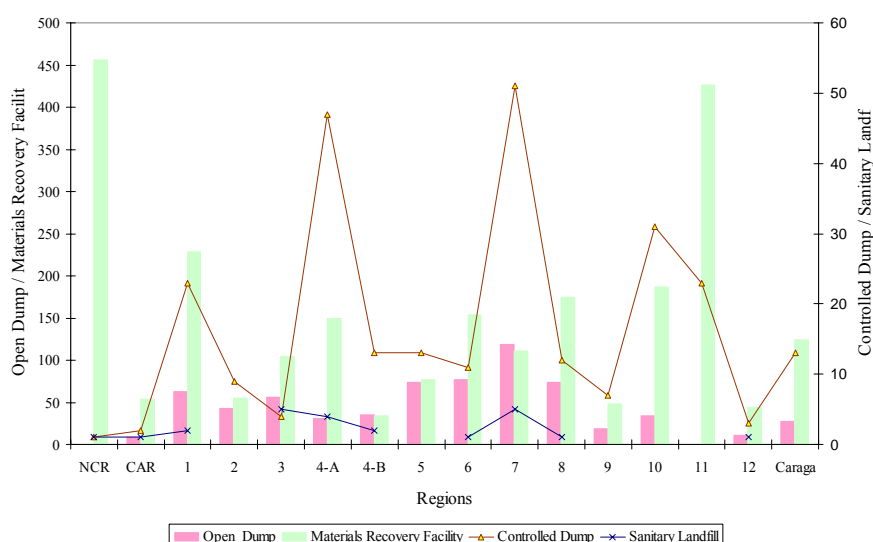


the Philippines. Of these, 673 were open dump sites, 263 operational controlled dump sites facilities, 2,428 Materials Recovery Facilities (MRFs) and 24 Sanitary Landfills (SLFs) (National Solid Waste Management Commission Accomplishment Report 2008).

For the same period 2008, the National Capital Region (NCR) had the most number of disposal facilities with 458 followed by Region 11 and Region 1 with 449 and 317, respectively. On the other hand, Region 12 had the least number of disposal facilities with 59 (Table 4).

With regard to the type of disposal facilities as of 2008, Region 7 had the most number for both open dumpsites and controlled dumpsites with 119 and 51 respectively. Comparatively, CAR and NCR were recorded with the least number for open dumpsites and controlled dumpsites respectively. For the other facility, NCR had highest number of material recovery facility with 456 followed by Region 11 with 426. On the other hand, three regions have the most number of sanitary landfills, Regions 3 and 7 with 5 each and Region 4-A with 4 (Figure 3, Table 4).

Figure 3 - Number of Solid Wastes Disposal Facilities (As of 2008)



## Toxic and Chemical Substances

The importance and benefits of and dependence on most chemicals in our daily existence and healthy survival cannot be denied. However, some of these chemicals may pose potential risk to public health and environment if not managed properly.

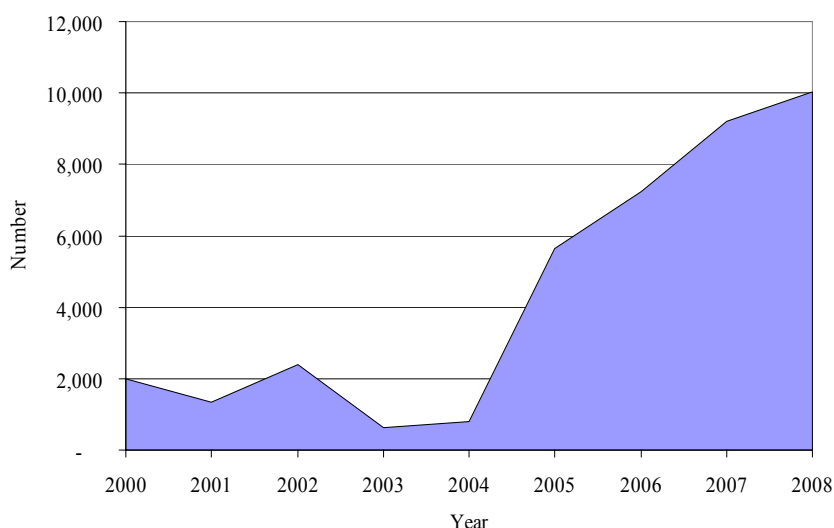
As of 2008, there were 46,280 chemicals listed in the Philippine Inventory of Chemicals and Chemical Substances (PICCS). These chemicals are regularly imported, manufactured and used by industrial establishments and related industries in their operations. Among the PICCs list, 48 are considered and selected by the DENR as priority chemicals from which the 5 regulated chemicals i.e., mercury and mercury compounds, cyanide and cyanide compounds, asbestos, ozone depleting

substances and polychlorinated biphenyls, are subject to stricter rules of the Chemical Control Order. In 2008, there were issuances of 447 Small Quantity Importation (SQI) clearance, 239 CCO Importation clearance, 224 CCO Registration clearance and 910 PICCs (Table 5).

## Hazardous Waste

To date in 2008, a total of 10,034 hazardous waste generators (HWGs) (8,586 firms; 1,448 hospitals) were registered in the country. The number reflected an increase of 9% from 9,204 HWGs in CY 2007. Out of the total registered HWGs in CY 2008, the National Capital Region had the most number with 2,351 or 23 percent while 1,670 or 17 percent can be found in CALABARZON. On the other hand, Region 4-B had the least number of registered HW generators with 158 or almost 2 percent of the total (Figure 4, Table 6).

Figure 4 - Number of Registered Hazardous Wastes Generators: 2000-2008



## Environmental Impact Assessment

The Philippine Environmental Impact Statement System (PEISS) with the general policy issued in 1977 thru PD 1151 and the system established in 1978 thru P.D. 1586 sets the general policy requiring all developmental projects perceived to have significant effects to the environment to acquire an Environmental Compliance Certificate (ECC) prior to its construction and eventual operation.

Environmental Impact Assessment (EIA) is a process that involves evaluating and predicting the likely impacts of a project on the environment in order to eliminate or minimize the perceived consequences it will bring about. A proponent needs to acquire an Environmental Compliance Certificate (ECC) before the project will be implemented. ECC are being classified into Environmentally Critical Project (ECP) and Environmentally Critical Area (ECA). ECP is a project that will most likely have

high risk or negative environmental impacts. While ECA is a project that is located in an area which is ecologically, socially, or geologically sensitive.

In 2008, there were only 21 ECPs (Table 7) issued as compared in CY 2000 with 34. On the other hand, a total of 3,618 ECC were issued for ECA, from which Region 3 had the most number with 470 or 13 percent followed by Region 6 with 343 or almost 10 percent of the total (Table 7a).

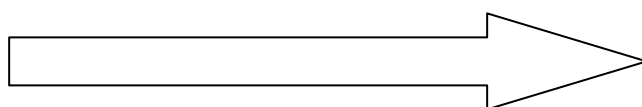
### **Adjudication of Pollution Cases**

The Pollution Adjudication Board (PAB) is a quasi-judicial body that has the sole jurisdiction over the pollution cases in the country except those under the jurisdiction of the Laguna Lake Development Authority (LLDA). The Board issues orders i.e., Cease and Desist Order (CDO), Temporary Lifting Order (TLO) and Formal Lifting Order (FLO). A CDO is issued to direct the discontinuance of operations in order to stop the discharge/emission of pollutants. However, upon submission of relevant documents and evaluation by the Board, a CDO may be temporarily lifted by the issuance of a TLO. The TLO allows operations at the same time that the pollution control device is being installed or upgraded. Upon completion of the upgrading/installation, samples of the emission/discharge are collected and analyzed in the laboratory to test efficiency of the device. Once efficiency is proven, the computed fines must be settled to effect issuance of a FLO which indicates termination/resolution of the pollution case.

EMB serves as Secretariat to the Pollution Adjudication Board, a quasi-judicial agency created under Sec. 19 of E.O. No. 192 for the adjudication of pollution cases.

In 2008, a total of 9 CDOs, 16 TLOs and 10 FLOs were issued. The Region 4-A (CALABARZON) had the most number of pollution cases issued with 37 followed by the National Capital Region and Region 6 with a total of 35 and 22 respectively (Table 8).

# Statistical Tables



**Table 1a. Annual Geometric Mean of Roadside Total Suspended Particulates (TSP) Level  
in the National Capital Region (NCR) Monitoring Stations: 2000-2008 ( $\mu$  g/Ncm)**

Station	Location	TSP Concentration								
		2000	2001	2002	2003	2004	2005	2006	2007	2008
EDSA NPO	National Printing Office Compound, EDSA, Q.C.	215	133	149	157	165	163	138	125	144
EDSA East Avenue	BFD Compound EDSA, East Avenue, Q.C.	169	205	167	179	170	129	104	102	107
<b>Ateneo</b>	Ateneo University, Katipunan Road, Diliman, Q.C.	<b>86</b>	94	93	<b>83</b>	105	<b>87</b>	<b>72</b>	<b>65</b>	<b>74</b>
Valenzuela	Valenzuela Municipal Hall, Valenzuela City	214	222	206	247	206	152	157	146	156
Makati City	Gumamela St., Guadalupe Viejo, Makati City	129	157	157	198	211	183	153	146	134
Pasig	LLDA Compound, Pasig City Hall, Pasig City	129	110	<b>90</b>	101	109	106	90	92	<b>85</b>
<b>Las Pinas</b>	<b>Narra St., Belisario Subdv., Las Pinas</b>	91	<b>73</b>	<b>80</b>	-	-	-	-	-	-
EDSA Congressional Ave.	EDSA Congressional Ave. Proj. 8, Q.C.	359	227	206	-	-	-	-	-	-
Mandaluyong	Mandaluyong City Hall, Mandaluyong City	147	132	145	136	133	124	121	134	125
Manila	Dept. of Health San Lazaro St., Rizal Ave., Manila	-	171	143	180	134	138	111	110	138
Pasay	Pasay City Hall, F.B, Harrison St. Pasay City	-	136	166	178	135	134	159	140	-
Marikina		-	-	-	-	-	-	-	-	138
EDSA MRT	EDSA MRT EDSA Corner Taft Ave.					236	323	316	257	282
<b>Annual Average</b>		<b>171</b>	<b>151</b>	<b>146</b>	<b>162</b>	<b>160</b>	<b>154</b>	<b>142</b>	<b>132</b>	<b>138</b>

Notes:

- 1) - Data not Available
- 2) Guideline Values for TSP: 230  $\mu$  g/Ncm (24-hour averaging time)  
90  $\mu$  g/Ncm (1 year averaging time)
- 3) **Red print entry** are those stations that conform with the TSP guideline value

Source: EMB Accomplishment Report 2008

**Table 1b. Annual Mean Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers Monitoring Stations by Region: 2000-2008 (ug/Ncm)**

Region	City/Province	Location	TSP Concentration ( $\mu$ g/Ncm)								
			2000	2001	2002	2003	2004	2005	2006	2007	2008
CAR	Baguio City	Plaza Garden	287	222	326	229	204	170	161	203	-
1	Alaminos City	Jollibee Bldg.	-	-	-	-	312	179	156	162	137
1	San Fernando City	City Plaza	-	-	-	-	183	141	160	155	135
1	Laoag City	Heroes Bldg.	-	-	-	130	-	-	-	-	-
<b>2</b>	<b>Tuguegarao City Tanza</b>		-	299	339	198	59	107	87	104	<b>81</b>
3	San Fernando City	San Jose	-	-	-	117	-	-	-	227	201
3	Bulacan, Iba	Meycauyan	-	-	-	101	-	-	-	-	-
3	Bulacan, Saluysoy	Meycauyan	-	-	-	141	148	309	237	161	106
3	Cabanatuan City		-	-	-	-	89	103	-	-	-
3	Bulacan, Wakas Bocaue	Intercity Station, Wakas Bucaue Bulcan	-	-	-	-	751	370	260	497	254
4-A	Cavite City	Trece Martirez	-	121	114	79	84	62	69	56	-
<b>4-A</b>	<b>Batangas</b>	<b>Alangilang</b>	-	169	107	127	144	140	66	65	<b>50</b>
<b>4-A</b>	<b>Lucena City, Quezon</b>	<b>Perez Park, Capitol Site, Quezon</b>			-	-	-	-	-	-	<b>30</b>
4-B	Calapan City	Sta. Isabel	-	-	246	-	217	92	-	-	-
4-B	Calapan City	Brgy. Sugui, Calapan, Oriental Mindoro			-	-	-	-	128	-	-
<b>5</b>	<b>Legazpi City</b>	<b>Barriada</b>	72	75	49	110	87	72	155	95	<b>46</b>
<b>5</b>	<b>Iriga City</b>	<b>San Nicolas</b>	111	69	193	110	108	88	135	96	<b>72</b>
<b>5</b>	<b>Naga City</b>	<b>Panganiban Drive</b>	115	84	86	106	84	83	123	121	<b>84</b>
<b>6</b>	<b>Iloilo City</b>	<b>Jaro Police Station</b>	257	218	208	177	182	141	72	69	<b>80</b>
6	Iloilo City	La Paz Plaza	146	184	129	92	104	81	105	117	135
7	Cebu City	Mandaue City	101	66	89	-	-	94	87	82	114
7	Cebu City	Boundary Inuburan & Langtad, Naga Cebu City			-	-	-	-	178	172	108
<b>7</b>	<b>Cebu City</b>	<b>CITCOM Ave., Cebu City</b>			-	-	-	-	-	-	<b>88</b>
7	Cebu City	Oportos Residence	-	-	-	-	72	-	-	-	-
7	Cebu City	Baricuartos Res.	-	-	-	-	117	88	-	-	-
7	Cebu City	Canos Res.	-	-	-	-	93	-	-	-	-

**Table 1b. Annual Mean Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers Monitoring Stations by Region: 2000-2008 (ug/Ncm) (continued)**

Region	City/Province	Location	TSP Concentration ( $\mu$ g/Ncm)								
			2000	2001	2002	2003	2004	2005	2006	2007	2008
8	Tacloban City	P & M Bldg.	-	-	91	100	-	-			
9	Zamboanga City ZCMC	Zamboanga City Medical Center, Dr. Evangelista St.	543	432	374	237	220	154	-	131	135
		Zamboanga City, Zamboanga del Sur									
9	Zamboanga City Buenavista St.		399	409	355	226	209	161			
9	Zamboanga City San Jose Rd.	Brgy Sto. Niño, San Jose Road, Zambaonga City, Zamboanga del Sur	442	474	352	227	218	170	152	108	119
9	Zamboanga City	Phil. Int. Devt. Inc. (PHIDCO>), Baiiwasan Seaside Zamboanga City, Zamboanga del Sur									140
10	Cagayan de Oro City	Lapasan Shell	207	220	191	-	-	-			
10	Cagayan de Oro City	RER Subdv.	91	64	65	-	-	-			
11	Davao City	Purok 3 Sasa	-	-	-	90	56	44			
11	Davao City	J.P. Laurel Ave. cor. Mapa St.	-	-	-	-	64	63			
11	Davao City	Bangkerohan	-	-	-	97	91	65			
11	Davao City	Agdao	-	-	-	335	89	66			
11	Davao City	Nova Tierra Subdv.	-	-	-	42	-	-			
11	Davao City	Quirino Ave.	-	-	-	249	-	-			
11	Davao City	Km. 10 Kabantan	-	-	-	39	-	-			
<b>11</b>	<b>Davao City</b>	<b>Doña Consuelo Village, Malagamot Brgy. Panacan, Davao City</b>									<b>81</b>

**Table 1b. Annual Mean Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers Monitoring Stations by Region: 2000-2008 (ug/Ncm) (continued)**

Region	City/Province	Location	TSP Concentration (u g/Ncm)								
			2000	2001	2002	2003	2004	2005	2006	2007	2008
11	Davao City	Purok 5-A, amparo Subdv., Bugac Brgy. Ilang, Davao City									56
11	Davao City	TESDA CPd. Brgy. Tibungco, Davao City									31
11	Davao City	Purok 4, Piatos St., San Isidro, Brgy. Bunawan, Davao City									34
12	General Santos Cargil (Phils.) Inc.		-	-	-	-	135	-			
12	South Cotabato Banga		-	-	-	-	92	-			
12	South Cotabato Polomolok		-	-	-	99	-	-			
12	South Cotabato Suralla		-	-	-	93	-	-			
12	South Cotabato	Infront of Municipality Hall, Tupi, South Cotabato	-	-	-	95	-	-			86
12	North Cotabato Makilala		-	-	-	-	91	-			
12	Cotabato City	Infront of City Hall, Cotabato City									83
12	Midsayap, Cotabato City	Infront of Municipality Hall, Cotabato City									83
Caraga	Butuan City	Uriuos College	172	184	100	-	-	-			
Caraga	Butuan City	Old Caltex Depot, New Asia	-	-	-	96	83	81	71	74	63

Notes:

- 1) - Data not Available
- 2) Guideline Values for TSP: 230 u g/Ncm (24-hour averaging time)  
90 u g/Ncm (1 year averaging time)
- 3) **Red print entry** are those stations that conform with the TSP guideline value

Source: EMB Accomplishment Report 2008



**Table 2a. Number of Classified Water Bodies  
(Including Principal and Small Rivers): 2007**

Region	AA	A	B	C	D	SA	SB	SC	SD	Total
NCR	0	1	0	4	0	0	0	0	0	5
CAR	2	9	20	6	0	0	0	0	0	37
1	0	10	4	10	0	0	1	0	0	25
2	0	3	8	23	5	0	0	0	0	39
3	0	17	7	27	1	0	2	2	0	56
4-A	0	3	10	28	0	0	0	1	0	42
4-B	0	7	1	29	3	3	1	2	0	46
5	0	24	13	14	2	0	1	1	0	55
6	0	20	7	19	0	0	8	0	0	54
7	1	23	3	2	1	1	5	3	0	39
8	0			25	0	0	0	3	3	31
9	0	23	14	0	0	0	0	0	0	37
10	0	35		0	0	0	0	1	0	36
11	2	7	8	7	3	0	3	0	0	30
12	0	9	10	9	4	0	4	3	0	39
Caraga	0	10	1	6	7	1	0	0	0	25
<b>Philippines</b>	<b>5</b>	<b>201</b>	<b>106</b>	<b>209</b>	<b>26</b>	<b>5</b>	<b>25</b>	<b>16</b>	<b>3</b>	<b>596</b>

Notes:

- 1) 0 - No classified waterbody
- 2) Water bodies - both natural and man made bodies of fresh, brackish, and saline waters, and includes but is not limited to aquifers, groundwater, springs, creeks, streams, rivers, ponds, lagoons, water reservoirs, lakes, bays, estuarine, coastal and marine waters.

*Source: Water Quality Section, Environmental Quality Division, Environmental Management Bureau*

**Table 2b. Number of Classified Water Bodies  
(Including Principal and Small Rivers): 2008**

Region	AA	A	B	C	D	SA	SB	SC	SD	Total
NCR	0	1	0	4	0	0	0	0	0	5
CAR	2	9	20	6	0	0	0	0	0	37
1	0	10	4	10	0	0	1	0	0	25
2	0	3	8	24	5	0	0	0	0	40
3	0	17	7	27	1	0	2	2	0	56
4-A	0	3	12	30	0	0	0	1	0	46
4-B	0	7	2	31	3	3	2	2	0	50
5	0	24	14	14	2	0	1	1	0	56
6	0	20	7	23	0	0	8	0	0	58
7	1	23	3	2	1	1	5	3	0	39
8	0	0	1	28	0	0	0	3	3	35
9	0	24	16	0	0	0	0	0	0	40
10	0	37	0	0	0	0	0	1	0	38
11	2	7	8	7	3	0	4	0	0	31
12	0	10	10	9	4	0	4	3	0	40
Caraga	0	10	1	7	8	1	0	0	0	27
<b>Philippines</b>	<b>5</b>	<b>205</b>	<b>113</b>	<b>222</b>	<b>27</b>	<b>5</b>	<b>27</b>	<b>16</b>	<b>3</b>	<b>623</b>

Notes:

- 1) 0 - No classified waterbody
- 2) Water bodies - both natural and man made bodies of fresh, brackish, and saline waters, and includes but is not limited to aquifers, groundwater, springs, creeks, streams, rivers, ponds, lagoons, water reservoirs, lakes, bays, estuarine, coastal and marine waters.

*Source: Water Quality Section, Environmental Quality Division, Environmental Management Bureau*

**Table 3a. Water Quality Monitoring by Region: 2000-2001 (mg/L)**

Region	Water Body	Class	2000				2001			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
NCR	Pasig River	C	3.3	7.06	Failed	Failed	3.6	11.5	Failed	Failed
NCR	NMTT River	C	2.88	-	Failed	-	2.75	15	Failed	Failed
NCR	Marikina River	C	4.63	7.43	Failed	Failed	3.6	8.8	Failed	Failed
NCR	Parañaque River	C	4.90	19.60	Failed	Failed	1.58	13.3	Failed	Failed
<b>NCR</b>	<b>San Juan River</b>	<b>C</b>	<b>3.29</b>	<b>16.56</b>	<b>Failed</b>	<b>Failed</b>	<b>2.1</b>	<b>30.17</b>	<b>Failed</b>	<b>Failed</b>
CAR	Bued River	C	9.45	-	Passed	-	7.68	-	Passed	-
CAR	Ambalanga and Butuang River	C	6.98	-	Passed	-	8.19	-	Passed	-
CAR	Potia-Taotao River	C	9.44	-	Passed	-	-	-	-	-
CAR	Ibulao River	C	9.58	-	Passed	-	-	-	-	-
CAR	Lamut River	C	7.63	-	Passed	-	-	-	-	-
CAR	Alimit River	C	9.76	-	Passed	-	-	-	-	-
CAR	Amburayan River	B	9.26	-	Passed	-	8.56	-	Passed	-
CAR	Asin-Gallano River	C	9.60	-	Passed	-	8.96	-	Passed	-
CAR	Balili River	C	6.73	-	Passed	-	5.69	-	Passed	-
CAR	Mankayan, Suyoc and Abra River	A	9.39	-	Passed	-	8.63	-	Passed	-
CAR	Bago River	C	6.61	-	Passed	-	9.14	-	Passed	-
CAR	Balog River, Sal-angan Creek, Albion Creek and PMC	C	-	-	-	-	9.10	-	Passed	-
1	Agno River	C	5.74	2.27	Passed	Passed	-	-	-	-
1	Laoag River	A	-	-	-	-	6.56	1.43	Passed	Passed
3	Pampanga River	C	6.99	2.70	Passed	Passed	5.97	3.80	Passed	Passed
<b>3</b>	<b>Meycauyan River</b>	<b>C</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6.87</b>	<b>36</b>	<b>Passed</b>	<b>Failed</b>
3	Bocaue River	C	-	-	-	-	6.11	23	Passed	Failed

**Table 3a. Water Quality Monitoring by Region: 2000-2001 (mg/L) (Continued)**

Region	Water Body	Class	2000				2001			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
4-A	Nahalinan River	C	5.95	-	Passed	-	5.94	-	Passed	-
4-A	Palico River	C	-	-	-	-	4.33	3	Failed	Passed
4-A	Maruhi River	C	6.12	-	Passed	-	6.12	-	Passed	-
4-A	Binahaan River	C	6.43	6.66	Passed	Passed	-	-	-	-
4-A	Palsabangon	C	6.40	-	Passed	-	6.4	-	Passed	-
4-A	Pagbilao River	C	5.54	-	Passed	-	6.26	-	Passed	-
4-A	Pagbilao Bay	SC	6.76	-	Passed	-	-	-	-	-
4-A	Binakaan River	C	-	-	-	-	6.5	-	Passed	-
4-B	Puerto Galera Bay	SA	8.02	-	Passed	-	-	-	-	-
4-B	Calancan Bay	SB	5.77	-	Passed	-	-	-	-	-
4-B	Mogpog River	C	5.72	-	Passed	-	6.03	-	Passed	-
4-B	Boac River	C	7.32	-	Passed	-	8.09	-	Passed	-
4- B	Naujan Lake	B	1.00	12.30	Failed	Failed	-	-	-	-
4-B	Rio-tuba Tagpisa	C	-	-	-	-	7.13	-	Passed	-
5	Pawili River	C	7.51	2.31	Passed	Passed	-	-	-	-
6	Iloilo River	C	5.40	3.50	Passed	Passed	4.3	3.25	Failed	Passed
6	Jaro- Aganan River	C	8.92	2.98	Passed	Passed	7.82	1.58	Passed	Passed
6	Panay River	A	7.01	2.61	Passed	Passed	7.43	2.5	Passed	Passed
6	Jalaur River	C	8.11	2.99	Passed	Passed	7.52	2.23	Passed	Passed
6	Jaro River	B	8.46	1.78	Passed	Passed	-	-	-	-

**Table 3a. Water Quality Monitoring by Region: 2000-2001 (mg/L) (Continued)**

Region	Water Body	Class	2000				2001			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
7	Guadalupe River	C	23.60	43.68	Passed	Failed	-	-	-	-
7	Cansaga Bay	SC	4.64	14.10	Failed	Failed	-	-	-	-
7	Coastal of Mandaue to Consolacion	SC	5.06	24.24	Passed	Failed	-	-	-	-
7	Coastal Liloan to Compostela	SC	7.78	1.78	Passed	Passed	-	-	-	-
7	Coastal Water of Inabanga, Bohol	SC	5.93	1.48	Passed	Passed	-	-	-	-
7	Coastal Water of Minglanilla, Cebu	SC	6.31	2.75	Passed	Passed	-	-	-	-
7	Managa River	A	7.43	2.02	Passed	Passed	-	-	-	-
7	Silot Bay	SB	6.27	1.06	Passed	Passed	-	-	-	-
7	Consolacion-Danao City	C	-	-	-	-	6.5	0.97	Passed	Passed
8	Embarkadero River	C	10.16	-	Passed	-	8.6	-	Passed	-
8	Taft River	C	9.96	-	Passed	-	8.11	-	Passed	-
8	Tigbao River	C	-	-	-	-	5.95	-	Passed	-
8	Bao River	C	-	-	-	-	7.47	-	Passed	-
9	Saaz River	B	6.41	3.64	Passed	Passed	6.12	2.07	Passed	Passed
9	Sinunuc River	B	5.92	2.64	Passed	Passed	-	-	-	-
9	Mercedes River	C	5.46	3.65	Passed	Passed	5.2	3.46	Passed	Passed
9	Cabaluay River	C	5.87	3.17	Passed	Passed	4.98	3.97	Failed	Passed
9	Manicahan River	B	6.06	3.01	Passed	Passed	5.79	2.28	Passed	Passed
9	Bolong River	B	6.48	2.47	Passed	Passed	5.48	2.97	Passed	Passed
9	Cawa-cawa Beach	SC	5.07	3.35	Passed	Passed	-	-	-	-
9	Golf Course Beach	SC	5.99	2.69	Passed	Passed	-	-	-	-
9	La Vista del Mar Beach	SC	5.83	2.88	Passed	Passed	-	-	-	-
9	Patalon River	B	-	-	-	-	6.7	2.33	Passed	Passed
9	Tumaga River	C	-	-	-	-	4.88	12.11	Failed	Failed

**Table 3a. Water Quality Monitoring by Region: 2000-2001 (mg/L) (Continued)**

Region	Water Body	Class	2000				2001			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
10	Cagayan de Oro River	A	8.50	1.80	Passed	Passed	7.93	1.43	Passed	Passed
10	Iponan River	A	7.56	1.93	Passed	Passed	7.66	1.87	Passed	Passed
10	Bigaan River	C	7.87	6.40	Passed	Passed	-	-	-	-
10	Alae River	C	4.88	2.52	Failed	Passed	-	-	-	-
10	Agusan River	C	7.81	2.17	Passed	Passed	-	-	-	-
10	Tagoloan River	A	8.04	1.63	Passed	Passed	7.94	1.48	Passed	Passed
10	Umalag River	C	7.93	1.90	Passed	Passed	7.25	1.13	Passed	Passed
10	Cugman River	C	-	-	-	-	7.53	1.64	Passed	Passed
10	Acuna River	A	-	-	-	-	6.46	-	Passed	-
10	Naawan River	C	-	-	-	-	8.18	1.2	Passed	Passed
10	Cabug River	C	-	-	-	-	6.14	1.7	Passed	Passed
10	Taliyasán River	C	-	-	-	-	7.44	1.93	Passed	Passed
10	River along Gingoong City	C	-	-	-	-	7.55	1.26	Passed	Passed
10	Linubog River	C	-	-	-	-	7.96	7.96	Passed	Failed
10	Mandulog River	C	-	-	-	-	8.17	1.25	Passed	Passed
10	Alubijid River	C	-	-	-	-	7.38	1.7	Passed	Passed
11	Talomo River	B	7.43	2.74	Passed	Passed	7.51	2.38	Passed	Passed
11	Sibulan River	B	8.03	0.37	Passed	Passed	8.16	0.66	Passed	Passed
11	Malita River	B	7.21	0.89	Passed	Passed	7.43	0.59	Passed	Passed
11	Padada River	D	6.84	1.76	Passed	Passed	6.14	2.48	Passed	Passed
11	Tuganay River	B	5.80	1.49	Passed	Passed	6.29	1.42	Passed	Passed
11	Kingking River	C	7.06	0.83	Passed	Passed	7.43	1	Passed	Passed
11	Sumlog River	C	7.51	0.71	Passed	Passed	7.33	0.98	Passed	Passed

**Table 3a. Water Quality Monitoring by Region: 2000-2001 (mg/L) (Continued)**

Region	Water Body	Class	2000				2001			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
11	Hijo River	C	7.48	0.87	Passed	Passed	7.68	0.93	Passed	Passed
11	Agusan River	C	7.11	0.93	Passed	Passed	7.17	1.14	Passed	Passed
11	Naboc River	C	7.22	0.68	Passed	Passed	7.31	1.24	Passed	Passed
11	Ilang River	C	6.74	2.45	Passed	Passed	6.98	2.03	Passed	Passed
11	Lasang River	B	7.50	1.41	Passed	Passed	7.89	0.91	Passed	Passed
11	Lipadas River	C	7.55	2.19	Passed	Passed	7.4	1.48	Passed	Passed
11	Davao River	B	7.31	0.68	Passed	Passed	7.49	1.08	Passed	Passed
11	Tagum River	D	6.80	1.29	Passed	Passed	6.45	0.94	Passed	Passed
11	Pujada Bay	SB	7.01	2.10	Passed	Passed	-	-	-	-
11	Kopiat Bay	SB	6.34	0.41	Passed	Passed	-	-	-	-
11	Malalag Bay	SB	5.92	0.89	Passed	Passed	-	-	-	-
11	Bunawan River	C	-	-	-	-	6.69	1.64	Passed	Passed
11	Digos River	C	-	-	-	-	7.7	0.77	Passed	Passed
12	Matingao River	B	8.71	-	Passed	-	-	-	-	-
12	Naungan River	D	4.38	1.67	Failed	Passed	-	-	-	-
12	Libungan River	D	7.28	1.42	Passed	Passed	-	-	-	-
12	Buayan River	C	7.60	3.30	Passed	Passed	-	-	-	-
12	Malasila River	C	8.40	2.30	Passed	Passed	-	-	-	-
12	Silway River	C	7.40	3.80	Passed	Passed	8.98	10.32	Passed	Failed
12	Lun Padidu River	C	8.10	2.00	Passed	Passed	-	-	-	-
12	Sarangani	C	7.10	7.00	Passed	Passed	-	-	-	-
12	Banga River	C	7.50	2.20	Passed	Passed	-	-	-	-
12	Sarangani Bay	SC	7.40	3.64	Passed	Passed	-	-	-	-
12	Sarangani Bay 2	SC	5.54	2.73	Passed	Passed	-	-	-	-
12	Marbel River	D	-	-	-	-	7.96	7.89	Passed	Failed

**Table 3a. Water Quality Monitoring by Region: 2000-2001 (mg/L) (Continued)**

Region	Water Body	Class	2000				2001			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
Caraga	Agusan River	C	5.88	0.78	Passed	Passed	6.3	0.63	Passed	Passed
Caraga	Andanan River	C	6.50	0.38	Passed	Passed	6.76	0.29	Passed	Passed
Caraga	Magallanes River	C	6.05	0.48	Passed	Passed	5.76	0.45	Passed	Passed

Notes:

- 1) DO - Dissolved Oxygen  
BOD - Biochemical Oxygen Demand
- 2) Guideline values for DO : 5.0 mg/L (minimum)  
BOD : 7.0 mg/L (maximum)
- 3) - Data not Available
- 4) **Brown print** entry are stations with high exceedances in BOD guideline value

Source: Water Quality Section, Environmental Quality Division, Environmental Management Bureau



**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
NCR	Pasig River	C	3.67	17.07	Failed	Failed	3.1	10.7	Failed	Failed
NCR	NMTT River	C	2.8	25.63	Failed	Failed	3.6	22.3	Failed	Failed
NCR	Marikina River	C	5.03	12.11	Passed	Failed	3.1	18.2	Failed	Failed
NCR	Parañaque River	C	3.07	25.62	Failed	Failed	2.5	42	Failed	Failed
<b>NCR</b>	<b>San Juan River</b>	<b>C</b>	<b>3</b>	<b>34.81</b>	<b>Failed</b>	<b>Failed</b>	<b>2.4</b>	<b>54.8</b>	<b>Failed</b>	<b>Failed</b>
CAR	Bued River	C	8.74	-	Passed	-	8.7	-	Passed	-
CAR	Asin-Gallano River	C	9.94	-	Passed	-	11.3	-	Passed	-
CAR	Balili River	A	4.72	10.67	Failed	Failed	4.6	-	Failed	-
CAR	Balog River, Sal-angan Creek, Albion Creek and PMC	C	13.75	-	Passed	-	10.4	-	Passed	-
CAR	Antamok River	C	11.36	-	Passed	-	8	-	Passed	-
CAR	Ambalanga and Butuang River	C	10.26	-	Passed	-	8.2	-	Passed	-
CAR	Twin River and Balatoc Tunnel	C	10.71	-	Passed	-	8.8	-	Passed	-
CAR	Abra, Mankayan and Suyoc Rivers	A	7.63	-	Passed	-	-	-	-	-
CAR	BC-BAGO, Antamok, Balisong	A	9.99	-	Passed	-	-	-	-	-
CAR	Pugo River	C	10.27	-	Passed	-	9	-	Passed	-
CAR	Budacao River	A	-	-	-	-	9.1	-	Passed	-
CAR	Depanay River	C	-	-	-	-	8.9	-	Passed	-
CAR	Sal-Angan Creek	C	-	-	-	-	9.1	-	Passed	-
CAR	Albion Creek	C	-	-	-	-	11.02	-	Passed	-
CAR	Balisong Creek	C	-	-	-	-	10.4	-	Passed	-

**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L) (Continued)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
1	Agno River	C	-	-	-	-	12.6	-	Passed	-
1	Aringay River	B	8.33	2	Passed	Passed	-	-	-	-
1	Dagupan River	C	4.93	8.39	Failed	Failed	-	-	-	-
1	Baroro River	A	-	-	-	-	9.2	3	Passed	Passed
1	Sinocalan River	A	-	-	-	-	5.8	2.2	Passed	Passed
2	Cagayan River	C	7.11	-	Passed	-	7.8	-	Passed	-
3	Pampanga River	C	5.86	3.78	Passed	Passed	5.3	2.8	Passed	Passed
<b>3</b>	<b>Meycauyan River</b>	<b>C</b>	<b>1.35</b>	<b>54.94</b>	<b>Failed</b>	<b>Failed</b>	<b>-</b>	<b>38.2</b>	<b>-</b>	<b>Failed</b>
3	Marilao River	C	1.75	34.64	Failed	Failed	0.8	32.3	Failed	Failed
3	Bocaue River	C	6.19	11.13	Passed	Failed	1.9	12.2	Failed	Failed
4-A	Palico River	C	6.95	1.11	Passed	Passed	5.2	6.4	Passed	Passed
4-A	Taal Lake	B	7.68	1.63	Passed	Passed	-	-	-	-
4-A	Iyam River	C	7.61	2.67	Passed	Passed	-	-	-	-
4-A	Pagbilao River	C	-	2.1	-	Passed	5.3	2.9	Passed	Passed
4-A	Pagbilao Bay	SC	-	-	-	-	6.4	-	Passed	-
4-A	Imus River	C	-	-	-	-	3	8	Failed	Failed
4-A	Lian Bathing Beaches	C	-	-	-	-	5.6	-	Passed	-
4-A	Mabini Batching Beaches	C	-	-	-	-	7.1	-	Passed	-
4-A	Ylang-Ylang River	C	-	-	-	-	4.5	24.4	Failed	Failed

**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L) (Continued)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
4-B	Puerto Galera Bay	SB	6.63	-	Passed	-	6.1	-	Passed	-
4-B	Calancan Bay	SB	9.56	-	Passed	-	7.3	-	Passed	-
4-B	Mogpog River	C	-	-	-	-	4.9	-	Failed	-
4-B	Boac River	C	10.42	-	Passed	-	6	-	Passed	-
4-B	Cajimos Bay	SC	7.32	-	Passed	-	6.2	-	Passed	-
4-B	Calapan River	C	1.46	30	Failed	Failed	3.1	4.1	Failed	Passed
4-B	Sabang Bay	C	-	-	-	-	6.4	-	Passed	-
5	Sagumayon River	C	3.96	5.96	Failed	Passed	-	-	-	-
5	Yawa River	C	-	-	-	-	7.4	6.3	Passed	Passed
5	Anayan River	C	-	-	-	-	5.6	8.9	Passed	Failed
5	Lake Bato	C	-	-	-	-	8.9	4.1	Passed	Passed
5	Malaguit River	C	-	-	-	-	4.6	-	Failed	-
5	Panique River	C	-	-	-	-	2.7	-	Failed	-
5	Paracale River	C	-	-	-	-	5.5	-	Passed	-
6	Iloilo River	C	5.06	2.92	Passed	Passed	4.2	2.4	Failed	Passed
6	Jaro- Aganan River	C	8.21	2.7	Passed	Passed	7.3	2.3	Passed	Passed
6	Jalaur River	C	7.94	1.93	Passed	Passed	6.8	4	Passed	Passed
6	Southern Iloilo Coastline	SB	8.03	1.75	Passed	Passed	-	-	-	-
6	Imbang-Malisbog River	C	7.3	5.58	Passed	Passed	-	-	-	-
6	Boracay Coastal Water	C	-	-	-	-	3.4	1.5	Failed	Passed

**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L) (Continued)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
7	Banica River	C	-	-	-	-	7.5	1.3	Passed	Passed
7	Butuanon River	C	-	-	-	-	2.3	113.3	Failed	Failed
7	Cansaga Bay	SC	5.04	6.23	Passed	Passed	-	-	-	-
7	Managa River	A	5.5	7.1	Psssed	Failed	-	-	-	-
7	Cot-cot River	A	6.56	3.06	Passed	Passed	-	-	-	-
7	Argao River	B	7.85	1.07	Passed	Passed	-	-	-	-
7	Balamban River	B	7.35	1.07	Passed	Passed	-	-	-	-
7	Guinabasan River	A	8.05	2.13	Passed	Passed	-	-	-	-
7	Guadalupe River	C	-	-	-	-	1.2	128.6	Failed	Failed
7	Maribojoc Bay	C	-	-	-	-	6.2	4.5	Passed	Passed
7	Olango Island	SA	-	-	-	-	7.6	1.5	Passed	Passed
7	Abatan River	C	-	-	-	-	6.2	1	Passed	Passed
7	South Bais Bay	SA	-	-	-	-	7.2	0.8	Passed	Passed
7	Ocoy River	C	-	-	-	-	8.1	1.7	Passed	Passed
7	Bais Bay	C	-	-	-	-	7.6	2.1	Passed	Passed
7	Hilutungan Channel	C	-	-	-	-	7.4	1.8	Passed	Passed
8	Taft River	C	7.19	-	Passed	-	-	-	-	-
8	Tigbao River	C	5.43	-	Passed	-	-	-	-	-
8	Ormoc Bay	SC	6.76	-	Passed	-	8.7	-	Passed	-
8	Bao River	C	-	-	-	-	8.1	-	Passed	-

**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L) (Continued)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
9	Saaz River	B	6.93	2.8	Passed	Passed	8.1	1.8	Passed	Passed
9	Mercedes River	C	5.37	5.02	Passed	Passed	5.7	3	Passed	Passed
9	Cabaluay River	C	5.89	4.42	Passed	Passed	6.1	2.5	Passed	Passed
9	Manicahan River	B	6.16	3.89	Passed	Passed	7.4	1.8	Passed	Passed
9	Bolong River	B	6.01	3.31	Passed	Passed	11.1	-	Passed	-
9	Cawa-cawa Beach	SC	5.3	4.57	Passed	Passed	-	-	-	-
9	Golf Course Beach	SC	7.2	2.84	Passed	Passed	7.1	2.9	Passed	Passed
9	La Vista del Mar Beach	SC	7.9	2.7	Passed	Passed	7.2	2.4	Passed	Passed
9	Patalon River	B	6.96	2.17	Passed	Passed	7.9	1.8	Passed	Passed
9	Tumaga River	C	5.65	6.67	Passed	Passed	5.6	4	Passed	Passed
10	Cagayan de Oro River	A	8.52	2.11	Passed	Passed	8.6	1.2	Passed	Passed
10	Iponan River	A	8.42	2.39	Passed	Passed	7.6	3.8	Passed	Passed
10	Tagoloan River	A	7.97	1.91	Passed	Passed	8.6	1.5	Passed	Passed
10	Umalag River	C	6.24	3.86	Passed	Passed	6.3	3.2	Passed	Passed
10	Samay River	A	8.39	2.16	Passed	Passed	-	-	-	-
10	Cugman River	C	7.63	2.6	Passed	Passed	-	-	-	-
10	Raagas Beach	SB	7.28	-	Passed	-	13.3	-	Passed	-
10	Roan Beach	SB	6.82	-	Passed	-	7.1	-	Passed	-
10	Acuna River	A	6.73	-	Passed	-	7.5	-	Passed	-
10	Naawan River	C	7.39	2.03	Passed	Passed	-	-	-	-
10	Bulua Creek	C	3.32	34.65	Failed	Failed	-	-	-	-
10	Pulangi River	A	7.55	2.48	Passed	Passed	-	-	-	-
10	Macajalar Bay	C	6.72	-	Passed	-	7.2	-	Passed	-
10	Tumalaong River	A	-	-	-	-	8.0	-	Passed	-

**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L) (Continued)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
11	Talomo River	B	7.54	1.73	Passed	Passed	7.0	2.0	Passed	Passed
11	Sibulan River	B	-	-	-	-	14.7	0.9	Passed	Passed
11	Malita River	B	-	-	-	-	9.0	1.0	Passed	Passed
11	Padada River	C	-	-	-	-	6.5	1.4	Passed	Passed
11	Tuganay River	B	-	-	-	-	6.6	1.8	Passed	Passed
11	Kingking River	C	7.22	0.95	Passed	Passed	7.2	0.9	Passed	Passed
11	Sumlog River	C	-	-	-	-	17.8	1	Passed	Passed
11	Hijo River	C	-	-	-	-	7.7	0.8	Passed	Passed
11	Agusan River	C	7.99	0.9	Passed	Passed	7.5	0.9	Passed	Passed
11	Naboc River	C	8.59	0.76	Passed	Passed	7.8	1.1	Passed	Passed
11	Ilang River	C	-	-	-	-	5.2	2.1	Passed	Passed
11	Lasang River	B	-	-	-	-	7.1	1.2	Passed	Passed
11	Lipadas River	C	7.48	1.45	Passed	Passed	7.2	1.7	Passed	Passed
11	Davao River	B	7.18	0.85	Passed	Passed	7.2	1.1	Passed	Passed
11	Tagum River	D	-	-	-	-	6.5	0.8	Passed	Passed
11	Bunawan River	C	-	-	-	-	5.8	2.2	Passed	Passed
11	Digos River	C	-	-	-	-	7.6	0.7	Passed	Passed
11	Matiao River	C	-	-	-	-	8.3	0.6	Passed	Passed
12	Buayan River	C	-	-	-	-	7.6	3.3	Passed	Passed
12	Malasila River	C	-	-	-	-	8.4	2.3	Passed	Passed
12	Banga River	C	-	-	-	-	7.5	2.2	Passed	Passed

**Table 3b. Water Quality Monitoring by Region: 2002-2003 (mg/L) (Continued)**

Region	Water Body	Class	2002				2003			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
Caraga	Agusan River	C	6.35	1.4	Passed	Passed	6.6	1.3	Passed	Passed
Caraga	Magallanes River	C	6.28	0.68	Passed	Passed	6.4	0.6	Passed	Passed
Caraga	Taguibo River	D	7.53	0.88	Passed	Passed	7.6	1.6	Passed	Passed
Caraga	Taganito River	C	-	-	-	-	7.9	0.4	Passed	Passed
Caraga	Taganito Bay	SA	-	-	-	-	6.7	0.3	Passed	Passed

Notes:

- 1) DO - Dissolved Oxygen  
BOD - Biochemical Oxygen Demand
- 2) Guideline values for DO : 5.0 mg/L (minimum)  
BOD : 7.0 mg/L (maximum)
- 3) - Data not Available
- 4) **Brown print** entry are stations with high exceedances in BOD guideline value

Source: Water Quality Section, Environmental Quality Division, Environmental Management Bureau

**Table 3c. Water Quality Monitoring by Region: 2004-2005 (mg/L)**

Region	Water Body	Class	2004				2005			
			Average		Conformance with the Standard		Average		Conformance with the Standard	
			DO	BOD	DO	BOD	DO	BOD	DO	BOD
NCR	Pasig River	C	1.56	17.38	Failed	Failed	2.14	24.17	Failed	Failed
NCR	NMTT River	C	3.34	28.22	Failed	Failed	1.92	24.48	Failed	Failed
NCR	Marikina River	C	3.6	19.3	Failed	Failed	3.37	12.13	Failed	Failed
NCR	Parañaque River	C	2	45.67	Failed	Failed	1.32	29.46	Failed	Failed
<b>NCR</b>	<b>San Juan River</b>	<b>C</b>	<b>2.88</b>	<b>46.75</b>	<b>Failed</b>	<b>Failed</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
CAR	Bued River	C	9.13	-	Passed	-	-	-	-	-
CAR	Amburayan River	B	9.01	-	Passed	-	-	-	-	-
CAR	Balili River	C	5.48	14.75	Passed	Failed	-	-	-	-
CAR	Balog River, Sal-angan Creek, Albian Creek and PMC	C	6.2	-	Passed	-	-	-	-	-
CAR	Sal-Angan Creek	C	6.2	-	Passed	-	-	-	-	-
CAR	Albian Creek	C	5.58	-	Passed	-	-	-	-	-
CAR	Abra River	A	8.92	-	Passed	-	-	-	-	-
CAR	Chico River	B	8.31	-	Passed	-	8.23	-	Passed	-
1	Dagupan River	C	-	-	-	-	4.04	7.68	Failed	Passed
1	Balincaguin River	B	6.98	2.63	Passed	Passed	-	-	-	-
1	Bauang River	C	6.93	4	Passed	Passed	-	-	-	-
2	Cagayan River	C	9.41	1.2	Passed	Passed	7.01	1.4	Passed	Passed
3	Pampanga River	C	5.38	13	Passed	Failed	5.48	5.67	Passed	Passed
<b>3</b>	<b>Meycauyan River</b>	<b>C</b>	<b>1.23</b>	<b>50.58</b>	<b>Failed</b>	<b>Failed</b>	<b>0.45</b>	<b>119.73</b>	<b>Failed</b>	<b>Failed</b>
3	Marilao River	C	1.79	22.5	Failed	Failed	1.09	41.47	Failed	Failed
3	Bocaue River	C	1.98	8.75	Failed	Failed	2.73	6.4	Failed	Passed



**Table 3c. Water Quality Monitoring by Region: 2004-2005 (mg/L) (Continued)**

Region	Water Body	Class	2004				2005			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
4-A	Palico River	C	-	-	-	-	5.64	17.17	Passed	Failed
4-A	Imus River	C	5.65	7.5	Passed	Failed	5.18	9.47	Passed	Failed
4-A	Ylang-Ylang River	C	4.11	22.5	Failed	Failed	4.83	8.32	Failed	Failed
4-A	Cañas River	C	5.94	4.19	Passed	Passed	-	-	-	-
4-A	Labac-Balsahan River	C	5.81	4.58	Passed	Passed	-	-	-	-
4-A	Caylabne Beach Resort	SB	-	-	-	-	6.67	-	Passed	-
4-A	Puerto Azul Beach Resort	SB	-	-	-	-	6.63	-	Passed	-
4-A	Pansipit River	C	-	-	-	-	7.25	1.63	Passed	Passed
4-B	Puerto Galera Bay	SA	6.29	-	Passed	-	6.53	-	Passed	-
4-B	Calancan Bay	SB	6.9	-	Passed	-	7.1	-	Passed	-
4-B	Mogpog River	C	5.67	-	Passed	-	7.15	-	Passed	-
4-B	Boac River	C	7.25	-	Passed	-	8.11	-	Passed	-
4-B	Cajimos Bay	SC	6.94	-	Passed	-	7.25	-	Passed	-
4-B	Calapan River	C	2.31	7.32	Failed	Failed	2.85	15.46	Failed	Failed
4-B	Sabang Bay	C	6.99	-	Passed	-	-	-	-	-
5	Anayan River	D	5.44	9.37	Passed	Passed	5.65	2.34	Passed	Passed
5	Naga River	C	-	-	-	-	3.59	4.63	Failed	Passed
5	Malaguit River	C	4.12	5.69	Failed	Passed	5.75	1.5	Passed	Passed
5	Panique River	C	5.52	4.41	Passed	Passed	5.6	2.14	Passed	Passed
5	Paracale River	C	3.8	6.01	Failed	Passed	5.75	1.08	Passed	Passed
6	Jaro- Aganan River	C	7.1	2.2	Passed	Passed	7.66	2.4	Passed	Passed
6	Panay River	A	6.7	2.7	Passed	Passed	7.67	2	Passed	Passed
6	Jalaur River	C	6.56	7.72	Passed	Failed	7.44	1.86	Passed	Passed
6	Iloilo Strait	SC	6.81	-	Passed	-	7.27	-	Passed	-

**Table 3c. Water Quality Monitoring by Region: 2004-2005 (mg/L) (Continued)**

Region	Water Body	Class	2004				2005			
			Average		Conformance with the Standard		Average		Conformance with the Standard	
			DO	BOD	DO	BOD	DO	BOD	DO	BOD
7	Guadalupe River	C	-	-	-	-	1.63	52.05	Failed	Failed
7	North Bais Bay	SB	7.28	1.58	Passed	Passed	-	-	-	-
7	Lapu-Lapu Beaches	SB	7.57	-	Passed	-	-	-	-	-
7	Luyang River	C	7.88	2.38	Passed	Passed	7.57	2.04	Passed	Passed
7	Guindarohan River	C	7.58	0.78	Passed	Passed	-	-	-	-
7	Sicopong River	C	6.89	3.88	Passed	Passed	-	-	-	-
7	Sapangdaku River	C	7.56	1.88	Passed	Passed	7.14	0.86	Passed	Passed
8	Ormoc Bay	SC	8.36	-	Passed	-	9.83	-	Passed	-
9	Saaz River	B	7.33	1.84	Passed	Passed	7	1.87	Passed	Passed
9	Mercedes River	C	5.78	2.71	Passed	Passed	6.24	2.77	Passed	Passed
9	Cabaluay River	C	5.23	2.27	Passed	Passed	-	-	-	-
9	Manicahan River	B	6.3	1.87	Passed	Passed	-	-	-	-
9	Bolong River	B	5.65	2.48	Passed	Passed	-	-	-	-
9	Dakak Park Beach Resort	SB	7.69	-	Passed	-	-	-	-	-
9	Patalon River	B	7.87	1.46	Passed	Passed	6.83	1.49	Passed	Passed
9	Tumaga River	C	5.52	4.27	Passed	Passed	6.28	2.68	Passed	Passed
9	Balog River	C	7.21	-	Passed	-	-	-	-	-
9	Gingoog Bay	SC	-	-	-	-	7.61	-	Passed	-
9	Baluno spring	A	8.5	-	Passed	-	-	-	-	-
10	Cagayan de Oro River	A	-	-	-	-	8.13	1.26	Passed	Passed
10	Iponan River	A	5.81	1.24	Passed	Passed	-	-	-	-
10	Tagoloan River	A	6.02	1.42	Passed	Passed	-	-	-	-
10	Raagas Beach	SB	-	-	-	-	6.8	-	Passed	-
10	Duka Beach Resort	SB	6.5	-	Passed	-	-	-	-	-
10	Mandulog River	C	5.87	0.88	Passed	Passed	-	-	-	-

**Table 3c. Water Quality Monitoring by Region: 2004-2005 (mg/L) (Continued)**

Region	Water Body	Class	2004				2005			
			Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD
11	Talomo River	B	6.8	1.47	Passed	Passed	7.1	1.45	Passed	Passed
11	Sibulan River	B	8.23	0.73	Passed	Passed	8.16	0.96	Passed	Passed
11	Malita River	B	7.87	0.72	Passed	Passed	7.45	0.85	Passed	Passed
11	Padada River	D	7.22	0.97	Passed	Passed	7.8	0.92	Passed	Passed
11	Tuganay River	B	6.14	1.34	Passed	Passed	6.64	1.43	Passed	Passed
11	Kingking River	C	7.22	1.07	Passed	Passed	7.25	1.05	Passed	Passed
11	Sumlog River	C	7.89	0.62	Passed	Passed	7.57	0.79	Passed	Passed
11	Hijo River	C	7.64	0.63	Passed	Passed	7.62	0.71	Passed	Passed
11	Agusan River	C	7.08	0.73	Passed	Passed	7.69	0.84	Passed	Passed
11	Naboc River	C	8.11	0.7	Passed	Passed	7.31	1.5	Passed	Passed
11	Ilang River	C	6.16	1.8	Passed	Passed	5.18	2.54	Passed	Passed
11	Lasang River	B	7.61	1.14	Passed	Passed	7.79	1	Passed	Passed
11	Lipadas River	C	7.18	1	Passed	Passed	7.13	1.88	Passed	Passed
11	Davao River	B	7.64	0.8	Passed	Passed	7.33	0.95	Passed	Passed
11	Tagum River	D	7.18	0.67	Passed	Passed	6.37	1.66	Passed	Passed
11	Bunawan River	C	6.21	1.44	Passed	Passed	5.97	2.38	Passed	Passed
11	Digos River	C	7.91	0.82	Passed	Passed	7.83	0.83	Passed	Passed
11	Davao Gulf	C	6.54	-	Passed	-	-	-	-	-
11	Matiao River	C	7.87	1.15	Passed	Passed	7.6	0.85	Passed	Passed
11	Tamugan River	A	7.9	0.65	Passed	Passed	8.05	9	Passed	Failed
11	Saug River	C	7.14	0.86	Passed	Passed	6.71	1.06	Passed	Passed
11	Mainit-Padada River	C	7.5	1.14	Passed	Passed	-	-	-	-
11	Davao Gulf-Coaco	SB	-	-	-	-	6.3	-	Passed	-
11	Davao Gulf Bago Aplaya-Dumoy	SB	-	-	-	-	6.34	-	Passed	-
11	Davao Gulf Bunawan	SB	-	-	-	-	5.93	-	Passed	-
11	Mainit River	B	-	-	-	-	7.22	1.73	Passed	Passed

**Table 3c. Water Quality Monitoring by Region: 2004-2005 (mg/L) (Continued)**

Region	Water Body	Class	2004				2005			
			Average		Conformance with the Standard		Average		Conformance with the Standard	
			DO	BOD	DO	BOD	DO	BOD	DO	BOD
12	Sarangani Bay	SC	-	-	-	-	6.02	2.54	Passed	Passed
12	Bitanagan River	C	7.15	0.92	Passed	Passed	-	-	-	-
12	Saguing River	B	8.27	1.8	Passed	Passed	-	-	-	-
12	Kipalbig River	C	7.89	2.7	Passed	Passed	7.72	1.7	Passed	Passed
12	Maribulan River	C	7.88	2.5	Passed	Passed	8.06	2.7	Passed	Passed
12	Allah Valley River	B	7.56	3.55	Passed	Passed	7.29	4.07	Passed	Passed
Caraga	Agusan River	C	6.94	1	Passed	Passed	7.18	0.65	Passed	Passed
Caraga	Taguibo River	D	-	-	-	-	8.43	0.83	Passed	Passed
Caraga	Bislig River	C	6.73	0.75	Passed	Passed	6.68	0.54	Passed	Passed
Caraga	Tago River	C	7.51	0.79	Passed	Passed	-	-	-	-
Caraga	Tandag River	C	7.44	0.8	Passed	Passed	-	-	-	-
Caraga	Cabadbaran River	A	-	-	-	-	9.19	1.13	Passed	Passed
Caraga	Surigao River	A	-	-	-	-	7.54	0.76	Passed	Passed

Notes:

- 1) DO - Dissolved Oxygen  
BOD - Biochemical Oxygen Demand
- 2) Guideline values for DO : 5.0 mg/L (minimum)  
BOD : 7.0 mg/L (maximum)
- 3) - Data not Available
- 4) **Brown print** entry are stations with high exceedances in BOD guideline value

Source: Water Quality Section, Environmental Quality Division, Environmental Management Bureau

**Table 3d. Water Quality Monitoring by Region: 2006 - 2008 (mg/L)**

Region	Water Body	Class	2006				2007				2008			
			Average		Conformance		Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD			DO	BOD
NCR	Pasig River	C	2.5	13.55	Failed	Failed	2.41	15.45	Failed	Failed	3.15	20.49	Failed	Failed
NCR	NMTT River	C	1.59	17.81	Failed	Failed	1.99	27.69	Failed	Failed	1.41	40.61	Failed	Failed
NCR	Marikina River	C	2.17	15.03	Failed	Failed	2.20	25.43	Failed	Failed	2.62	18.18	Failed	Failed
NCR	Parañaque River	C	1.62	40.96	Failed	Failed	1.39	39.90	Failed	Failed	1.57	38.20	Failed	Failed
<b>NCR</b>	<b>San Juan River</b>	<b>C</b>	<b>1.05</b>	<b>33.40</b>	<b>Failed</b>	<b>Failed</b>	<b>1.63</b>	<b>40.42</b>	<b>Failed</b>	<b>Failed</b>	<b>1.85</b>	<b>44.19</b>	<b>Failed</b>	<b>Failed</b>
CAR	Bued River	C	8.76	1.67	Passed	Passed	8.09	1.88	Passed	Passed	7.68	1.00	Passed	Passed
CAR	Ambulalakaw Lake	AA	-	-	-	-	6.30	1.00	Passed	Passed	-	-	-	-
CAR	Pugo River	B	9.45	-	Passed	-	7.81	1.00	Passed	Passed	6.90	-	Passed	-
CAR	Abra River	A	7.40	226.40	Passed	Failed	-	-	-	-	-	-	-	-
CAR	Agno River	A	9.08	-	Passed	-	8.38	1.31	Passed	Passed	7.36	1.00	Passed	Passed
CAR	Chico River	NC	-	-	-	-	8.88	1.00	Passed	Passed	-	-	-	-
CAR	Amburayan River	B	8.61	-	Passed	-	8.32	1.33	Passed	Passed	7.74	1.00	Passed	Passed
CAR	Asin-Gallano River	B	9.12	-	Passed	-	8.25	1.00	Passed	Passed	7.85	1.08	Passed	Passed
CAR	Balili River	C (NC)*	6.89	23.33	Passed	Failed	6.17	25.36	Passed	Failed	4.55	37.44	Failed	Failed
1	Dagupan River	C	3.56	7.72	Failed	Failed	4.21	4.82	Failed	Passed	4.41	3.34	Failed	Passed
2	Cagayan River	C	7.09	1.65	Passed	Passed	6.42	1.20	Passed	Passed	6.02	2.20	Passed	Passed
3	Pampanga River	C	6.51	2.14	Passed	Passed	7.21	24.25	Passed	Failed	-	13.00	-	Failed
<b>3</b>	<b>Meycauyan River</b>	<b>C</b>	<b>0.00</b>	<b>144.07</b>	<b>Failed</b>	<b>Failed</b>	<b>5.05</b>	<b>56.00</b>	<b>Passed</b>	<b>Failed</b>	<b>2.48</b>	<b>35.55</b>	<b>Failed</b>	<b>Failed</b>
3	Bocaue River	C	1.94	7.19	Failed	Failed	5.78	8.83	Passed	Failed	4.96	11.84	Failed	Failed
3	Marilao River	C	0.96	21.92	Failed	Failed	5.39	21.17	Passed	Failed	2.39	11.09	Failed	Failed
3	Sta. Maria River	NC	3.58	7.37	Failed	Failed	6.71	13.89	Passed	Failed	5.03	7.78	Passed	Failed
3	San Fernando River	C	-	-	-	-	6.57	26.33	Passed	Failed	2.99	15.63	Failed	Failed

**Table 3d. Water Quality Monitoring by Region: 2006 - 2008 (mg/L) (Continued)**

Region	Water Body	Class	2006				2007				2008			
			Average		Conformance		Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD			DO	BOD
4-A	Imus River	C	4.70	9.10	Failed	Failed	5.16	10.13	Passed	Failed	4.13	11.09	Failed	Failed
4-A	Ylang-Ylang River	C	5.07	8.67	Passed	Failed	4.47	29.79	Passed	Failed	3.97	63.76	Failed	Failed
4-A	Pansipit River	C	7.57	1.83	Passed	Passed	7.40	1.17	Passed	Failed	7.15	1.33	Passed	Passed
4-A	Rio Grande River	C	-	-	-	-	6.52	3.83	Passed	Passed	4.55	5.00	Failed	Passed
4-A	Tingnoan River	C	-	-	-	-	-	-	-	-	8.06	-	Passed	-
4-A	Kinanliman River	C	-	-	-	-	-	-	-	-	7.96	-	Passed	-
4-A	Lubayat River	C	-	-	-	-	-	-	-	-	7.97	2	Passed	Passed
4-A	Agos River	C	-	-	-	-	-	-	-	-	7.95	-	Passed	-
4-A	Maragondon River	C	7.79	2.60	Passed	Passed	-	-	-	-	-	-	-	-
<b>4-B</b>	<b>Calapan River</b>	<b>C</b>	<b>2.16</b>	<b>5.14</b>	<b>Failed</b>	<b>Passed</b>	<b>3.28</b>	<b>5.88</b>	<b>Failed</b>	<b>Passed</b>	<b>3.07</b>	<b>3.83</b>	<b>Failed</b>	<b>Passed</b>
4-B	Labangan River	C	6.65	-	Passed	-	3.90	-	Failed	-	-	-	-	-
4-B	Mogpog River	C	7.85	-	Passed	-	7.49	-	Passed	-	-	-	-	-
4-B	Boac River	C	9.04	-	Passed	-	8.03	-	Passed	-	-	-	-	-
4- B	Tubaong River	C	5.88	-	Passed	-	6.80	-	Passed	-	-	-	-	-
4- B	Sabang Bay	SC	-	-	-	-	-	-	-	-	8.15	-	Passed	-
<b>5</b>	<b>Anayan River</b>	<b>D</b>	<b>6.67</b>	<b>1.46</b>	<b>Passed</b>	<b>Passed</b>	<b>5.92</b>	<b>3.85</b>	<b>Passed</b>	<b>Passed</b>	<b>6.50</b>	<b>2.81</b>	<b>Passed</b>	<b>Passed</b>
5	Tabaco Bay	NC	8.13	1.21	Passed	Passed	-	-	-	-	-	-	-	-
5	Lake Buhi	NC	8.61	1.78	Passed	Passed	-	-	-	-	-	-	-	-
<b>5</b>	<b>Malaguit River</b>	<b>C</b>	<b>6.29</b>	<b>2.31</b>	<b>Passed</b>	<b>Passed</b>	<b>6.56</b>	<b>2.73</b>	<b>Passed</b>	<b>Passed</b>	<b>7.43</b>	<b>-</b>	<b>Passed</b>	<b>-</b>
5	Paracale Bay	NC	7.32	1.65	Passed	Passed	-	-	-	-	-	-	-	-
<b>5</b>	<b>Panique River</b>	<b>C</b>	<b>7.85</b>	<b>1.47</b>	<b>Passed</b>	<b>Passed</b>	<b>7.08</b>	<b>1.05</b>	<b>Passed</b>	<b>Passed</b>	<b>6.87</b>	<b>-</b>	<b>Passed</b>	<b>-</b>
5	Sumagayon River	NC	-	-	-	-	4.33	10.19	Failed	Failed	4.30	6.94	Failed	Passed
5	Rio Guinobatan	NC	7.96	1.82	Passed	Passed	-	-	-	-	-	-	-	-
5	Paracale River	C	6.74	1.71	Passed	Passed	-	-	-	-	-	-	-	-
5	Bulusan Lake	NC	9.75	4.14	Passed	Passed	-	-	-	-	-	-	-	-

**Table 3d. Water Quality Monitoring by Region: 2006 - 2008 (mg/L) (Continued)**

Region	Water Body	Class	2006				2007				2008			
			Average		Conformance		Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD			DO	BOD
5	Lake Baao	NC	8.00	1.21	Passed	Passed	-	-	-	-	-	-	-	-
5	Balos River	NC	-	-	-	-	-	-	-	-	7.33	1.35	Passed	Passed
6	Iloilo Coastline	SC	7.18	-	Passed	-	6.67	-	Passed	-	6.21	-	Failed	-
6	Iloilo River	C (NC)*	5.30	2.13	Passed	Passed	5.36	3.64	Passed	Passed	4.47	4.35	Failed	Failed
6	Iloilo Strait	SC	6.66	-	Passed	-	-	-	-	-	-	-	-	-
6	Jaro- Aganan River	C	7.81	1.40	Passed	Passed	6.82	1.73	Passed	Passed	7.13	1.70	Passed	Passed
6	Panay River	A	6.68	2.08	Passed	Passed	6.89	1.22	Passed	Passed	6.43	2.08	Passed	Passed
6	Jalaur River	C	7.66	1.71	Passed	Passed	6.10	10.71	Passed	Failed	7.07	1.50	Passed	Passed
6	Boracay Coastal Water	SC	7.17	-	Passed	-	7.00	-	Passed	-	6.76	-	Passed	-
6	Guimaras Strait	SC	6.61	-	Passed	-	2.93	97.50	Failed	Failed	-	-	-	-
6	Batiano River	C	-	-	-	-	5.83	1.67	Passed	Passed	4.09	3.60	Failed	Passed
6	Imbang-Malisbog	C	-	-	-	-	-	-	-	-	6.95	9.70	Failed	Failed
6	Roxas City Coastline	SB	-	-	-	-	-	-	-	-	6.76	-	Passed	-
6	Malinao River		-	-	-	-	-	-	-	-	4.92	37.6	Failed	Failed
7	Butuanon River	D	3.24	29.24	Failed	Failed	3.37	56.54	Failed	Failed	3.47	22.41	Failed	Failed
7	<b>Luyang River</b>	<b>C</b>	<b>7.50</b>	<b>1.13</b>	<b>Passed</b>	<b>Passed</b>	<b>7.86</b>	<b>2.31</b>	<b>Passed</b>	<b>Passed</b>	<b>6.86</b>	<b>1.36</b>	<b>Passed</b>	<b>Passed</b>
7	Guadalupe River	SC(C)*	1.49	34.92	Failed	Failed	1.85	60.19	Failed	Failed	2.06	37.26	Failed	Failed
7	<b>Sapangdaku River</b>	<b>C</b>	<b>7.63</b>	<b>0.72</b>	<b>Passed</b>	<b>Passed</b>	<b>6.84</b>	<b>0.54</b>	<b>Passed</b>	<b>Passed</b>	<b>6.83</b>	<b>1.14</b>	<b>Passed</b>	<b>Passed</b>
7	Guindarohan River	A	-	-	-	-	-	-	-	-	7.74	2.05	Passed	Passed
7	Guinabasan River		-	-	-	-	-	-	-	-	6.39	1.97	Passed	Passed
8	Ormoc Bay	SC	8.61	-	Passed	-	11.69	38.00	Passed	Failed	-	-	-	-
9	Saaz River	B	8.50	1.31	Passed	Passed	7.84	0.71	Passed	Passed	8.36	1.29	Passed	Passed
9	Golf Course Beach Resort	SB	7.50	2.33	Passed	Passed	7.06	1.75	Passed	Passed	7.21	1.58	Passed	Passed
9	La Vista del Mar Beach Resort	SB	8.08	2.38	Passed	Passed	7.03	2.21	Passed	Passed	7.14	1.68	Passed	Passed
9	Cawa-Cawa Beach Resort	SB	5.78	3.13	Passed	Passed	5.73	3.89	Passed	Passed	6.53	2.27	Passed	Passed

**Table 3d. Water Quality Monitoring by Region: 2006 - 2008 (mg/L) (Continued)**

Region	Water Body	Class	2006				2007				2008			
			Average		Conformance		Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD			DO	BOD
9	Patalon River	B	8.63	1.04	Passed	Passed	7.73	0.81	Passed	Passed	7.83	1.54	Passed	Passed
9	Tumaga River	C	6.09	4.26	Passed	Passed	6.13	4.78	Passed	Passed	7.03	2.56	Passed	Passed
9	Mercedes River	C	6.45	3.41	Passed	Passed	6.23	3.79	Passed	Passed	7.48	1.75	Passed	Passed
9	Bolong Beach	SB	-	-	-	-	7.70	-	Passed	-	-	-	-	-
9	La Aplaya Bonita Beach	SB	-	-	-	-	7.77	-	Passed	-	-	-	-	-
9	Puerto Villa Beach	SB	-	-	-	-	7.80	-	Passed	-	-	-	-	-
<b>10</b>	<b>Cagayan de Oro River</b>	<b>A</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>8.27</b>	<b>4.00</b>	<b>Passed</b>	<b>Passed</b>	<b>8.13</b>	<b>-</b>	<b>Passed</b>	<b>-</b>
10	Cugman River	C	-	-	-	-	-	-	-	-	7.73	1.7	Passed	Passed
10	Iponan River	C	-	-	-	-	-	-	-	-	7.90	1.2	Passed	Passed
10	Bigaan River	A	-	-	-	-	-	-	-	-	8.13	1.00	Passed	Passed
10	Larapan River		-	-	-	-	-	-	-	-	8.33	1.40	Passed	Passed
10	Linamon River		-	-	-	-	-	-	-	-	7.87	-	Passed	-
11	Lipadas River	C	-	-	-	-	6.16	4.26	Passed	Passed	6.73	1.58	Passed	Passed
11	Lasang River	B	-	-	-	-	7.29	3.56	Passed	Passed	7.42	0.71	Passed	Passed
11	Ilang River	C	-	-	-	-	6.53	2.30	Passed	Passed	6.56	1.98	Passed	Passed
11	Kingking River	C	-	-	-	-	6.90	1.00	Passed	Passed	7.67	0.83	Passed	Passed
11	Hijo River	C	-	-	-	-	7.72	0.65	Passed	Passed	7.60	0.93	Passed	Passed
11	Tagum River	D	-	-	-	-	6.72	1.31	Passed	Passed	6.29	1.26	Passed	Passed
11	Tuganay River	B	-	-	-	-	5.95	2.10	Passed	Passed	5.01	2.53	Passed	Passed
11	Matiao River	C	-	-	-	-	7.94	0.67	Passed	Passed	8.30	0.54	Passed	Passed
11	Naboc River	C	-	-	-	-	7.49	0.72	Passed	Passed	7.58	0.73	Passed	Passed
11	Davao River	B	-	-	-	-	7.11	1.73	Passed	Passed	6.92	1.98	Passed	Passed
11	Davao Gulf-Coaco	SB	-	-	-	-	6.40	-	Passed	-	6.28	-	Passed	-
11	Davao Gulf- Bago Aplaya-Dumoy	SB	-	-	-	-	6.44	-	Passed	-	6.49	-	Passed	-
11	Davao Gulf Bunawan	SB	-	-	-	-	7.42	-	Passed	-	6.44	-	Passed	-
11	Davao Gulf-Sta. Cruz Area	NC	-	-	-	-	6.54	-	Passed	-	6.23	-	Passed	-



**Table 3d. Water Quality Monitoring by Region: 2006 - 2008 (mg/L) (Continued)**

Region	Water Body	Class	2006				2007				2008			
			Average		Conformance		Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD			DO	BOD
11	Tamugan River	A	-	-	-	-	7.84	0.65	Passed	Passed	7.68	0.67	Passed	Passed
11	Agusan River	C	6.64	1.05	Passed	Passed	6.74	1.03	Passed	Passed	7.21	0.77	Passed	Passed
11	Talomo River	B	6.70	2.29	Passed	Passed	6.30	3.55	Passed	Passed	6.72	2.10	Passed	Passed
11	Bunawan River	C	5.45	2.13	Passed	Passed	7.33	1.53	Passed	Passed	5.48	2.15	Passed	Passed
11	Digos River	C	7.80	0.71	Passed	Passed	7.48	0.68	Passed	Passed	8.01	1.51	Passed	Passed
11	Padada River	D	7.22	1.35	Passed	Passed	5.70	5.85	Passed	Passed	5.87	3.03	Passed	Passed
11	Malita River	B	6.93	0.94	Passed	Passed	6.84	0.98	Passed	Passed	7.50	0.64	Passed	Passed
11	Sibulan River	B	8.23	0.65	Passed	Passed	8.13	0.47	Passed	Passed	8.18	0.52	Passed	Passed
11	Baganga-Mahan-ub River	A	6.79	1.46	Passed	Passed	6.84	0.94	Passed	Passed	7.39	0.56	Passed	Passed
11	Saug River	B	6.85	1.02	Passed	Passed	6.67	0.98	Passed	Passed	6.68	1.54	Passed	Passed
11	Mainit River	B	6.52	1.33	Passed	Passed	6.50	1.03	Passed	Passed	6.91	0.76	Passed	Passed
11	Dapnan River	NC	6.90	0.88	Passed	Passed	6.94	1.12	Passed	Passed	7.38	0.56	Passed	Passed
11	Manurigao River	NC	7.93	0.50	Passed	Passed	6.33	1.23	Passed	Passed	6.97	1.03	Passed	Passed
11	Cateel River	NC	5.88	3.54	Passed	Passed	8.09	0.46	Passed	Passed	6.38	0.85	Passed	Passed
11	Punta Dumalag to Binugao River	NC	6.51	-	Passed	-	6.52	-	Passed	-	6.38	-	Passed	-
11	Bitanagan River	B	6.79	0.99	Passed	Passed	7.29	0.74	Passed	Passed	6.89	1.19	Passed	Passed
11	Sumlog River	C	-	-	-	-	-	-	-	-	7.40	0.75	Passed	Passed
11	Davao Gulf-Lasang Area to Punta Dumalag	NC	-	-	-	-	-	-	-	-	6.63	-	Passed	-
11	Davao Gulf-Digos Area to Malalag Bay	NC	-	-	-	-	-	-	-	-	6.36	-	Passed	-
12	Saranggani Bay	SC	6.66	3.74	Passed	Passed	6.73	-	Passed	-	6.16	-	Passed	-
12	Allah Valley River	C	6.14	-	Passed	Passed	-	-	-	-	-	-	-	-
12	Maribulan River	C	7.30	-	Passed	-	8.36	-	Passed	-	-	-	-	-
12	Malaang River	B (A)	7.70	-	Passed	-	8.24	-	Passed	-	-	-	-	-
12	Siguil River	A	8.41	2.80	Passed	Passed	8.96	-	Passed	-	-	-	-	-
12	Lun Masla River	A	8.27	1.60	Passed	Passed	7.67	-	Passed	-	-	-	-	-
12	Kipangkong River	C	7.72	1.20	Passed	Passed	7.12	-	Passed	-	-	-	-	-
12	Kabakan River	C	7.68	4.20	Passed	Passed	7.65	-	Passed	-	-	-	-	-

**Table 3d. Water Quality Monitoring by Region: 2006 - 2008 (mg/L) (Continued)**

Region	Water Body	Class	2006				2007				2008			
			Average		Conformance		Average		Conformance		Average		Conformance	
			DO	BOD	with the Standard		DO	BOD	with the Standard		DO	BOD	with the Standard	
					DO	BOD			DO	BOD			DO	BOD
12	Kalaong River	A	-	-	-	-	8.66	-	Passed	-	7.36	1.40	Passed	Passed
12	Kraan River	A	-	-	-	-	8.20	-	Passed	-	-	-	-	-
12	Kulaman River	A	-	-	-	-	8.31	-	Passed	-	7.62	1.60	Passed	Passed
12	Arakan River	A	-	-	-	-	7.67	-	Passed	-	8.12	1.40	Passed	Passed
12	Kipalbig River	C	-	-	-	-	7.80	-	Passed	-	-	-	-	-
12	Maitum Bay	SC	-	-	-	-	-	-	-	-	7.48	-	Passed	-
12	Lake Sebu	C	-	-	-	-	-	-	-	-	8.19	1.80	Passed	Passed
12	Maasim Bay	SC	-	-	-	-	-	-	-	-	8.18	-	Passed	-
12	Kiamba	SB	-	-	-	-	-	-	-	-	7.82	-	Passed	-
Caraga	Bislig River	C	6.91	0.63	Passed	Passed	-	-	-	-	-	-	-	-
Caraga	Agusan River	C	7.04	0.83	Passed	Passed	6.59	1.00	Passed	Passed	6.78	0.82	Passed	Passed
Caraga	Taguibo River	D	6.89	2.30	Passed	Passed	7.39	0.99	Passed	Passed	7.55	1.01	Passed	Passed
Caraga	Cabadbaran River	A	8.22	0.58	Passed	Passed	7.86	0.68	Passed	Passed	-	-	-	-
Caraga	Surigao River	A	8.09	0.55	Passed	Passed	-	-	-	-	-	-	-	-
Caraga	Tubay River	A	-	-	-	-	-	-	-	-	7.62	0.68	Passed	Passed
Caraga	Upper Chico River	B	-	-	-	-	-	-	-	-	7.71	-	Passed	-
Caraga	Wawa River	A	-	-	-	-	-	-	-	-	8.16	0.58	Passed	Passed

Notes:

- 1) DO - Dissolved Oxygen  
BOD - Biochemical Oxygen Demand
- 2) Guideline values for DO : 5.0 mg/L (minimum)  
BOD : 7.0 mg/L (maximum)
- 3) - Data not Available
- 4) **Brown print** entry are stations with high exceedances in BOD guideline value
- 5) **Red print entry** are stations that conform with DO and BOD guideline values

Source: Water Quality Section, Environmental Quality Division, Environmental Management Bureau

**Table 4. Number of Open Dump, Controlled Dump, Materials Recovery Facility (MRF) and Sanitary Landfill (SLF) by Region: 2004 - 2008**

Region	2004				2005				2006			
	Open Dump	Controlled Dump	Materials Recovery Facility	Sanitary Landfill	Open Dump	Controlled Dump	Materials Recovery Facility	Sanitary Landfill	Open Dump	Controlled Dump	Materials Recovery Facility	Sanitary Landfill
NCR	0	6	221	0	1	4	257	0	1	3	257	0
CAR	9	4	51	0	13	3	53	0	10	3	54	0
1	67	22	105	0	63	22	104	0	63	21	105	1
2	51	23	35	0	56	7	33	0	19	14	37	0
3	93	15	32	1	88	15	48	1	81	15	47	2
4-A	92	78	62	0	68	81	85	0	57	91	117	1
4-B	20	7	18	1	27	16	9	1	23	21	20	0
5	58	22	64	0	57	10	77	2	77	13	77	0
6	50	2	81	0	109	15	130	1	100	24	134	1
7	89	34	41	1	89	34	47	0	79	47	47	2
8	31	8	30	0	10	11	45	0	9	16	45	0
9	15	1	23	0	69	1	23	0	59	11	40	0
10	46	21	40	0	48	36	36	0	40	40	91	0
11	37	14	93	0	20	23	26	0	4	28	139	0
12	34	12	9	0	35	14	9	0	20	22	22	1
Caraga	57	26	30	0	52	17	33	0	50	19	33	0
ARMM												
<b>Philippines</b>	<b>749</b>	<b>295</b>	<b>935</b>	<b>3</b>	<b>805</b>	<b>309</b>	<b>1,015</b>	<b>5</b>	<b>692</b>	<b>388</b>	<b>1,265</b>	<b>8</b>

**Table 4. Number of Open Dump, Controlled Dump, Materials Recovery Facility (MRF) and Sanitary Landfill (SLF) by Region: 2004 - 2008 (Continued)**

Region	2007				2008			
	Open Dump	Controlled Dump	Materials Recovery Facility	Sanitary Landfill	Open Dump	Controlled Dump	Materials Recovery Facility	Sanitary Landfill
NCR		0	456	1		1	456	1
CAR	10	2	54	1	9	2	54	1
1	81	33	141	2	63	23	229	2
2	47	10	41	0	43	9	55	0
3	66	7	58	2	56	4	104	5
4-A	35	50	151	2	31	47	149	4
4-B	36	13	34	2	35	13	34	2
5	74	13	77	0	74	13	77	0
6	80	13	153	1	77	11	154	1
7	124	52	108	3	119	51	111	5
8	77	13	158	0	74	12	175	1
9	21	7	48	0	19	7	48	0
10	36	31	187	0	34	31	187	0
11	0	23	426	0	0	23	426	0
12	0	0	44	0	11	3	44	1
Caraga	46	13	49	0	28	13	124	0
ARMM			1	1			1	1
<b>Philippines</b>	<b>733</b>	<b>280</b>	<b>2,186</b>	<b>15</b>	<b>673</b>	<b>263</b>	<b>2,428</b>	<b>24</b>

*Source: National Solid Waste Management Secretariat (NSWMS), Environmental Management Bureau*

**Table 5. Number of Clearances and Registration Certificates Issued for Chemicals under Chemical Control Order (CCO): 2003-2008**

Region	2003				2004				2005			
	SQI Clearances Issued	Importation Clearances Issued	Registration Certificate Issued	PICCs Certificate Issued	SQI Clearances Issued	Importation Clearances Issued	Registration Certificate Issued	PICCs Certificate Issued	SQI Clearances Issued	Importation Clearances Issued	Registration Certificate Issued	PICCs Certificate Issued
NCR	74	32	6	-	55	32	8	-	101	41	17	106
CAR	0	0	0	-	0	1	0	-	-	3	2	1
1	0	0	0	-	0	0	0	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	3	4	1	-	2	4	1	-	4	9	9	3
4-A	10	25	8	-	13	14	5	-	13	58	27	14
4-B	1	-	-	-	0	0	-	-	-	-	-	1
5	0	1	12	-	0	1	19	-	-	2	9	4
6	0	0	0	-	0	1	0	-	-	1	-	-
7	165	25	21	-	200	37	23	-	190	29	15	7
8	0	0	0	-	-	-	-	-	-	-	6	-
9	0	0	0	-	0	0	0	-	-	-	-	2
10	1	1	1	-	-	-	-	-	-	1	4	-
11	0	0	9	-	1	3	19	-	-	3	4	7
12	1	1	3	-	1	1	1	-	-	-	3	1
Caraga	0	1	2	-	0	1	1	-	-	-	2	-
<b>Philippines</b>	<b>255</b>	<b>90</b>	<b>63</b>	<b>0</b>	<b>272</b>	<b>95</b>	<b>77</b>	<b>0</b>	<b>308</b>	<b>147</b>	<b>98</b>	<b>146</b>

**Table 5. Number of Clearances and Registration Certificates Issued for Chemicals under Chemical Control Order (CCO): 2003-2008 (Continued)**

Region	2006				2007				2008			
	SQI Clearances Issued	Importation Clearances Issued	Registration Certificate Issued	PICCs Certificate Issued	SQI Clearances Issued	Importation Clearances Issued	Registration Certificate Issued	PICCs Certificate Issued	SQI Clearances Issued	Importation Clearances Issued	Registration Certificate Issued	PICCs Certificate Issued
NCR	201	38	28	102	264	34	28	121	245	32	55	811
CAR	-	2	2	-	-	3	-	-	-	3	8	-
1	-	-	-	-	-	-	12	2	-	-	12	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	1	12	7	2	2	14	8	4	7	9	-	28
4-A	23	63	50	21	44	74	23	25	60	106	52	41
4-B	-	-	9	-	-	-	-	-	-	-	5	1
5	4	-	4	3	-	1	1	-	-	2	3	-
6	-	2	-	-	-	2	-	-	-	4	3	-
7	164	21	10	16	140	37	13	5	132	78	36	25
8	-	-	11	-	-	-	9	1	-	-	6	-
9	-	-	2	-	-	-	9	-	-	-	4	1
10	-	-	2	-	-	-	-	-	-	-	3	-
11	-	1	14	2	2	-	12	3	2	3	25	2
12	-	-	-	-	1	-	4	1	1	1	8	1
Caraga	-	1	3	-	-	1	2	-	-	1	4	-
<b>Philippines</b>	<b>393</b>	<b>140</b>	<b>142</b>	<b>146</b>	<b>453</b>	<b>166</b>	<b>121</b>	<b>162</b>	<b>447</b>	<b>239</b>	<b>224</b>	<b>910</b>

Notes:

1) - Data not available

2) SQI - Small Quantity Importation

PICCs - Philippine Inventory of Chemicals and Chemical Substances

Source: Environmental Management Bureau

**Table 6. Number of Registered Hazardous Wastes Generators (HWG) by Region: 2000-2008**

<b>Region</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
NCR	585	363	624	192	334	1,677	1,900	2,156	2,351
CAR	21	20	21	1	10	45	117	224	236
1	33	22	35	34	34	200	287	491	563
2	19	18	19	4	17	106	162	292	312
3	124	103	145	6	10	377	543	668	763
4-A	478	325	571	102	180	1,060	1,326	1,491	1,670
4-B	0		0	0	0	0	126	144	158
5	55	53	98	58	43	282	331	568	599
6	66	56	68	19	16	199	253	628	650
7	185	110	237	112	60	601	675	711	750
8	39	37	40	5	3	110	155	186	244
9	12	8	14	10	9	67	91	237	239
10	85	50	88	0	10	168	203	233	243
11	223	167	229	30	34	371	663	685	710
12	24	9	38	19	16	118	139	185	224
Caraga	50	8	166	30	10	250	281	305	322
<b>Philippines</b>	<b>1,999</b>	<b>1,349</b>	<b>2,393</b>	<b>622</b>	<b>786</b>	<b>5,631</b>	<b>7,252</b>	<b>9,204</b>	<b>10,034</b>

Note: 0 - No application received/approved

Source: Hazardous Wastes Management Section, Environmental Management Bureau

**Table 7a. Environmental Compliance Certificate (ECC) Issued for Non-Environmentally Critical Projects (ECAs) by Central Office and by Region: 2000-2008**

Region	2000	2001	2002	2003	2004	2005	2006	2007	2008
Central Office	177	71	1,452	0	0	0			19
NCR	265	296	504	463	614	250	91	112	226
CAR	69	77	132	143	127	188	124	161	112
1	208	198	195	233	506	356	221	233	172
2	114	125	162	232	246	219	182	104	200
3	299	392	385	587	733	522	332	550	470
4-A	733	750	763	1,144	1,131	608	376	388	391
4-B	96	140	125	228	278	228	168	173	294
5	61	96	182	269	306	279	191	122	134
6	375	326	385	623	809	566	398	355	343
7	218	187	256	433	667	350	290	325	313
8	27	25	113	165	314	230	130	112	112
9	91	50	95	176	149	104	104	88	120
10	142	225	236	340	338	302	175	242	219
11	191	286	104	225	289	210	153	194	250
12	57	70	121	186	206	178	145	154	131
Caraga	90	118	109	102	251	181	146	124	112
<b>Philippines</b>	<b>3,213</b>	<b>3,432</b>	<b>5,319</b>	<b>5,549</b>	<b>6,964</b>	<b>4,771</b>	<b>3,226</b>	<b>3,437</b>	<b>3,618</b>

Note: 0 - No application received/approved

Source: Environmental Impact Assessment Division, Environmental Management Bureau



**Table 7b. Environmental Compliance Certificate (ECC) Issued for  
Environmentally Critical Projects (ECPs) by Region: 2006-2008**

Region	2006				2007				2008			
	Golf Course	Heavy Industries	Infra-structure	Resource Extractive	Golf Course	Heavy Industries	Infra-structure	Resource Extractive	Golf Course	Heavy Industries	Infra-structure	Resource Extractive
NCR	0	0	0	0	1		3				1	
CAR	0	0	0	0								
1	0	0	0	0		1		1				
2	0	0	0	0								2
3	0	2	0	0	1	1	1	2	2		1	1
4-A	0	1	0	1		1	1					1
4-B	0	0	0	0		1						1
5	0	0	0	0								
6	0	0	1	1			1	1			1	
7	0	0	0	0		1		2	2		1	
8	0	0	0	0		1						
9	0	0	0	1				1				2
10	0	0	1	1		1		2			1	
11	0	0	0	1								
12	0	0	0	0		1		1				
Caraga	0	0	1	1				6		1		4
<b>Philippines</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>6</b>	<b>2</b>	<b>8</b>	<b>6</b>	<b>16</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>11</b>

Note: 0 - No application received/approved

Source: Environmental Impact Assessment Division, Environmental Management Bureau

**Table 8. Number of Pollution Adjudication Board (PAB) Orders Issued by Region: 2000 - 2008**

Region	2000					2001					2002				
	CDO	FLO	TLO	Others	Total	CDO	FLO	TLO	Others	Total	CDO	FLO	TLO	Others	Total
Central Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NCR	3	3	5	25	36	1	1	3	31	36	1	9	7	37	54
CAR	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
1	0	0	0	1	1	0	0	0	5	5	1	4	0	3	8
2	0	1	0	2	3	0	0	0	1	1	0	2	0	5	7
3	1	0	4	10	15	0	1	5	7	13	0	4	0	30	34
4-A	2	1	6	16	25	3	0	4	13	20	3	14	7	23	47
4-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	2	2	6	3	13	0	0	4	6	10	1	5	6	15	27
6	5	0	23	27	55	1	0	21	23	45	0	6	18	33	57
7	6	2	7	8	23	6	2	10	15	33	0	11	8	46	65
8	1	0	3	4	8	0	0	3	1	4	0	7	1	6	14
9	2	0	5	5	12	0	0	0	5	5	0	3	0	8	11
10	1	0	3	3	7	0	0	10	13	23	1	1	8	17	27
11	1	0	0	2	3	0	0	0	0	0	0	0	1	15	16
12	0	0	1	4	5	0	1	0	0	1	0	0	0	0	0
Caraga	2	0	2	2	6	0	0	2	0	2	0	1	2	2	5
<b>Philippines</b>	<b>26</b>	<b>9</b>	<b>65</b>	<b>112</b>	<b>212</b>	<b>11</b>	<b>5</b>	<b>62</b>	<b>120</b>	<b>198</b>	<b>7</b>	<b>67</b>	<b>58</b>	<b>242</b>	<b>374</b>

**Table 8. Number of Pollution Adjudication Board (PAB) Orders Issued by Region: 2000 - 2008 (Continued)**

Region	2003					2004					2005				
	CDO	FLO	TLO	Others	Total	CDO	FLO	TLO	Others	Total	CDO	FLO	TLO	Others	Total
Central Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NCR	3	4	6	32	45	3	12	12	77	104	10	22	14	48	94
CAR	0	0	0	0	0	0	0	0	2	2	0	0	0	5	5
1	0	1	0	3	4	0	1	0	4	5	0	1	0	3	4
2	0	0	0	1	1	0	0	0	1	1	0	1	0	2	3
3	2	2	1	8	13	1	6	0	31	38	0	1	2	4	7
4-A	2	0	7	11	20	0	2	4	26	32	4	5	2	18	29
4-B	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
5	6	2	7	22	37	0	0	10	21	31	1	4	2	5	12
6	1	1	4	33	39	1	5	7	25	38	0	1	4	8	13
7	1	3	6	47	57	1	3	8	19	31	4	2	3	16	25
8	0	2	0	3	5	0	0	0	2	2	0	0	0	0	0
9	1	1	1	5	8	0	0	0	6	6	0	0	1	3	4
10	1	7	5	25	38	0	2	4	13	19	0	3	0	12	15
11	0	0	0	6	6	0	0	1	5	6	1	1	3	19	24
12	0	3	0	4	7	0	0	0	2	2	0	0	0	0	0
Caraga	0	0	1	0	1	0	0	1	1	2	0	0	0	2	2
<b>Philippines</b>	<b>17</b>	<b>26</b>	<b>38</b>	<b>200</b>	<b>281</b>	<b>6</b>	<b>31</b>	<b>47</b>	<b>237</b>	<b>321</b>	<b>20</b>	<b>41</b>	<b>31</b>	<b>145</b>	<b>237</b>

**Table 8. Number of Pollution Adjudication Board (PAB) Orders Issued by Region: 2000 - 2008 (Continued)**

Region	2006					2007						2008					
	CDO	FLO	TLO	Others	Total	CDO	FLO	Dismissed	TLO	Others	Total	CDO	FLO	Dismissed	TLO	the	Total
Central Office	-	-	-	5	5	-	-	-	-	-	-	-	-	-	-	-	-
NCR	12	6	5	25	48	5	9	28	9	26	77	1	9	-	8	#	35
CAR	-	-	-	1	1	-	-	-	-	-	-	1	-	-	-	3	4
1	-	-	-	1	1	-	-	1	-	3	4	1	-	-	-	-	1
2	-	-	-	-	0	-	1	-	-	1	2	-	-	-	-	4	4
3	-	7	2	6	15	-	1	12	-	9	22	1	2	-	-	3	6
4-A	5	-	3	15	23	3	4	2	9	21	39	2	8	2	2	#	37
4-B	-	-	-	-	0	-	-	-	-	1	1	-	-	-	-	1	1
5	-	-	4	4	8	-	2	-	-	2	4	-	-	-	-	-	0
6	-	-	3	6	9	1	3	2	2	8	16	2	2	8	4	6	22
7	-	1	1	4	6	1	-	-	1	9	11	1	2	-	1	8	12
8	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0
9	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	2	2
10	1	-	2	6	9	-	4	2	2	4	12	-	-	-	-	2	2
11	-	1	-	3	4	1	-	1	1	3	6	-	-	-	1	6	7
12	-	-	-	3	3	2	2	-	3	1	8	-	-	-	-	-	0
Caraga	2	-	-	2	4	-	1	-	1	5	7	-	1	-	-	1	2
<b>Philippines</b>	<b>20</b>	<b>15</b>	<b>20</b>	<b>81</b>	<b>136</b>	<b>13</b>	<b>27</b>	<b>48</b>	<b>28</b>	<b>93</b>	<b>209</b>	<b>9</b>	<b>24</b>	<b>10</b>	<b>16</b>	<b>#</b>	<b>135</b>

Notes:

1) CDO - Cease and Desist Order

FLO - Formal Lifting Order/Case Closed/Terminated/Dismissed

TLO - Temporary Lifting Order

Others - For Resampling, Denial of the Motion, Imposition of Fines, Held in Abeyance pending the submission of the PAB Requirements, of CDO Reiteration, Notice Violations, Show Cause, Other Directives

2) 0 - no application received/approved

Source: Pollution Adjudication Board (PAB), Environmental Management Bureau

## **Section G**

### **Research, Development and Extension Sector**

The years spanning 2006 to 2009 was a productive period for the DENR Research Sector that includes the Ecosystems Research and Development Bureau (ERDB) and the various Ecosystems Research and Development Service (ERDS) of the DENR Regional Offices. Notwithstanding the natural calamities, and persistent issues and problems that need to be hurdled, the Sector pursued the general management, supervision and implementation of ENR research and development and extension (RDE) programs and projects in close coordination with stakeholders. The Sector's operations were made possible through its human resources that continued to hone their capabilities through local and international trainings, seminars and workshops on various fields.

The year 2006 was a reckoning point to give the Sector a more focused and coordinated type of Research, development and Extension (RDE) program and project implementation. The following year was the initiation of banner programs of the Sector where projects of similar nature were coordinated by ERDB and implemented by the different ERDS in their areas of jurisdiction. In 2007, a total of two hundred twelve (212) programs/projects were implemented by the Sector including twenty four (24) by the ERDB and one hundred eighty eight (188) by the regional ERDS (Table 1). In 2008, there were one hundred ninety (198) programs/projects implemented by the Sector (33 by ERDB and 165 by ERDS) and in 2009 two hundred fourteen programs/projects were implemented (49 by ERDB and 165 by ERDS).

The forty-nine (49) RDE programs/projects implemented in 2009 include the eleven (11) banner programs and thirty-eight (38) other priority RDE projects. Eighteen (18) of the other priority projects were externally-funded and the rest were ERDB-funded. Among the most significant RDE accomplishments include the provision of technical assistance to the implementation of 23 new vulnerability assessment (VA) projects, thirteen (13) of which have counterpart funds from ERDB and the completion of the evaluation of VA report and integration of project experiences as inputs in the refinement of the VA guidelines.

Among the significant accomplishment of the Sector was the vulnerability assessment of priority watersheds in the Philippines. Table 2 shows the different priority watersheds assessed for different types of vulnerabilities. These include flooding and soil erosion, hazards characteristic of majority of the watersheds assessed, water pollution (mostly in Luzon watersheds), fire, and biodiversity loss. The Table shows that all the watersheds were prone to landslide and soil erosion.

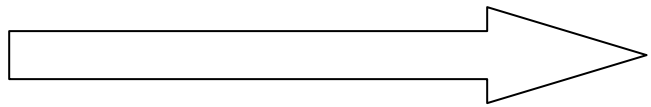
Table 3 shows the carrying capacity (CARCAP) of selected protected areas for ecotourism and Community Based Forestry Management (CBFM) areas as of December 2009. This was for nine (9) CBFM areas, and nineteen protected areas (PA) that include parks, small islands and seascapes. The carrying capacity of CBFM areas was expressed in terms of occupancy or number of families to be accommodated in the areas given certain constraints, while for PAs the unit was visitors/per day.

In support of the reforestation program of the government, the Sector conducted verification and assessment of sources of tree planting materials. Table 4 shows the different species identified as plus trees or good source of planting materials and the specific sites where these species can be located. Except for CAR, NCR, Regions 1, 2, 4A and 12, the different regions had verified and assessed seed sources.

The Sector also conducted advocacy and promotion activities, engaged in enterprise development, and conducted built-in research on Charcoal Briquetting Technology. Trainings for would-be users of the technology were conducted in various areas (Tables 5) and 14 units of equipment were fabricated and distributed to different local government units and other entities (Table 6).

Under the Technology Transfer and Extension activities, the ERDB with the contribution of the ERDS maintained its regular technical and semi-technical publications: Sylvatrop; Canopy International and Research Information Series on Ecosystems (RISE) and information brochures were produced for distribution to readers and subscribers (Table 7). The bureau also took part in several environment-related or DENR-sponsored exhibits (Table 8) to raise public awareness on ENR RDE projects. From these the Sector was able to receive positive feedbacks from the audience. The ERDB also conducted trainings for its staff and clientele to improve their capabilities and to increase awareness in ENR related matters (Table 9).

# Statistical Tables



**Table 1. Research, Development and Extension Programs/Projects  
Implemented by the DENR Research Sector, 2007-2009**

Office/Region	Research, Development, and Extension Projects		
	2007	2008	2009
ERDB	24	33	49
NCR	7	7	5
CAR	20	13	11
1	13	12	11
2	7	6	5
3	11	8	7
4a	7	9	9
4b	8	9	5
5	5	6	9
6	20	16	22
7	19	16	14
8	12	9	13
9	9	5	6
10	20	19	13
11	9	9	12
12	10	7	6
Caraga	11	14	17
<b>Philippines</b>	<b>212</b>	<b>198</b>	<b>214</b>



**Table 2. Priority Watersheds in the Philippines Assessed for Their Vulnerability (As of December 2009)**

No.	Region	Watershed	Area (hectares)	Hazards				
				Flooding	Landslide/ Soil Erosion	Water Pollution	Fire	Biodiversity Loss
1	CAR	Lusuac	492.33	√	√			
2		Camcamalog	583.62	√				
3		Bayudan	354.96		√		√	
4	1	Buaya	24,138	√	√	√	√	√
5		Lower Agno (Viray & Cabalisian)	5,473	√	√	√	√	√
6	3	Bunga sub-catchment	9,893.98	√	√			
7	4A	Lagnas	6,215					
8		Ylang-Ylang	5,714.11	√	√			√
9		Balanac	13,015.96	√	√	√		√
10		Binahaan	1,489.39	√	√			
11		Mabacan	4,438	√	√			
12		Yaganak	2,264.10	√	√	√		
13	4B	Kisloyan Sub-catchment	1,435.90	√	√			√
14	5	Yabo-Naga	5,518	√	√	√	√	√
15		Bito	4,023.47	√	√	√		√
16	6	Mambusao	44,820		√			√
17		Panakuyan	5,090		√			√
18		Bago	61,926		√			√
19	7	Luyang	5,537.99	√	√			
20		Mananga	7,877	√	√			
21		Guinabasan	12,639.45	√	√			
22	8	Taft	55,785.31	√	√			√
23		Daguitan	28,385.88	√	√		√	√

**Table 2. Priority Watersheds in the Philippines Assessed for Their Vulnerability (As of December 2009) (Continued)**

No.	Region	Watershed	Area (hectares)	Hazards				
				Flooding	Landslide/ Soil Erosion	Water Pollution	Fire	Biodiversity Loss
24	10	Bubunawan	26,977	√	√			
25		Dioyo	10,939.75	√	√			
26		Liangan	23,034	√	√			
27	11	Tagum-Libuganon	142,790	√	√			√
28		Saug	99,871	√	√			√
29	12	Upper Allah1	59,276	√	√			√
30		Upper Allah2	37,464	√	√			√
31		Kabulnan	12,667.46	√	√			√
32	13	Ojot	78,546	√	√			
33		Casilayan	40,396	√	√			√
34	NCR	La Mesa	2,659.59		√		√	√
35	ERDB	Pudong	2,394.50		√		√	
36		Tignoan	8,710		√			
37		Makiling	5,853.48	√	√			
	Philippines			29	35	6	7	19

**Table 3. Carrying Capacity (CARCAP) of Selected Protected Areas for Ecotourism and CBFM Sites (As of December, 2009)**

CARCAP Project/Site	Region	Total Area (ha)	Carrying Capacity
<i><b>Community-Based Forest Management Areas (CBFMA)</b></i>			
1 CBFM areas in Balong & Tabuk, Kalinga	CAR	96	19 families
2 Kabulinawan, Puncan, Nueva Ecija	3	1,474	68 families
3 Guadalupe-Julita CBFM, Libacao, Aklan	6	523	93 families
4 Arthurs Farmers Organization (AFO), Minglanilla and Talisay, Cebu City	7	1,374	323 families
5 Gaboc Hill, Lingion, Manolo Fortich, Bukidnon	10	210	35 families
6 Langaon, Baungon, Bukidnon	10	1,474	31 families
7 NABIMA, Opol, Misamis Oriental	10	631	115 families
8 Kapanal T'boli Multi-Purpose Cooperative (KTMPC)	12	5,375	204 families
9 Lantuyan, Baco, Oriental Mindoro	4b	294	48 families
<i><b>Protected Areas (Parks, Small islands and Seascapes)</b></i>			
1 Mt. Pulag National Park, Bokod, Kabayan, Benguet	CAR	11,550	3,159 visitors/day 13,525 trekkers/day
2 Manleluag Spring Protected Landscape	1	1,935	226 visitors/day
3 Mt. Arayat National Park	3	3,715	676 swimmers/day
4 Mt. Mayon Volcano National Park	5	5,487	383 campers/day 1,809 hikers/day 15,925 ecotourists or birdwatchers/day 1,474 trekkers or mountain climbers/day 566 campers or trekkers/day
5 Boracay Island, Boracay, Kalibo, Aklan	6	1,007	10,116 swimmers/day 16,703 beach users/day 14,674 diners/day
6 Mt. Kanlaon National Park	6	24,558	578 trekkers/day 42 campers/day

**Table 3. Carrying Capacity (CARCAP) of Selected Protected Areas for Ecotourism and CBFM Sites (As of December, 2009) (continued)**

CARCAP Project/Site	Region	Total Area (ha)	Carrying Capacity
<i>Protected Areas (Parks, Small islands and Seascapes)</i>			
7 Mt. Manunggal Camping Area, Magsaysay, Balamban, Cebu	7	5,257 sq.m.	58 hikers/day 155 campers/day 44 site-seers/day 133 picnickers/day
8 Apo Island Protected Landscape and Seascape, Dauin, Oriental Negros	7	74	17 divers/day 12 snorkelers/day 199 site-seers/day
9 Agutayan Island CEP, Agutayan Island, Jasaan, Misamis Oriental	10	3	100 visitors/month
10 Mt. Timpoong, Hibok-hibok Range Natural Landmark Monument at Tupsan, Mainit, Catarman, Benhaan, Mambajao, Camiguin	10	2,226	332 trekkers/day
11 Initao-Libertad Seascape and Landscape at Tubigan & Gimaylan, Initao-Libertad, Misamis Oriental	10	1,425	290 campers/day 137 cave users/day
12 Mt. Apo National Park in Kapatagan, Sta. Cruz, Digos City; Tamayong, Makilala, Kanapawan City & Bansalan, Magpet, Davao del Sur	11	64,053	4,232 mountaineers/day
13 Mainit Hot Spring Protected Landscape, Mainit, Nabunturan, Compostela Valley, Province	11	3	1,864 steambathers/day 213 swimmers/day 668 jacussi pool users/day
14 Mt. Matutum Protected Landscape in Tupi, Palmokm Tampakan, South Cotobato & Malungon, Sarangani	12	14,008	116 campers/day
15 Mt. Guiting-guiting National Park, Sibuyan Island, Romblon	4b	15,475	17 trekkers/day
16 Mt. Banahaw, Tiaong, Quezon	4a	11,133	6,579 campers/day
17 Siargao, Island	10	278,914	1,429 viewers/day
18 Pujada Bay, Agusan del Sur	11	( terminal report in preparation)	
19 Ninoy Aquino Parks and Wildlife Center	NCR	( terminal report in preparation)	

**Table 4. Verified and Assessed Seed Sources (As of December 2009)**

Region	Species	No. of Plus Trees	Site
3	Mangium	30	SBMA highway
4b	Ipil	45	Experimental Forest in Bagumbayan, Puerto Princesa City
	Narra	33	Sitio Taguan, San Luis, Mamburao, Occidental Mindoro
5	Pili	21	Zone 6, Ocampo, Gatbo, Camarines Sur
6	Magtalisay	25	Sitio Cabaling, Brgy. Espinosa, Jordan, Guimaras
	Narra	34	Leon, Iloilo
7	Yemane	26	Bulwang, Mabinay, Negros Oriental
	Dipterocarp species	25	Camp 7, Minglanilla, Cebu
8	Dao	5	Visayas State University, Baybay, Leyte
	Kamagong	5	
	Tindalo	5	
	Tangal	30	Barangay Punta, Baybay City, Leyte
	Other mangrove species		
	Almon	18	Brgy. Imelda, Silago, Southern Leyte
	Mayapis	12	
	Bitanghol	4	
	Red lauan	12	
	White lauan	7	
	Yakal	10	
9	Tanguile	6	Zamboanga City Water District, Narra Outpost, Upper Dulian, Zamboanga City
	<i>Narig</i>	1	
	Mayapis	4	
	Almon	11	
	Bagtikan	2	
	White lauan	1	

**Table 4. Verified and assessed seed sources (As of December 2009) (Continued)**

Region	Species	No. of Plus Trees	Site
10			Impalutao, Impasugong, Bukidnon
11	Mahogany	82	New Loon, Mintal, Davao City
	Teak	28	
	Narra	23	
	White lauan	70	
	Almon	4	
	Manggasinoro	2	
13	White Lauan	8	Brgy. Maharlika, Bislig City in Surigao Del Sur
	Manggasinoro	10	
	Falcata	600	Brgy. Mandakpan, Butuan City

**Table 5. Charcoal Briquetting Technology (CBT) Trainings Conducted, 2006-2009**

Place Conducted	Date	No. of Participants
<b><u>2006</u></b>		
1. MRF Eco-Park, Brgy. Pahinga Sur, Candelaria	April 18 - 19, 2006	34
2. Alfonso, Cavite	May 9 - 10, 2006	36
3. Gen. Trias, Cavite	May 16 - 17, 2006	24
4. Cong. Punzalan Gym, Lucena City	July 10 – 11, 2006	43
<b><u>2007</u></b>		
1. B’Laan Tribe, Malungon, Sarangani, South Cotabato	May 7-9, 2007	60
2. Mabini Colleges, Daet, Camarines Norte	May 30-June 1, 2007	58
3. DENR Personnel	Aug. 7-9, 2007	15
4. LGU Zamboanga City and		6
5. 2 Plywood Companies of Zamboanga City		9
6. Alay Buhay Foundation, Rodriguez, Rizal	14-Aug-07	30
7. CLWEC Members (NPC,CBK,etc), Cavinti, Laguna	Sept. 9, 2007	30
8. ABS-CBN Kapamilya Foundation, Infanta, Quezon	Sept. 13, 2007	35
<b><u>2008</u></b>		
1. Philippine Forest Corporation, Taguig, MM	6-Feb-08	8
2. POs of Brgy. Rapatahan, Paete, Laguna	25-Mar-08	50
3. City CENRO of Muntinlupa	12-Apr-08	70
4. San Pablo City	15-Apr-08	10
5. Sta. Cruz, Marinduque	April 16 – 17, 2008	45
6. Nasugbu, Batangas	May 2 – 3, 2008	50
7. Aguilar, Pangasinan	7-Jul-08	15
8. San Antonio, Kalayaan, Laguna	11-Jul-08	22
9. Talaga, Rizal	23-Jul-08	30
10. Tigaon, Camarines Sur	Oct-08	25

**Table 5. Charcoal Briquetting Technology (CBT) Trainings Conducted, 2006-2009 (continued)**

Place Conducted	Date	No. of Participants
<b><u>2009</u></b>		
1. ERDB, College, Laguna	May 7-8, 2009	30
2. Region 1 (Ilocos Region)		
a. Lidlida, Ilocos, Sur	April 14-16, 2009	27
b. Sison, Pangasinan	April 17-19, 2009	45
3. Region 3 (Central Luzon)		
Baler, Aurora (ASCOT)	May 11-13, 2009	72
4. Region 4a (CALABARZON)		
a. Los Baños	24-Mar-09	
b. Caingin, Sta. Rosa City	24-Apr-09	30
c. Sariaya, Quezon	16-Apr-09	15
d. GK Looc, Calamba City	July 29-30, 2009	27
e. Camp Nakar, Lucena	Nov. 18, 2009	33
f. Pinugay, Rizal	Nov. 25, 2009	12
5. Region 4b (MIMAROPA)		
San Fernando, Romblon	May 20-22, 2009	15
6. Region XI (Davao Region)		
Davao	30-Jun-09	55
7. Region 12 (Socsargen)		
Koronadal, South Cotabato	April 29-30, 2009	36
8. National Capital Region (NCR)		
a. MRF	19-Jun-09	128
b. DENR Central Office	23-Mar-09	146
c. Civil Service Commission	Aug. 28, 2009	34
d. San Andres, Bukid, Manila	30-Jul-09	25
e. PAWB	Nov. 6-7, 2009	25
f. Brgy. Concepcion, Malabon City	Nov. 5, 2009	141



**Table 6. Charcoal Briquetting Equipment Fabricated and Distributed to Different Offices**

<b>Fabricator</b>	<b>No. of sets</b>	<b>Recipient</b>	<b>Date Delivered</b>
1. Tipon-tipon Welding Shop	1	Turn-over to Engr. William A. Enriquez, Director of Malacanang MRF*	19-Jun-09
2. Tipon-tipon Welding Shop	1	Received by RED Jose Andres Diaz, DENR-NCR	27-Jul-09
3. Tipon-tipon Welding Shop	1	Delivered to the DENR Central Office Region 6 (for MRF Brgy. Balabag, Malay, Aklan)	28-Aug-09
4. MCTROSS Enterprises	1	Brgy. Concepcion, Malabon City	9-Oct-09
5. Tipon-tipon Welding Shop	1	Region 4-B (LGU Sablayan, Mindoro)	27-Oct-09
6. Lambs Agri Mechanical	1	Delivered to DENR Central Office for Region 3 Mexico, Pampanga under RED Ricardo L. Calderon	10-Nov-09
7. Tipon-tipon Welding Shop	1	Delivered to DENR Central Office for Region 3, Florida Blanca, Pampanga	19-Nov-09
8. Lambs Agri Mechanical	1	Delivered to EMB Region 3 for San Fernando, Pampanga	26-Nov-09
9. Tipon-tipon Welding Shop	1	Delivered to EMB Region 3 for Lubao, Pampanga	3-Dec-09
10. Lambs Agri Mechanical	1	Delivered to DENR Central Office/NSWMC	10-Dec-09
11. Tipon-tipon Welding Shop	1	Delivered to DENR Central Office/NSWMC	11-Dec-09
12. MCTROSS Enterprises	3	Delivered to DENR Central Office/NSWMC	27-Dec-09

**Table 7. ERDB Publications Produced and Distributed, 2006 – 2009**

Title	No. of copies produced	No. of copies distributed
<b>Year 2006</b>		
1. Sylvatrop, The Technical Journal of Philippine Ecosystems and Natural Resources, Vol. 15, Nos. 1&2	1000	587
2. Canopy International		
Vol. 29 Nos. 1 – 3	4000	3500
Vol. 29 Nos. 4 – 6	4000	3500
Vol 32 Nos. 1 – 6	4000	3500
3. RISE (Research Information Series on Ecosystems)		
Vol. 15 No. 1	2000	1500
Vol. 16 No. 1	2000	1500
Vol. 16 No. 2	2000	1500
Vol. 18 No. 1	2000	1500
Vol. 18 No. 2	2000	1500
4. Annual Report 2006	200	150
<b>Year 2007</b>		
1. Sylvatrop, The Technical Journal of Philippine Ecosystems and Natural Resources, Vol. 16 Nos. 1&2	700	525
2. Canopy International, Vol. 30 Nos. 1 – 6	4000	3500

**Table 7. ERDB Publications Produced and Distributed, 2006 – 2009 (continued)**

Title	No. of copies produced	No. of copies distributed
3. RISE (Research Information Series on Ecosystems)		
Vol. 15 No. 3	2000	1500
Vol. 18 No. 3	2000	1500
Vol. 19 Nos. 1 – 3	2000	1500
Vol. 20 No. 2	2000	1500
4. DENR Recommends		
Vol. 15a Indigenous Forest Tree Species In Laguna In Laguna	2000	1500
Vol. 15b Indigenous Forest Tree Species In Laguna In Laguna	2000	1500
5. DENR Recomend, On Charcoal No. 10 (Reprinting)	1000	1000
6. Annual Report 2007	205	150
<b>Year 2008</b>		
1. Sylvatrop, The Technical Journal of Philippine Ecosystems and Natural Resources, Vol. 17 Nos. 1&2	700	525
2. Canopy International		
Vol. 34 Nos. 1 – 6	2000	1500
3. RISE (Research Information Series on Ecosystems)		
Vol. 17 No. 1 - 3	2000	1500
Vol. 20 No. 3	2000	1500
4. Annual Report 2008	200	150

**Table 7. ERDB Publications Produced and Distributed, 2006 – 2009 (continued)**

Title	No. of copies produced	No. of copies distributed
<b>Year 2009</b>		
1. Sylvatrop, The Technical Journal of Philippine Ecosystems and Natural Resources, Vol. 18, Nos. 1 & 2	700	for printing
2. Canopy International, Vol. 35 Nos. 1 – 6	2000	for printing
3. RISE (Research Information Series on Ecosystems)		
Vol. 21 No. 1	2000	1500
Vol. 21 No. 2	2000	1500
4. IEC Materials		
● ERDB Brochure	2000	150
● Trees: Carbon Dioxide Absorber and Carbon Storage	2000	150
● Species – Site Compatibility Assessment Software for Forest Trees	2000	150
● ERDB pocket folder	2000	150

**Table 8. Important Exhibits Conducted by ERDB, 2006-2009**

Occasions	Venue	Dates
<b>2006</b>		
Women’s Month Celebrations	ERDB, College, Laguna	March 6 – 31
Seed Fair	University of Philippines at Los Baños, Laguna	March 21 – 24
Indigenous and Endemic Trees Expo	SM City North Edsa	April 19 – 23
UPCFNR Alumni Homecoming	CFNR, UPLB, Laguna	April 26 – 29
Los Baños Science Community- National Science and Technology Week	UPLB, Laguna	September 12 – 15
National Summit on biodiversity	Isla Verde, Batangas City	October 7 - 8
Kapnayan 2006	UPLB, Laguna	November 20 – 25
<b>2007</b>		
Alumni Homecoming of the UPLB College of Forestry and Natural Resources	UPLB, Laguna	
Climate Change Exhibits	SM Sta. Rosa, Laguna	
International biodiversity Conservation celebration	SM Mall of Asia	
“Beat the Heat”	EDSA Shrine, Pasig	
Forging Multi-Stakeholder Commitments To “Beat the Heat”	DENR, Quezon City	
Los Baños Science Community - National Science and Technology Week Celebration	UPLB, College, Laguna	
Anniversary celebration of the Samahan Ng Magsasaka sa Mataas na Lupa (SAMALUP)	Lalakay, Los Baños, Laguna	

**Table 8. Important Exhibits Conducted by ERDB, 2006-2009 (continued)**

Occasions	Venue	Dates
<b>2008</b>		
Philippine Water Week and International Biodiversity Week	PAWB, Quezon City	May 18 – 25
Alumni Homecoming	UPLB-CFNR Building	April 23 – 25
National Science and Technology Fair	Phil. Trade Center, Pasay City	July 7 – 11
National Science and Technology Week	UPLB, College, Laguna	July 16 – 18
Forestry Development Center’s Policy Forum	De La Salle University, Manila	July 30
National Bamboo Development Forum	PTCC, Pasay City	October 21 – 24
<b>2009</b>		
Eco-Products TRade Fair (EPTF)	SMX Convention Center, Mall of Asia, Pasay City	March 19 – 22
Joint Exhibit with Community Environment and Natural Resources (CENRO)	SM Sta. Rosa, Laguna	April 22 – 30
DENR Charcoal Briquetting Technology (CBT) Exhibit at the DENR Booth	Quirino Grandstand, Luneta	June 11 – 12
Philippine International Flora and Fauna	World Trade Center	July 16 – 19
Syensaya 2, in celebration of the Los Baños Science community Foundation, Inc. (LBSCFI)	Los Baños, Laguna	July 21 – 24
Bañamos Festival	Paciano Park, Baybayin, Los Baños, Laguna	September 16 – 19
2 <sup>nd</sup> Philippine Water Expo 2009	Mega B of SM Megamall, Mandaluyong City	October 22 – 29
5 <sup>th</sup> National Biotechnology Week	SM Mall of Asia, Pasay City	November 22 – 29
Charcoal Briquetting Technology (CBT)	Dusit Hotel	November 26
ERDB Lobby exhibit on ENR Technologies	ERDB, College, Laguna	

**Table 9. Important Trainings Conducted by ERDB, 2006-2009**

Title	No. of Trainees/ Participants	Date/Venue
<b><u>2006</u></b> Medicinal Plant Propagation, Harvesting and Processing	17	February 27, 2006 Paete Municipal Hall, Paete, Laguna
<b><u>2008</u></b> 1. Application of the Geographic Information System (GIS) using the Manifold 2. Bamboo and Rattan Plantation Establishment  3. Demonstration and Application of Production and Utilization Technologies of Rattan of Sustainable Development 4. Economic Evaluation of Environment and Natural Resources  5. Bamboo and Rattan weaving	40  45  42  24  25	May 26 – 31, 2008 Cagayan de Oro City July 15 – 17, 2008 Puerto Princesa, Palawan September 23 – 27, 2008 ERDB Auditorium, College, Laguna November 19 – 21, 2008 ERDB Auditorium, College, Laguna November 26 – 28, 2008 Paete, Laguna
<b><u>2009</u></b> 1. Bamboo Orientation Training on Bamboo Propagation Techniques 2. Training on Bamboo Propagation 3. Gising Diwa: “Ang Kalinisan at Kahalagahan ng Kapaligiran”; “Ang Galaw at Kahalagahan ng Tubig” and “Impact of Climate Change to the Community and Environment” 4. PCARRD S & T – Based Farm on Malapapaya (Nursery and Plantation Establishment of Malapapaya for the Mabitac Malapapaya and Tissue Cultured Lakatan Farmers Association		March 19, 2009 June 30, 2009 March 10, 2009 Kinabuhayan Elementary School, Dolores, Quezon Mabitac, Laguna

**Table 9. Important Trainings Conducted by ERDB, 2006-2009 (continued)**

Title	No. of Trainees/ Participants	Date/Venue
<p>5. Climate Change Impact and Mitigation in the Upland/Watershed and Coastal areas, 1<sup>st</sup> Green Technology and Climate Change R&amp;D Forum</p> <p>6. Two-Day Training Workshop on Gender Tools and Analysis for LLDA Employees</p> <p>7. DENR-GAD Harmonized Guidelines for Project Identification, Implementation and M&amp;E on Training for Extension Service Providers on Effective Service Delivery and Adoption and ENR Technologies</p> <p>8. 1<sup>st</sup> Regional Youth for Environment (YES-O) Echo Camp 2009</p> <p>9. Information, Education, and Communication (IEC) forum on the project “Rehabilitation Strategies and Ecotourism Development for Mine Tailings Areas in Bagacay Hinabangan, Western Samar”</p> <p>10. 5<sup>th</sup> National Biotechnology Week Scientific Forum – Paper Presentation on the project “Phytoremediation of Mined out Areas in Bagacay, Hinabangan, Samar”</p>		<p>June 30, 2009 SM Davao City</p> <p>April 27-28, 2009 Lagos del Sol, Resort, Cavinti, Laguna</p> <p>June 25, 2009 ERDB, College, Laguna</p> <p>August 8, 2009 Koronadal, National Comprehensive High School, Koronadal City</p> <p>November 19, 2009 Hinabangan, Samar</p> <p>November 24, 2009 Mall of Asia, Pasay City</p>



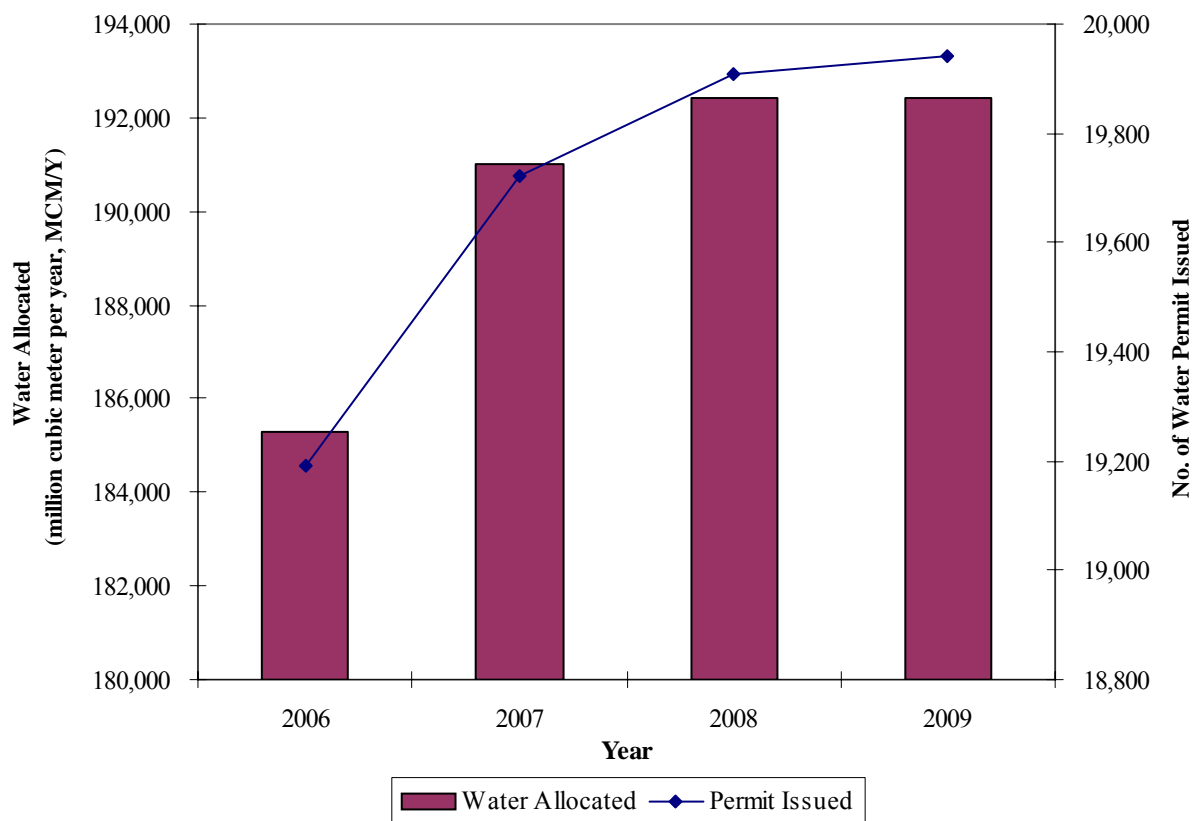
## Section H

### Water Resources

Presidential Decree 1067 of 1976 otherwise known as the Water Code of the Philippines is the basic water law governing the ownership, appropriation, utilization, exploitation, development, conservation and protection of water resources. It defines the extent of the rights and obligations of water users and owners including the protection and regulation of such rights. Pursuant to the Code water may be appropriated for the following uses: domestic, municipal, irrigation, power generation, fisheries, livestock raising, industrial, recreational and other purposes. Except for “purely domestic purpose” which is defined as the use of not more than 250 liters/capita/day of water by a single household, a water permit/authority from the National Water Resources Board (NWRB) is required when appropriating water.

As of 2009, the Board already issued 19,940 water permits and allocated water (surface and groundwater) accounting to 192,434 million cubic meter per year (mcm/y) for various purposes stated in the Code (see Table 1). The number of permits issued has increased from 9,190 in 2006 to 19,940 in 2009. Likewise, water allocation has increased from 185,313 mcm/y in 2006 to 192,434 mcm/y in 2009 (Figure1).

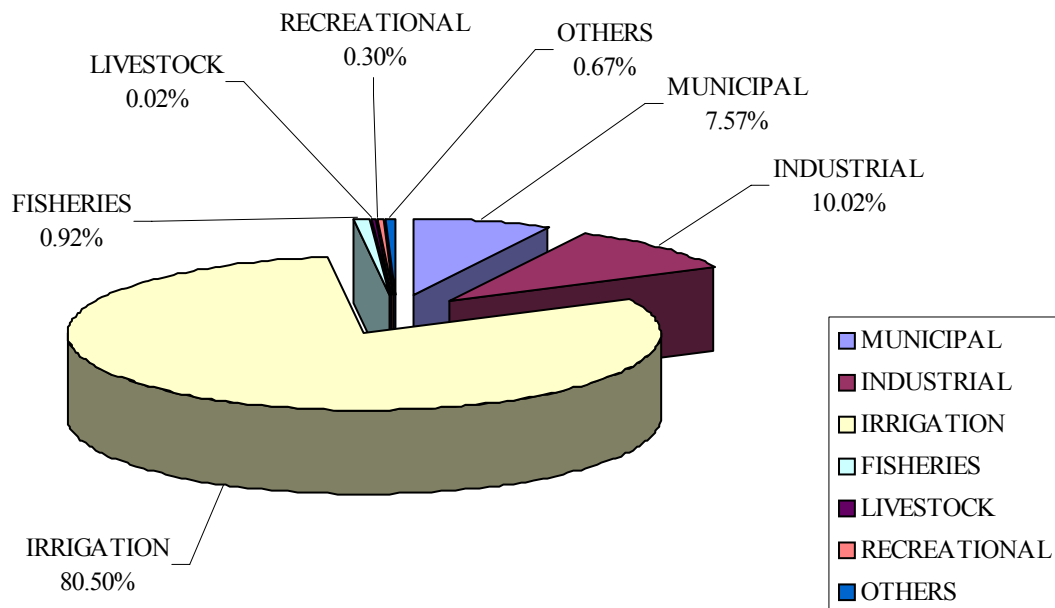
**Figure 1. Issuance of Water Permit  
CY 2006 - CY 2009**



*Source: National Water Resources*

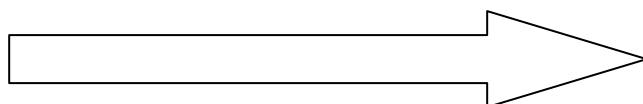
According to the classification of the National Water Resources Board (NWRB), water use is classified as consumptive and non-consumptive. Among the consumptive water use “Irrigation” remains as the primary user of water and responsible for more than 80% of water that is already allocated (Figure 2). It was followed by industrial use accounting to approximately 10 % then domestic use with around 7 %.

**Figure 2. Allocated Water by Purpose  
CY 2009**



*Source: National Water Resources Board*

# Statistical Tables



**Table 1. Issuance of Water Permit by Purpose: 2006 - 2009**

Purpose	2006		2007		2008		2009	
	No. of WP Issued	Water Allocated (mcm/y)	No. of WP Issued	Water Allocated (mcm/y)	No. of WP Issued	Water Allocated (mcm/y)	No. of WP Issued	Water Allocated (mcm/y)
MUNICIPAL	6,186	6,084.64	6,476	6,164.41	6,559	6,232.27	6,571	6,234.90
INDUSTRIAL	1,338	7,324.39	1,397	7,348.29	1,443	8,247.12	1,458	8,254.33
IRRIGATION	10,213	66,159.10	10,301	66,287.09	10,316	66,295.49	10,316	66,295.49
POWER	225	104,186.09	243	109,652.03	247	110,079.08	247	110,079.08
FISHERIES	481	753.242	482	754.037	483	754.132	483	754.132
LIVESTOCK	162	14.716	174	15.231	178	16.035	178	16.035
RECREATIONAL	189	242.145	194	242.298	200	244.239	201	244.273
OTHERS	396	548.253	456	552.23	482	555.574	486	555.676
<b>TOTAL</b>	<b>19,190</b>	<b>185,312.58</b>	<b>19,723</b>	<b>191,015.61</b>	<b>19,908</b>	<b>192,423.93</b>	<b>19,940</b>	<b>192,433.92</b>

Note: WP – water permit

mcm/y – million cubic meter per year

Source: NWRB list of water permittees, CY 2009

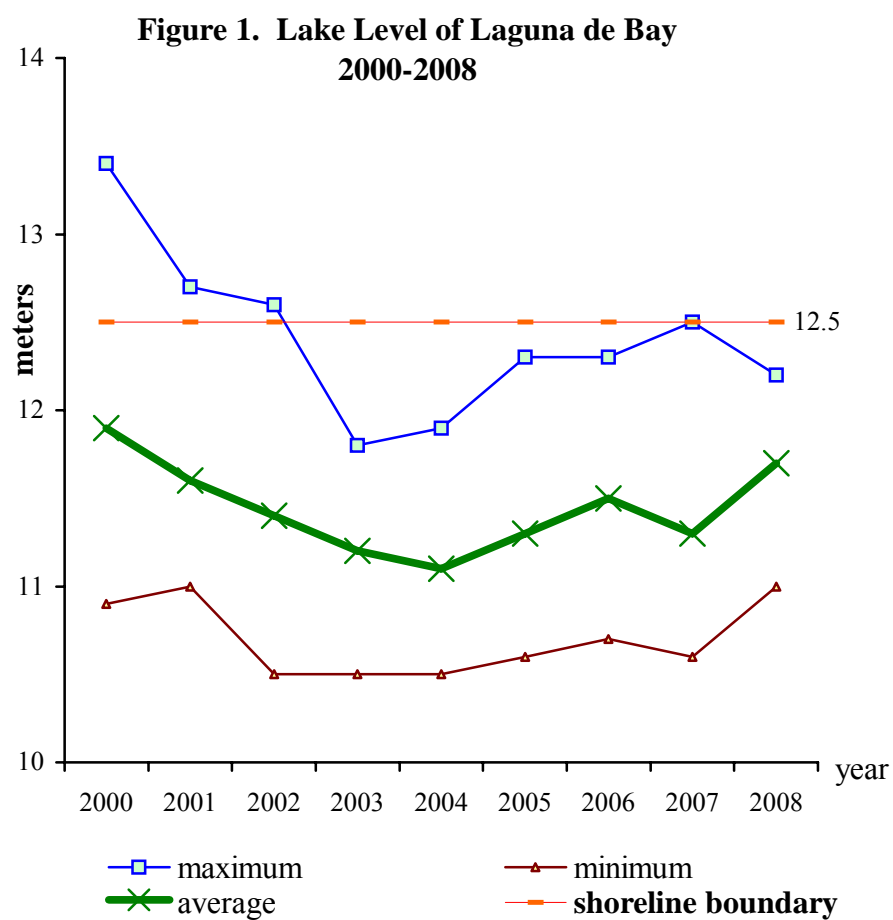
# Chapter 2

## Laguna de Bay

## Laguna de Bay

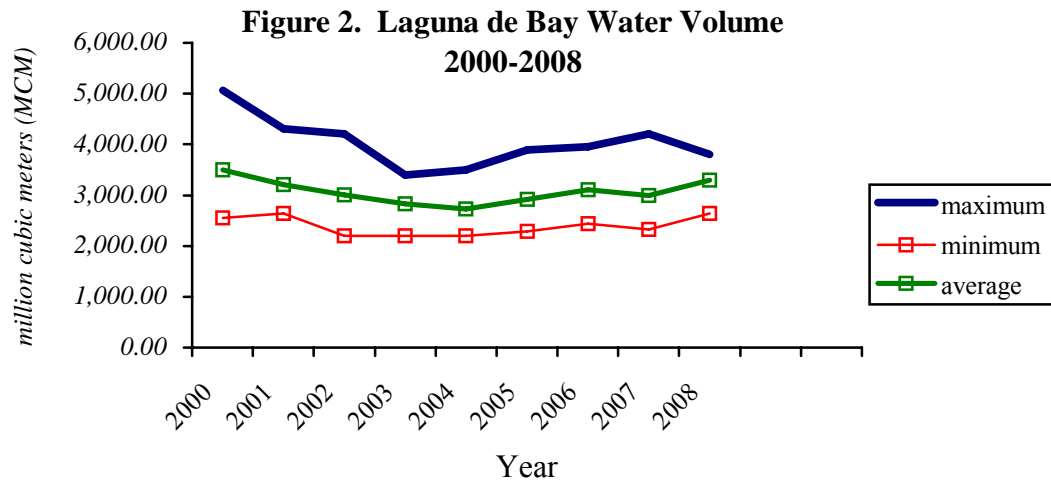
### Lake Water Balance 2005 – 2008

The average annual lake water level ranges from 11-3-11.7 meters. The minimum and maximum level both registered in 2007 at 10.6 meters and 12.5 meters, respectively (Table 1). From year 2000 to 2008, the annual average is 11.4 with highest average in 2009 (maximum level of 13.9) and lowest average in 2004 at 11.1.

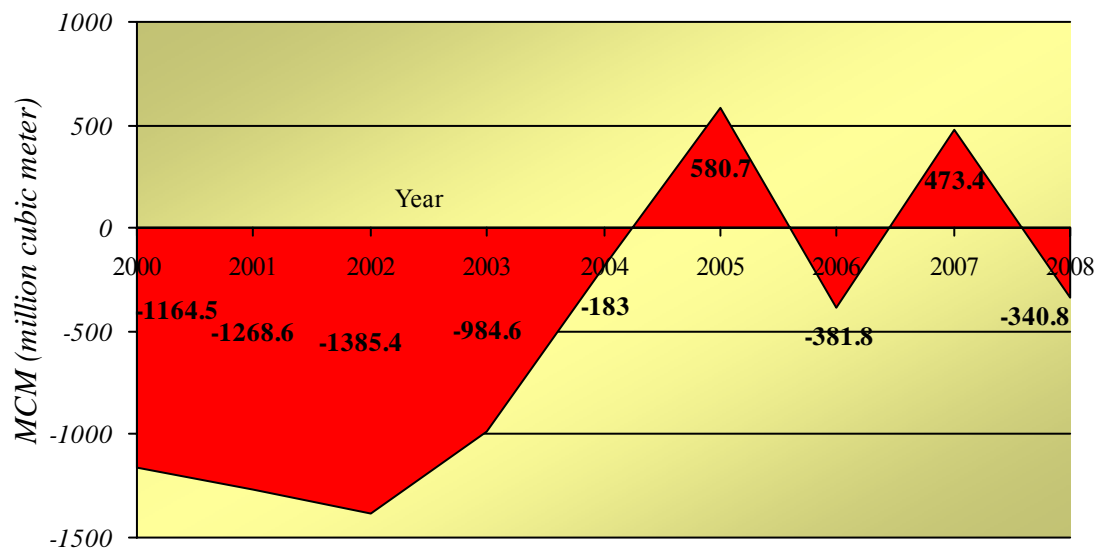


## Lake Water Volume 2005-2008

Annual average of the lake water volume ranged from 2,995.10 to 3,301.64 MCM with both minimum (4,207.4 MCM) and maximum (2,327.6) volume recorded in 2007 (Table 2). Since 2000, the rate of change in volume had been negative except for the years 2005 and 2007 which recorded a positive change of 580.7 million cubic meter (MCM) and 473.4 MCM, respectively. This corresponds to 18.4 and 15 cubic meter per second, respectively.



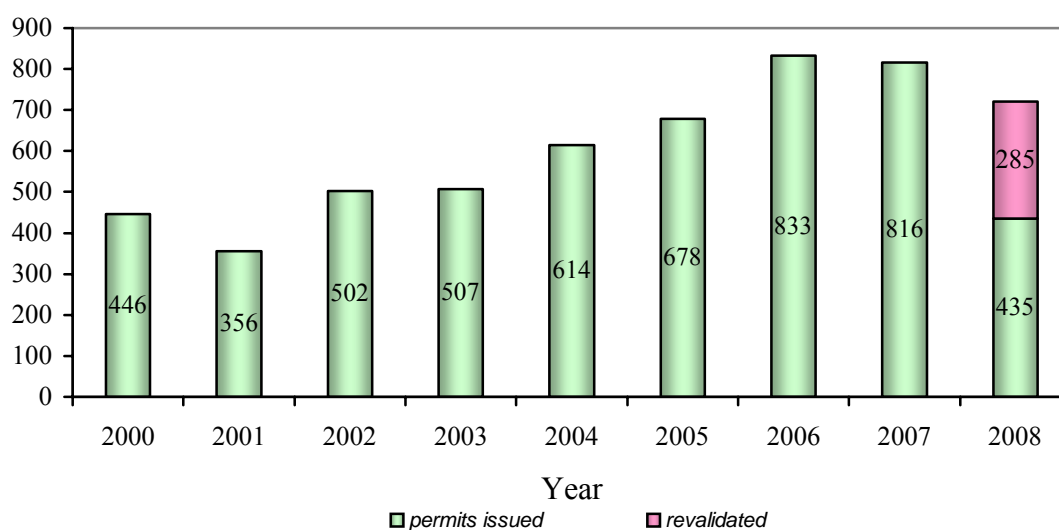
**Figure 3. Change in Water Balance of Laguna de Bay**



## Environmental User Fee System

The Discharge Permits (DP) issued have been increasing since 2000 reaching its peak in 2006 but slightly decreasing in 2007 and 2008. The 720 permits in 2008 consisted of permits issued and revalidated as a result of LLDA's issuance of long term permit since 2007. This includes two to three year validity of permits which is re-validated on a yearly basis. The number of industries covered is in the upward trend reaching to about 2,767 firms in 2008 (Table 6).

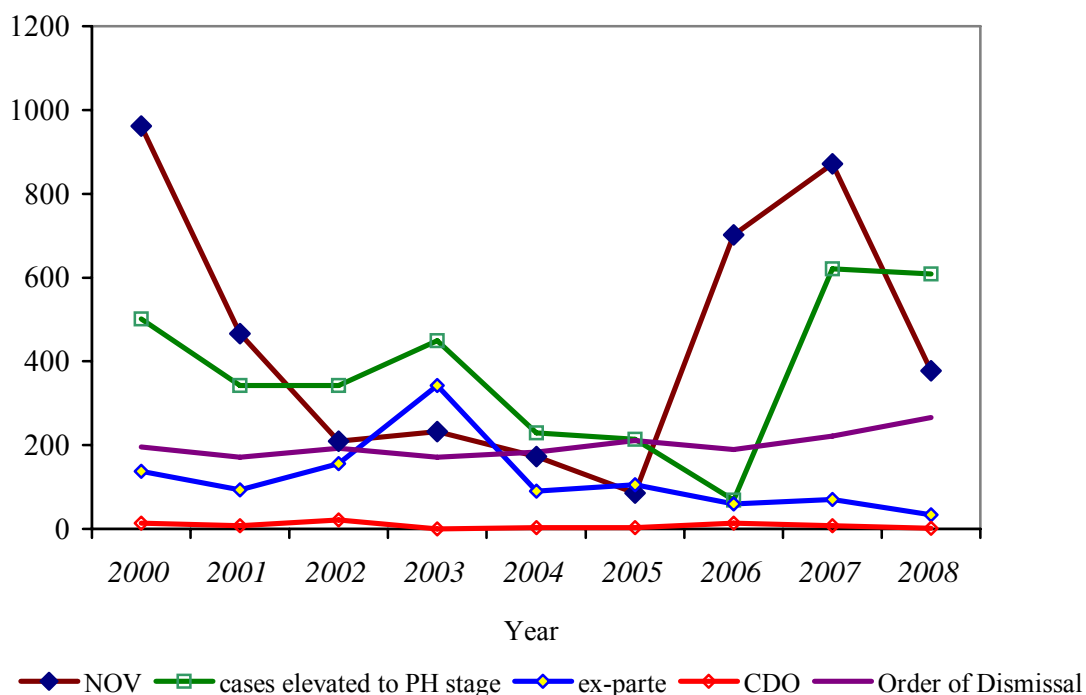
**Figure 4. Number of Industries with Valid Permits**



Notices of Violations (NOVs) issued have been fluctuating while cases elevated to public hearing stage have been relatively low in 2006 (69) but drastically increase to about 880% by 2008 (608). The number of Ex-parte Orders and Cease & Desist Orders (CDOs) have been fluctuating since 2000 but generally on downward trend. The signing of agreement binding LLDA to suspend in all jurisdiction the implementation of DENR MC no. 27 (sic. DENR MC no. 24) insofar as it requires fastfood outlets and similar commercial establishments, specifically Quick Service Restaurant (QSR) members to comply with DENR DAO 35 standard; and suspend the issuance of NOVs, Ex-Parte Orders, CDOs and similar orders to QSR members for violation of DAO 35.

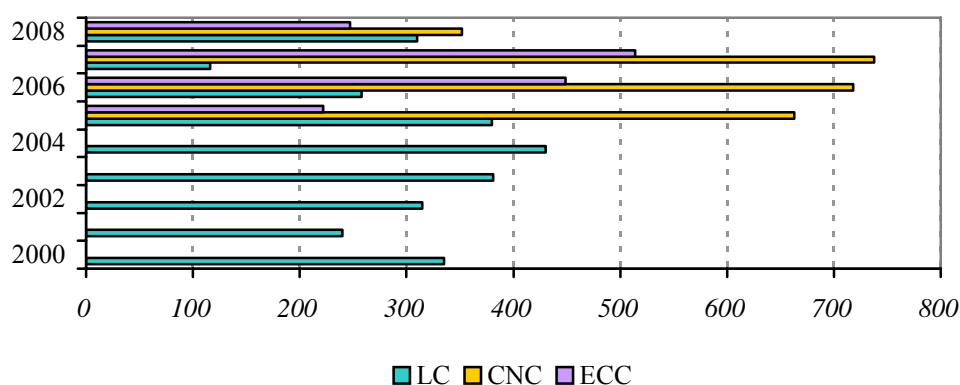


**Figure 5. Adjudication and Legal Orders**



The Authority has issued a total of 684 LLDA Clearance from 2006 to 2008 bringing the total number issued to 2765 since year 2000 (Table 9). There was an increasing trend in the issuance of ECC and CNC from 2005-2007. In 15 July 2008 by virtue of DAO 2008-11, the Delegation of Authority to the General Manager of LLDA to grant or deny the issuance of ECC / CNC was recalled by the DENR. Consequently the number of ECC/CNC confirmed by DENR increased while those approved by LLDA decreased in 2008.

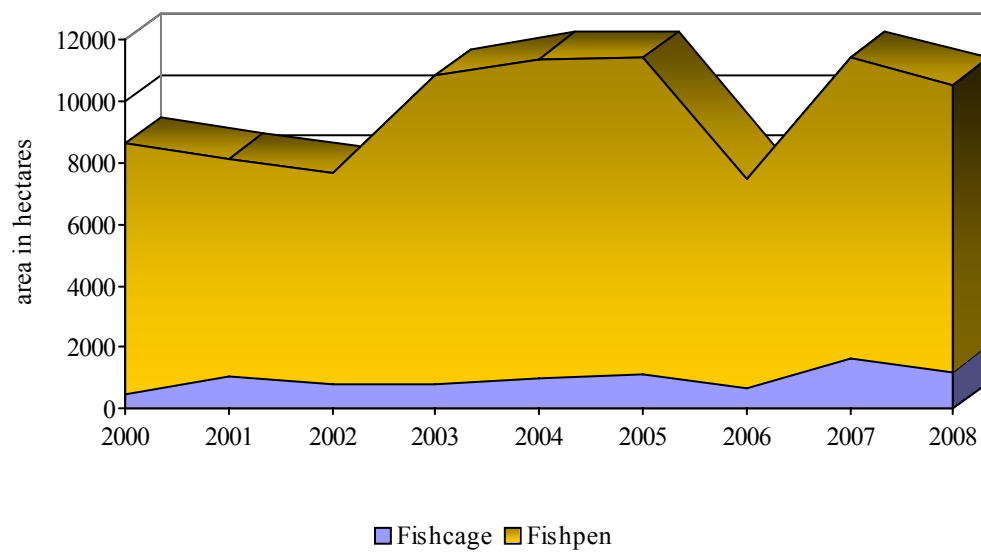
**Figure 6. Clearance & Certificate Issued**



## Fishery Zoning and Management Program

Aquastructures occupy about 11% of the total lake area while 88-90% of which consists of fishpens and roughly about 10-12 % are fishcages. However, as to number of structures, fishpens are only about 17% of the total number while fishcages are about 84%. Occupied area is shown below:

**Figure 7. Aquastructures in Laguna de Bay**



## **Water Quality of Laguna de Bay (LdB)**

The monitoring of Laguna de Bay was conducted on a monthly basis in five stations ; East Bay, West Bay, Central Bay, Northern and Southern Bay. The physico-chemical analysis is evaluated based on Class “C” water quality criteria of DENR, Administrative Order No. 34, series of 1990:

**Biochemical Oxygen Demand (BOD<sub>5</sub>)** – all the LdB stations passed the Class “C” water criteria of 7 mg/l. BOD<sub>5</sub> concentration range from 1 mg/L to 4 mg/L for the period 2000 - 2008.

**Dissolved Oxygen (DO)** – all the lake stations passed the Class “C” water criteria for DO at more than 5 mg/L. The DO concentration ranged from 7.4-9.7 mg/L (station V, 2005) for the period 2000 - 2008.

**Chloride** – The Class “C” water criteria for chloride is 350 mg/L. In year 2000-2002 and 2007-2008, all the lake stations comply with the Class “C” criteria for chloride. In 2003-2005, all the lake stations exhibited exceedance in chloride concentration except Station VIII (2003).

**Nitrate** – all the lake stations passed the Class “C” criteria for nitrate, 10 mg/L. Nitrate concentration ranged from 0.0225 mg/L (Stn I, 2001) to 0.2910 mg/L (Stn V, 2006).

**Phosphate** – The Class “C” water criteria for inorganic phosphate in lake and reservoir is 0.05 mg/L. All the stations failed in 2000-2002 and 2006-2007. In 2003, only Station V failed the inorganic phosphate criteria while in 2004 both Stations II and V failed. In 2005, only station II passed the inorganic phosphate criteria. In 2008, Stations II and IV passed the phosphate criteria.

**Total Coliform (3 year geomean)** - The annual geomean of total coliform in all stations at the Laguna lake met the Class C water quality criteria of 5000 MPN (100 ml for nine (9) years (2000 to 2008). However, all stations in tributary rivers for Rizal and Laguna exceeded the said criteria.

**Transparency** - During the period 2000-2008, the highest transparency reading in Laguna Lake was measured in 2003 in all bays. The highest average during the aforementioned year was Stn. IV (Central Bay) at 79 cm; Stn. I (West Bay) was second at 71 cm; Stn. II East Bay (Stn. II) at 70 cm.’ Stn. VIII (South Bay ) 62 cm. and the least transparent was Stn. V ( Northern WB). The lowest transparency reading during the study period was recorded in 2000 at 22 cm. in Stn. V. This could be attributed to the turbid water condition at the time of sampling which in effect affected the light penetration in said area.

## **Water Quality of Tributary Rivers**

The monitoring for the tributary rivers of Laguna was done on a monthly basis. Its water quality is evaluated based on Class “C” water quality criteria on DENR, Administrative Order No. 34, series of 1990.

The water quality monitoring data of 2000-2008 have also been analyzed with respect to indicator of oxygen consuming substances (BOD) and nutrients of the water (nitrates and phosphate). The results of analysis indicate that tributary river stations in Tanay (2001, 2004, and 2006), Morong (2000-2001, 2003, & 2005-2006), and Pangil (2001) with an observation increased in BOD of 15 mg/l annual average failed to conformed with Class “C” water quality criteria while the rest of the stations in 2000-2008 passed the criterion of 7 mg/l BOD (Table 4).

Most of our rivers result in “bad” status for dissolved oxygen (DO). It means that an average for DO in 2000-2008 failed to conform with its allowable limit of 5 mg/l DO. Except for Tanay (2002-2003) and Morong (2002-2004 & 2007) passed its Class “C” criteria (Table 4).

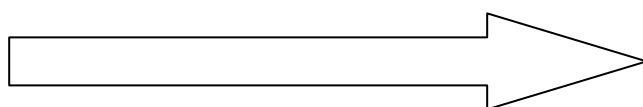
An observation for nutrients in the rivers of annual averages concentrations in 2000-2008, shows that nitrate conformed with the 10 mg/l for Class “C” waters. However, for phosphate having a criteria of 0.4 mg/l concentration failed in Marikina (2003-2008), Bay (2007-2008), Sta. Cruz (2007-2008), Tanay (2000,-2002, & 2004-2005), Bagumbayan (2007-2008) Buli (2007-2008), Mangangate, Tunasan, San Pedro, Cabuyao, San Cristobal, San Juan, Morong, and Cainta from 2000-2008 (Table 4).

### **2006-2008 BOD Loading of Industry Sector into Laguna de Bay**

There are about 2,401 wet industries that are possible dischargers of wastewater into the lake and its tributaries. These firms are registered with the LLDA and are being monitored. The 221 industries covered in the first year (1997) implementation of the Environmental User Fee System (EUFS) have reduced its BOD loading by 96.97% in 2008 (Table 9). After 12 years, the number of industries covered increased by 986%. The values or reductions in BOD loading fluctuate with a recorded increase in 2006 by 10.02% compared with the previous years (Table 8). Nevertheless, these set of industries have eventually recorded a decrease by 8.03% in 2008 (Table 9, 2005-2008). The fluctuation is due to possible increase in production or expansion resulting to increase in wastewater generation, and increase in number of locators for industrial parks. The increase in BOD concentration of some industries is a result of either failure in terms of BOD concentration or increase in concentration but still within the standard simply to reduce company cost; and corrections done by laboratory on the minimum limit detection for BOD analysis from 0.1 to 2 mg/l starting 2005.

The improvement of value or reduction in loading can be attributed to the efforts of the industries to treat their wastewater by putting up new or improving existing treatment facilities, wastewater recycling and waste minimization activities, conversion from wet to dry process and interconnection to centralized Sewage Treatment Plant/Waste Treatment Facility (STP/WTF) of service provider. Generally, there has been a decrease in BOD loading of industries from the initial year these industries were covered compared with their loading in 2008 (Table 9).

# Statistical Tables



**Table 1. Lake Water Level of Laguna de Bay: 2000-2008**

Year	Maximum	Minimum	Average
2005	12.3	10.6	11.3
2006	12.3	10.7	11.5
2007	12.5	10.6	11.3
2008	12.2	11.0	11.7

\*Water Level statistics based on LLDA water level station in Looc,Cardona

\*Water Level elevation in meters

**Table 2. Lake Water Volume of Laguna de Bay: 2000-2008**

Year	Maximum	Minimum	Average
	<i>in million cubic meters (MCM)</i>		
2005	3,895.50	2,281.54	2,918.03
2006	3,959.40	2,434.90	3,107.20
2007	4,207.40	2,327.60	2,995.10
2008	3,796.73	2,640.33	3,301.64

Table 3. Water Quality of Laguna de Bay by Parameter by Station

Parameter: Biochemcial Oxygen Demand

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	1	1	1	1	1
2001	1	1	1	1	1
2002	1	1	2	2	2
2003	2	2	2	3	2
2004	2	2	2	2	2
2005	3	2	3	4	2
2006	2	2	2	4	2
2007	2	2	2	3	2
2008	2	1	2	1	1

Parameter: Dissolved Oxygen

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	7.7	8.0	7.9	7.4	7.8
2001	7.6	7.8	8.1	7.7	7.8
2002	7.4	8.2	8.3	8.2	8.4
2003	8.2	7.6	8.0	7.4	8.3
2004	8.1	7.8	8.7	7.7	8.7
2005	8.6	7.9	9.1	9.7	7.9
2006	7.9	7.8	8.3	8.2	8.0
2007	8.7	8.1	9.1	9.2	8.4
2008	7.7	7.8	8.3	7.8	7.8



Table 3. Water Quality of Laguna de Bay by Parameter by Station (Continued)

Parameter: Chloride

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	109	88	116	104	95
2001	22	18	23	21	19
2002	232	137	289	273	144
2003	576	389	510	679	344
2004	1285	786	956	1662	734
2005	795	510	717	811	532
2006	304	231	314	359	242
2007	336	204	336	347	220
2008	118	105	130	114	106

Parameter: Nitrate

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	0.2520	0.1833	0.2381	0.2492	0.1980
2001	0.0225	0.0325	0.0400	0.0272	0.0475
2002	0.1505	0.0598	0.0867	0.1154	0.0647
2003	0.0776	0.0513	0.0606	0.0625	0.0539
2004	0.1156	0.1125	0.1087	0.1356	0.1241
2005	0.0768	0.0926	0.0794	0.0843	0.0840
2006	0.2560	0.1543	0.1955	0.2910	0.1618
2007	0.0624	0.0304	0.0297	0.0697	0.0502
2008	0.1172	0.0896	0.0408	0.1944	0.0982

**Table 3. Water Quality of Laguna de Bay by Parameter by Station (Continued)**

**Parameter: Phosphate**

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	0.1337	0.0805	0.1596	0.1383	0.1170
2001	0.1030	0.0884	0.1162	0.1007	0.1023
2002	0.1110	0.0510	0.0820	0.0869	0.0792
2003	0.0374	0.0393	0.0243	0.0620	0.0438
2004	0.0234	0.0502	0.0237	0.0682	0.0415
2005	0.1024	0.0438	0.0519	0.0942	0.0678
2006	0.0773	0.0640	0.0670	0.0799	0.0802
2007	0.0740	0.0583	0.0876	0.0996	0.0650
2008	0.0548	0.0429	0.0390	0.0652	0.0601

**Parameter: Total Coliform (3 year geomean)**

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	2386	1100	1257	1028	1024
2001	2276	502	936	817	642
2002	1927	681	1202	3189	1801
2003	425	291	75	160	369
2004	824	199	156	849	593
2005	496	150	216	587	569
2006	3022	244	474	2636	1722
2007	60	58	61	2151	349
2008	1899	505	665	1978	1793

Table 3. Water Quality of Laguna de Bay by Parameter by Station (Continued)

Parameter: Transparency

Year	Stations				
	I-West Bay	II-East Bay	IV-Central Bay	V-Northern West Bay	VIII- South Bay
2000	24	27	26	22	34
2001	30	40	40	40	40
2002	54	53	62	45	61
2003	71	70	79	58	62
2004	63	52	63	59	58
2005	54	38	51	48	46
2006	36	35	38	36	40
2007	53	54	62	47	57
2008	56	52	73	48	62

**Table 4. Water Quality of Major Tributaries of Laguna de Bay by Parameter by Station**

**Parameters: Biochemical Oxygen Demand**

Year	Stations								
	Marikina	Mangangate R.	Tunasan	San Pedro	Cabuyao	San Cristobal	San Juan R.	Bay R.	Sta. Cruz R.
2000	-	-	91	26	8	9	2	2	2
2001	-	-	116	22	14	14	4	2	1
2002	6	25	64	16	6	26	2	2	3
2003	9	43	55	28	6	11	4	2	4
2004	11	38	79	18	9	15	4	3	2
2005	9	38	106	18	8	9	3	3	2
2006	9	42	62	24	9	11	5	2	2
2007	17	31	91	19	10	19	4	2	2
2008	16	28	82	26	9	35	6	2	2

**Parameters: Biochemical Oxygen Demand**

Year	Stations							
	Pagsanjan R.	Pangil R.	Tanay R.	Morong R.	Siniloan R.	Bagumbayan	Buli	Cainta
2000	2	2	4	9	-	-	-	-
2001	2	15	30	9	-	-	-	-
2002	2	2	6	4	-	-	-	-
2003	1	2	6	9	6	-	-	31
2004	3	3	8	6	5	-	-	14
2005	1	2	5	10	5	-	-	17
2006	2	3	8	8	4	-	-	19
2007	2	2	7	5	4	46	71	17
2008	2	2	4	7	3	56	76	16

Table 4. Water Quality of Major Tributaries of Laguna de Bay by Parameter by Station (Continued)

Parameters: Dissolved Oxygen

Year	Stations								
	Marikina	Mangangate R.	Tunasan	San Pedro	Cabuyao	San Cristobal	San Juan R.	Bay R.	Sta. Cruz R.
2000	-	-	0.6	1.2	2.9	3.1	4.1	7.2	7.1
2001	-	-	0.1	2.0	0.9	2.8	4.3	7.1	6.5
2002	2.8	0.2	0.3	0.8	1.1	1.9	3.3	7.0	7.2
2003	2.1	0.1	1.2	1.3	1.4	2.0	2.9	7.0	7.1
2004	1.5	0.3	0.3	0.6	1.3	1.9	1.8	6.9	7.2
2005	2.0	1.4	0.5	1.0	1.2	2.0	3.4	7.1	6.2
2006	2.7	0.8	0.9	0.9	2.6	2.7	3.1	7.3	6.9
2007	1.7	0.4	0.2	0.4	3.1	2.6	3.4	6.9	6.8
2008	2.2	0.4	0.2	0.3	1.2	2.4	2.9	6.8	6.2

Parameters: Dissolved Oxygen

Year	Stations							
	Pagsanjan R.	Pangil R.	Tanay R.	Morong R.	Siniloan R.	Bagumbayan	Buli	Cainta
2000	7.2	7.6	5.4	9.7	-	-	-	-
2001	7.2	6.4	5.3	5.9	-	-	-	-
2002	7.9	6.2	4.7	4.4	-	-	-	-
2003	7.1	6.0	4.9	4.6	3.1	-	-	0.7
2004	7.2	7.0	5.0	3.2	3.5	-	-	0.2
2005	7.4	7.3	5.0	6.0	4.2	-	-	0.7
2006	7.4	6.3	6.6	5.6	4.3	-	-	0.6
2007	7.1	6.8	6.7	4.7	3.8	0.2	0.3	0.6
2008	7.1	7.1	5.6	6.1	4.2	0.7	0.7	0.6

**Table 4. Water Quality of Major Tributaries of Laguna de Bay by Parameter by Station (Continued)**

**Parameters: Nitrate**

Year	Stations								
	Marikina	Mangangate R.	Tunasan	San Pedro	Cabuyao	San Cristobal	San Juan R.	Bay R.	Sta. Cruz R.
2000	-	-	0.0092	0.1596	8.0000	0.2949	1.2906	0.3784	0.3097
2001	-	-	0.0386	0.2766	0.0815	0.3539	3.7309	0.7202	0.6339
2002	0.4189	0.2074	0.1405	0.1293	0.1885	0.2816	3.1764	0.5964	0.9766
2003	0.3082	0.2319	0.2442	0.2723	0.2359	0.3952	3.2466	0.5888	0.6911
2004	0.3431	0.6594	0.1789	1.1137	0.3059	0.2827	2.6679	0.4558	0.6021
2005	0.3200	0.1809	0.0356	0.4488	0.1539	0.3046	2.8712	0.3447	0.6268
2006	0.2972	0.0885	0.1166	0.2948	0.2583	0.2290	2.0258	0.5727	0.6629
2007	0.3226	0.1183	0.1344	0.2013	0.3358	0.4723	2.8158	0.6489	0.7759
2008	0.4901	0.1055	0.0410	0.1540	0.2480	0.1512	3.0017	0.7610	0.8071

**Parameters: Nitrate**

Year	Stations							
	Pagsanjan R.	Pangil R.	Tanay R.	Morong R.	Siniloan R.	Bagumbayan	Buli	Cainta
2000	0.3784	0.0528	0.3079	0.6766	-	-	-	-
2001	0.7202	0.1483	0.5488	1.9986	-	-	-	-
2002	0.2730	0.3508	0.4790	0.9466	-	-	-	-
2003	0.3032	0.2318	0.4257	1.1291	0.1916	-	-	0.2988
2004	0.1873	0.2335	0.4753	0.9001	0.2469	-	-	0.1939
2005	0.1655	0.1239	0.7471	1.3648	0.1747	-	-	0.2728
2006	0.1778	0.2110	0.5997	1.0774	0.3457	-	-	0.3614
2007	0.2950	0.2057	0.5463	1.4083	0.2637	0.0924	0.1912	0.2845
2008	0.2382	0.1705	0.8040	1.6080	0.3097	0.8991	0.4245	0.3479

**Table 4. Water Quality of Major Tributaries of Laguna de Bay by Parameter by Station (Continued)**

**Parameters: Phosphate**

Year	Stations								
	Marikina	Mangangate R.	Tunasan	San Pedro	Cabuyao	San Cristobal	San Juan R.	Bay R.	Sta. Cruz R.
2000	-	-	0.9649	2.0436	1.0403	0.5135	0.5150	0.3021	0.2914
2001	-	-	1.3655	2.6778	1.3307	0.4921	0.5192	0.3386	0.3883
2002	0.3504	1.5909	1.7775	1.9049	1.0702	0.5097	0.6167	0.3178	0.3027
2003	0.5895	2.1753	1.4121	1.9469	1.0797	1.0906	0.7399	0.3116	0.3359
2004	0.5963	1.8603	1.3413	2.0509	0.8964	0.6705	0.6275	0.3040	0.3555
2005	0.5763	1.6617	1.3320	1.9980	1.0449	0.7188	0.8428	0.3670	0.3715
2006	0.4430	1.6957	1.4117	2.1762	0.8509	0.6127	0.8030	0.3617	0.3678
2007	0.6897	2.0033	2.2758	2.0786	1.0936	0.8734	0.9136	0.4615	0.5192
2008	0.5196	1.9492	1.8704	2.2809	1.0482	0.6712	0.9007	0.4664	0.4099

**Parameters: Phosphate**

Year	Stations							
	Pagsanjan R.	Pangil R.	Tanay R.	Morong R.	Siniloan R.	Bagumbayan	Buli	Cainta
2000	0.0857	0.0244	0.4591	1.3255	-	-	-	-
2001	0.0709	0.1091	0.4169	0.9543	-	-	-	-
2002	0.1143	0.1835	0.4524	0.7761	-	-	-	-
2003	0.1252	0.1353	0.2838	0.7500	0.2249	-	-	1.4994
2004	0.0845	0.1175	0.4346	0.8853	0.2760	-	-	0.9343
2005	0.0988	0.0957	0.4845	1.1479	0.3294	-	-	1.2561
2006	0.0731	0.1218	0.3339	0.9641	0.2355	-	-	1.1538
2007	0.1145	0.1572	0.3823	0.8543	0.2921	2.2661	2.4233	1.2739
2008	0.1235	0.1560	0.3785	1.0994	0.2263	1.8231	1.7606	1.0859

**Table 4. Water Quality of Major Tributaries of Laguna de Bay by Parameter by Station (Continued)**

**Parameters: Total Coliform (3 year geomean)**

Year	Stations								
	Marikina	Mangangate R.	Tunasan	San Pedro	Cabuyao	San Cristobal	San Juan R.	Bay R.	Sta. Cruz R.
2000	-	-	1.60E+07	6.54E+06	-	7.34E+06	2.75E+06	4.11E+06	1.21E+06
2001	-	-	4.42E+09	1.11E+09	-	5.78E+08	3.36E+06	3.27E+06	1.43E+06
2002	2.93E+06	6.31E+10	2.07E+10	7.40E+09	2.34E+09	6.75E+09	2.62E+07	6.01E+06	5.76E+05
2003	1.77E+06	1.60E+11	2.61E+09	2.16E+11	1.62E+06	2.12E+08	3.03E+05	2.50E+05	1.94E+05
2004	2.82E+06	6.61E+09	7.92E+09	1.44E+10	2.75E+07	2.81E+07	5.00E+05	2.98E+05	1.48E+05
2005	8.23E+06	4.54E+10	1.43E+10	1.96E+10	3.49E+06	8.57E+06	4.78E+05	6.18E+05	4.43E+04
2006	1.46E+07	2.06E+11	2.21E+10	1.63E+10	1.37E+07	6.69E+06	1.31E+06	4.45E+05	8.56E+04
2007	2.37E+08	4.45E+10	1.74E+11	7.78E+10	8.81E+06	8.95E+07	6.97E+05	8.34E+05	9.70E+04
2008	9.82E+07	1.72E-10	1.81E+10	3.99E+10	1.11E+08	3.87E+07	4.82E+05	4.38E+05	1.05E+05

**Parameters: Total Coliform (3 year geomean)**

Year	Stations							
	Pagsanjan R.	Pangil R.	Tanay R.	Morong R.	Siniloan R.	Bagumbayan	Buli	Cainta
2000	9.67E+05	-	-	-	-	-	-	-
2001	2.97E+06	-	-	-	-	-	-	-
2002	7.89E+04	5.18E+06	1.27E+07	8.44E+07	-	-	-	-
2003	3.83E+04	1.85E+05	2.21E+06	2.31E+05	1.39E+05	-	-	5.64E+07
2004	5.60E+04	2.86E+05	5.46E+05	2.28E+06	1.34E+05	-	-	1.81E+08
2005	3.02E+04	8.70E+04	4.14E+05	3.40E+05	1.88E+05	-	-	5.57E+08
2006	8.65E+04	1.49E+05	3.60E+05	1.23E+05	9.41E+04	-	-	7.21E+11
2007	5.46E+04	1.54E+05	6.97E+05	1.50E+05	1.00E+05	3.19E+16	2.40E+13	1.97E+10
2008	7.43+05	1.33E+05	4.92E+05	5.71E+04	6.64E+04	3.99E+15	2.98E+14	2.50E+09



Table 5. Adjudication and Orders Issued: 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
NOV	961	467	209	232	173	86	702	872	378
Cases elevated to Public Hearing Stage	501	343	343	450	229	214	69	620	608
Ex-parte	138	93	156	342	90	106	60	70	34
CDO	14	7	22	0	3	3	13	7	1
Order of Dismissal	196	171	192	171	183	211	190	222	266

Table 6. Environmental User Fee (EUF) Statistics: 2000-2008

		2000	2001	2002	2003	2004	2005	2006	2007	2008
1	Discharge permit issued / revalidated	446	356	502	507	614	678	833	816	720*
2	BOD loading Reduced	341.54	937.79	1033.83	233.56	244.03	122.92	48.08	in progress	in progress
	% reduction	19.08%	40.61%	61.30%	29.53%	29.49%	7.75%	5.81%	in progress	in progress
3	Industries covered by EUF	628	738	914	1080	1402	1729	1951	2643	2767

\* includes re-validated permit as a result of issuance of long term permit starting 2007

**Table 7. Permits & Licenses Issued ( 2000-2008)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>EIA</b>									
1 ECC Approved / Confirmed	-	-	-	-	-	222*	449 / 271	514 / 386	247 / 470**
2 CNC Approved / Confirmed	-	-	-	-	-	663*	718 / 661	738 / 597	352 / 596**
3 LC Issued	335	240	315	381	430	380*	258	116	310
<b>Shoreland</b>									
4 Shoreland Occupancy Permit Approved/ Issued area covered in sqm.	6 336,489.51	7 21,100	21 399,327.77	23 380,444.29	0 0.00	0 0	40 211,781.05	45 91,676.36	28 76,243.76
<b>Fisheries</b>									
5 Total Number of Registered Aquastructures (FP & FC)	1,170	1,248	1,602	1,811	2,120	2,181	1,295	2,442	2,043
Aggregate area in has.	8,635.57	8,100.64	7,639.23	10,820.81	11,378.37	11,428.58	7,467.97	11,420.70	10,533.47
fishpen - no.	299	230	232	363	362	373	245	362	341
- area in has.	8,180.06	7,050.55	6,869.63	10,063.77	10,392.66	10,317.38	6,830.64	9,809.80	9,341.16
fishcage - no	871	1,018	1,370	1,448	1,758	1,808	1,050	2080	1,702
- area in has.	455.51	1,050.09	769.60	757.0374	985.71	1,111.20	637.3325	1610.9001	1,192.31

\* Transferred to LLDA in 2005 by virtue of DAO 2004-61.

\*\* DENR issued an Administrative Order 2008-11 on 15 July 2008 - Recalling the delegation of authority to LLDA (DENR AO # 2004-61) to grant or deny the issuance of ECC/CNC for projects located in LdBR.

Table 8. Environmental User Fee (EUF) Statistics: 2000-2008

	2000	2001	2002	2003	2004	2005	2006	2007	2008
1 Discharge permit issued / revalidated	446	356	502	507	614	678	833	816	720*
2 BOD loading Reduced	341.54	937.79	1033.83	233.56	244.02	122.74	48.08	152.96	966.04
% reduction	19.07%	40.61%	61.30%	29.09%	29.49%	7.74%	-10.02%	6.02%	18.57%
3 Industries covered by EUF	623	731	907	1,065	1,387	1,709	1,943	2,183	2,401

\* includes re-validated permit as a result of issuance of long term permit starting 2007

**Table 9. Percent Reduction in BOD Loading**

No. Of Firms	Years in comparison	% reduction
221	1997-2008	96.97
254	1998-2008	94.62
427	1999-2008	80.84
623	2000-2008	77.75
731	2001-2008	65.52
907	2002-2008	15.14
1065	2003-2008	15.61
1387	2004-2008	9.51
1709	2005-2008	8.03
1943	2006-2008	21.68
2183	2007-2008	18.57

# Chapter 3

## Gender and Development

# Gender and Development

## Introduction

Incessant gender mainstreaming in the Department of Environment and Natural Resources (DENR) is being implemented in accordance with Republic Act 7192, directing all government agencies to promote women's advancement and Executive Order No. 348 - Adopting the Philippine Development Plan for Women (PDPW). Recognizing the importance of these policies and in support to E.O. 348 issued a Department Administrative Order (DAO) No. 7 s. of 1995 re: Establishing the GAD Functional Structure in the Department.

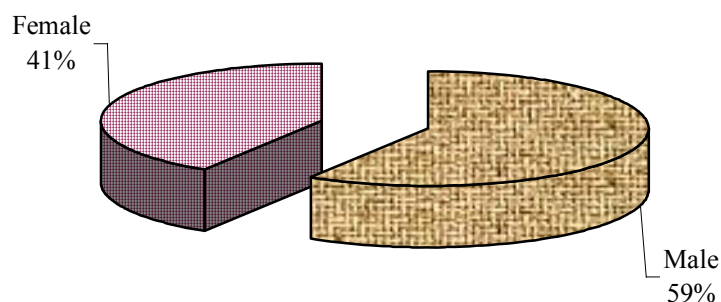
Gender mainstreaming emanated as a set of concrete ways to pro-actively promote gender equality. There are two distinct inter-related courses of action that involves in gender mainstreaming. First, is integrating women and their specific concerns and issues in the development process and secondly, incorporating gender analysis in policy and program design. These steps of action are ways of identifying the different interests and needs of males and females to enhance the effectiveness of local and national agencies.

Cognizant to the perspective of gender equality, the DENR has embarked on innovating approaches as part of Environment and Natural Resources programs/projects and other related activities. As a result, the following successful initiatives aim to highlight and draw attention to facts and figures reflecting the male and female participation.

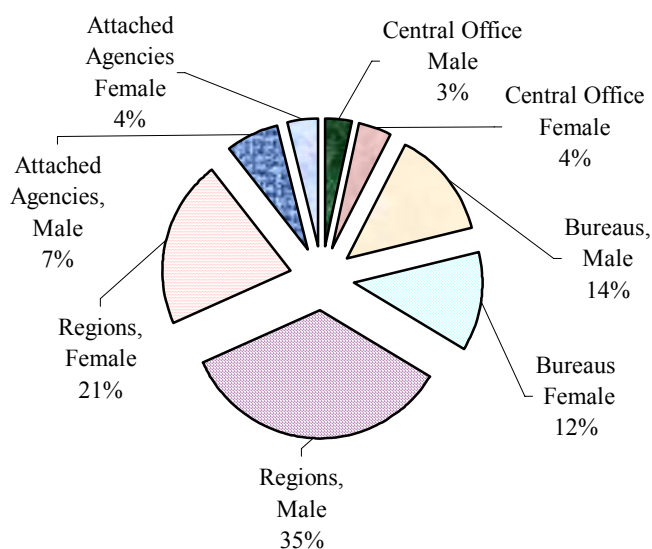
## I. Manpower Complement

Taking a glance at 2009 manpower strength of the Department reached a total of 20,539 comprised of 59% male and 41% female (Figure 1a). These included personnel from the Office of the Secretary, Bureaus, Regional Offices and Attached Agencies. In relation to the total workforce, the permanent workforce expectedly has the highest with 18,961 (male - 11,289 and female - 7,672) followed by casual employees with 1,494 (male - 781 and female - 713) and contractuels with the least number of 84 (male - 39 and female – 45) (Table 1).

**Figure 1a - Percentage Composition of DENR Personnel by Gender as of 2009**  
(Total No. of Employees - 20,539)



**Figure 1b - Percentage Composition of DENR Personnel by Office and by Gender as of 2009**  
(Total No. of Employees - 20,539)



Among the bureaus, the Mines and Geosciences Bureau (MGB) had the biggest number of regular employees of 1,113 composed of 652 male and 461 female. This is followed by the Environmental Management Bureau (EMB) with a total of 666 employees broken down to 328 male and 338 female.

At the regional level, Regions 2, 3, 10, 11 and CAR were noted to have a regular workforce of more than one thousand and apparently with male dominated population.

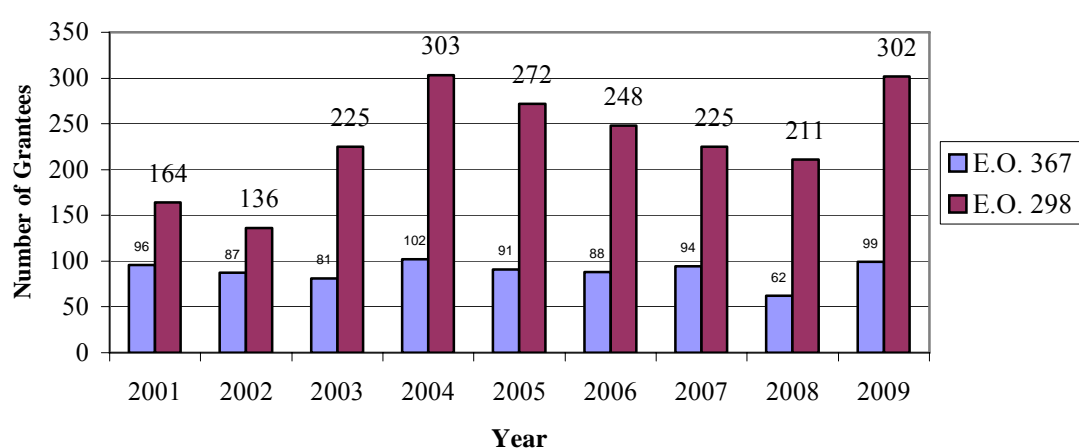
## II. Capability Building/Personnel Enhancement Through Trainings/Scholarship Programs

In an effort to cater the growing needs for an improved public service, the Human Resource Development Service (HRDS) continuously carried out various trainings, scholarship programs, and other staff development programs. Under the DENR Local Scholarship Program there were nine (9) employees who completed their chosen field of specialization composed of five (5) males and four (4) females as of CY 2009. These graduates were holder of Bachelor of Science, Masteral and Doctorate degree (Table 2a). For the same period of review, there were thirty three (33) DENR-Local Scholars with on-going contract comprised of seventeen (17) male and sixteen (16) female (Table 2a).

In order to capacitate the DENR's middle to senior officers in the areas of biodiversity conservation and management, the DENR forged a partnership with the Development Academy of the Philippines and thus, design a program in Master in Public Management Major in Biodiversity Conservation and Management (MPM-BCM). Under the said program produced graduates of twenty one (21) male and nine (9) female in CY 2008 (Table 2a).

Under the Foreign Scholarship Program (FSP), there were two types of grants, the Executive Order 367 (Study Trips) and Executive Order 298 (Non-Study Trips or Meetings/Conferences/Study Tours). For the period CY 2001-2009, both grants under E.O. 367 and E.O. 298 which showed the highest number of scholars were in CY 2004 and CY 2009 (Figure 2, Table 2b).

**Figure 2 Number of Grantees under the Foreign Scholarship Program**



On statistical aspect, the Research and Statistics Division (RSD), Planning and Policy Service through the HRDS spearheaded the conduct of annual training related to statistics. Said trainings aim to equip the participants with different statistical tools relevant in coming up with an eloquent analysis pertaining particularly on the state of the Environment and Natural Resources. The target participants came from the DENR Central Office, Bureaus, Regional Offices and Attached Agencies who handles workload on statistics in their respective offices. For CY 2009, training courses on



Basic Statistical Analysis and Advanced Statistical Analysis Using MS Excel were undertaken with experts from Statistical Research and Training Center (SRTC) as resource persons. The two courses on Basic and Advance Statistical Analysis have a total of 21 and 29 participants respectively. A notable number of female participants have attended both courses with a total of 37 as compared with male with only 12.

### III. Gender Mainstreaming In ENR Programs/Projects/ Activities

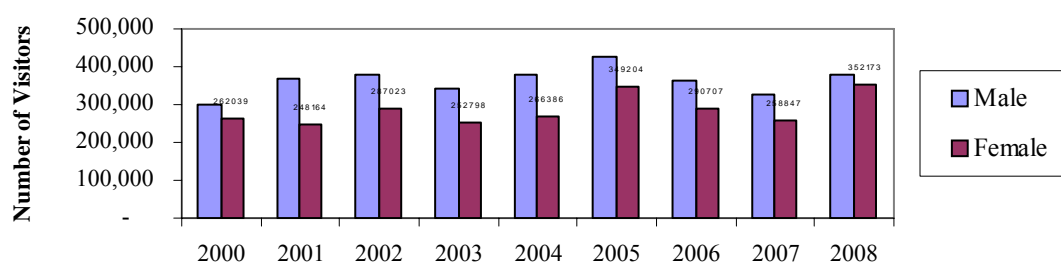
#### A. Land Disposition

In accordance with Republic Act No. 7192 otherwise known as the “Women in Development and Nation Building Act, paved the way for the issuance of DENR Department Administrative Order (DAO) No. 13 s. of 2002 re: Removal of gender bias in the acceptance and processing of Homestead Patent Applications and Other Public Land Applications. Through this Order, women, regardless of civil status, shall enjoy equal rights as men in the filing, acceptance, processing and approval of public land applications. In effect, a number of female were recorded as recipients of public lands. Generally, an increasing number of beneficiaries of disposed lands were recorded from 2002-2008. However, a notable decrease in the number of female recipients were observed in 2005 and 2008 bringing down the total disposed lands into 101,143 and 113,042 respectively. On the other hand, for the same period 2002-2008, the number of male land beneficiaries continues to increase except in 2008 (Table 3).

#### B. Protected Areas (Pas) Local And Foreign Visitors

Protected areas are one of the sources of additional income for the country. In 2008, a total of 729,386 Filipinos visited the different protected areas managed by the DENR. Filipino men composed of 377,213 or 52 percent of the total visitors, showed more interest with protected areas than Filipino women 352,173 or 48 percent. For the same period, among all regions, the National Capital Region (NCR) recorded the highest number of male and female visitors with 251,508 and 213,968 respectively. The registry

**Figure 3a - Number of Protected Areas (PAs) Local Visitors: 2000-2008**

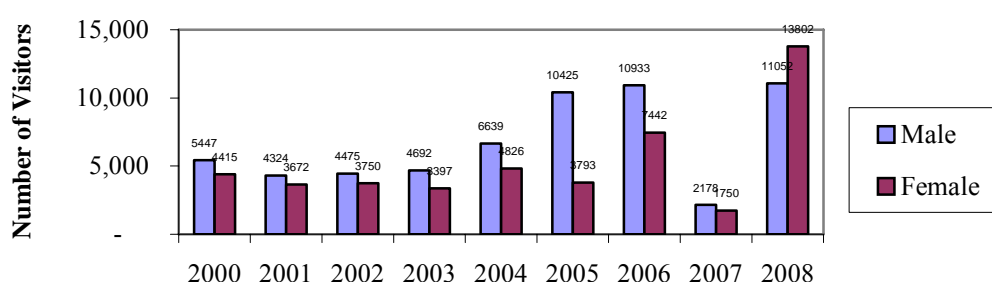


Source: Protected Areas and Wildlife Bureau

book of the park further revealed that male visitors congruously dominated female visitors from CY 2002-2008. (Figure 3a, Table 4a).

On the other hand, 24,854 foreigners visited the different protected areas of the country in 2008. Most of them, 6,817 male and 4,319 female preferred Region 7 as the place to visit. Region 4-B came in second with 2,711 male and 8,320 female visitors. An unstable trend in terms of the total number of protected areas foreign visitors showed from CY 2000-2008 wherein the highest and lowest number of visitors was recorded in CY 2008 and 2007 respectively (Figure 3b, Table 4b).

**Figure 3b - Number of Protected Areas (PAs) Foreign Visitors: 2000-2008**



Source: Protected Areas and Wildlife Bureau

### C. Mining Employment

As part of the Self-Monitoring Report (SMR) required by the Mines and Geo-Sciences Bureau (MGB) to selected mining companies as reference to issuance of permit derived the gender data on mining employment. Record showed that the total employment of Large Scale Metallic Mines by company for the years 2006 and 2008, male employment population consistently outnumbered the female population (Table 5a). For the period CY 2006 - 2008, the top three companies in terms of total workforce namely: Philex Mining Corporation, Carmen Copper Corporation and Coral Bay Nickel Corporation have recorded high male workforce. Likewise, the Selected Non-Metallic Mining Companies with a total employment of 5,084 in CY 2008 manifested a male dominated workforce with 92% male or 4,681 and 8% female or 403 (Table 5b).

### D. Other Gad-Related Activities

Gender mainstreaming penetrated several Gender and Development (GAD) related programs of the Department giving paramount attention on the welfare of its employees. These included skills training (i.e. livelihood training); establishment and maintenance of Daycare Centers in DENR Central Office, some Bureaus and Regional Offices; provision of health services (i.e consultations, laboratory tests, physical fitness program, etc.); and Information Education Campaign/Studies (i.e. Dalaw Turo by PAWB; lecture/orientation on responsible mining and geohazard survey by MGB;

Socio-Economic Survey of the Hunger Mitigation Program by ERDS; Upland Development Program, Bantay Gubat and Soil Conservation and Watershed Management (SCWM) by FMS; and Orientation on Ecological Solid Wastes Management by EMB) among others have been conducted.

#### **IV. Policy Instruments**

Efficient implementation of related Gender and Development (GAD) policy instruments yields successful milestone of various GAD programs and projects in the Department. The following GAD related policies support as groundwork in ensuring the perspective of attaining equality among men and women.

##### **A. GAD International/National Legislations**

1. Philippine 1987 Constitution which declares that “the state recognizes the role of women in nation building and shall promote the fundamental equality before the law of women and men”;
2. Proclamation No. 224, “Declaring the First Week of March of Every Year as Women’s Week and March 8, 1988 and Every Year Thereafter as Women’s Rights and International Peace Day.” Proclamation No. 227, “Providing for the observance of the Month of March as ‘Women’s Role in History Month’ was also signed on March 17, 1988. Two years after, R.A. 6949, “An Act to Declare March Eight of Every Year as a Working Special Holiday to be known as National Women’s Day was signed on April 10, 1990;
3. Executive Order 348 of 1989 which provided for the approval and adoption the Philippine Development Plan for Women 1989-1992;
4. Republic Act 7192 which was enacted in July 1991 and responsible for the integration of women as full partners of men in the development and nation building;
5. Executive Order 273 of 1995 was issued which was responsible for the formulation of the Philippine Plan for Gender Responsive Development for 1995-2025;
6. Beijing Platform for Action (BPA) in 1995 which is a major output of the International Women’s Conference in Beijing, China. The BPA called for the use of sufficient financial and human resources for undertaking gender-impact analysis; and
7. General Appropriations Act (GAA) of the Philippines provides for the allocation of at least 5% of the budget of all government agencies for mainstreaming gender concerns in their respective areas of concern.

## **B. DENR-GAD Related Policies**

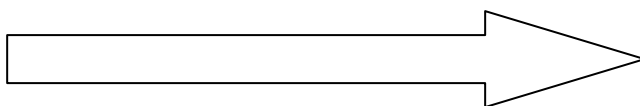
1. In 1989, DENR created a Technical Working Committee on Women (TWCW) composed of bureaus and 4 regional offices. The Committee was responsible for ensuring that DENRs policies, programs and projects were responsive to the needs and worked for the interest of its women clients, beneficiaries and employees;
2. DENR, Administrative Order No. 4, series of 1991 was issued which provided for the awarding of Certificate of Stewardship Contracts to both spouses. The TWCW was reconstituted into the Gender and Development Focal Point;
3. In 1995, DENR-GAD was made a key result area, the GAD Focal Point was restructured providing for the implementation of GAD activities in the DENR with the Secretary designated as the Chairperson of the National GAD Executive Committee;
4. DENR Department Administrative Order (DAO) No. 7 s. of 1995 re: Establishing the GAD Functional Structure in the Department;
5. In 1996, Transformation of the focal points into a system enabling members to initiate and pursue specific tasks without necessarily being dependent to the central office. GAD was made part of the Performance Commitment Statement of the DENR Secretary to the President.

Women were made part of the Protected Area Management Board and the initial implementation of the Gender and Development Service Awards. Also, gender concerns were incorporated in small to medium scale forest plantation plans and activities as well as the issuance of the implementing rules and regulations for community-based forest management program.

6. DAO 33, s. of 1996 was also issues which outlined the implementing rules and regulations on anti-sexual harassment.
7. DAO 37, s. of 1996 was also issued which required the assessment and determination of impacts of projects on women as part of the Environmental Impact Assessment;
8. DAO 4 s. of 1997 was issued incorporating gender concerns in large scale forest plantation plans and activities including the issuance of Memo Circular 12 which institutionalized gender parity in Community Resources Management Framework of the Community-Based Forest Management Program.

GAD activities were made part of the key result areas and commitments. The DENR Day Care Center was created and a number of GAD-related projects were conducted.

# Statistical Tables



**Table 1. Manpower Complement by Central Office, Bureau, Region and Attached Agency: 2009**

Office/Agency	Regular			Casual			Contractual (PS)			Grand Total		
	Male	Female	No. of Employees	Male	Female	No. of Employees	Male	Female	No. of Employees	Male	Female	No. of Employees
<b>Central Office</b>	<b>316</b>	<b>399</b>	<b>715</b>	<b>34</b>	<b>51</b>	<b>85</b>	<b>3</b>	<b>4</b>	<b>7</b>	<b>353</b>	<b>454</b>	<b>807</b>
Bureaus												
ERDB	95	131	226	17	7	24	0	0	-	112	138	250
FMB	96	114	210	11	15	26	0	0	-	107	129	236
LMB	87	105	192	14	16	30	0	2	2	101	123	224
PAWB	50	82	132	64	27	91	0	0	-	114	109	223
EMB	328	338	666	16	13	29	7	7	14	351	358	709
MGB	652	461	1,113	0	0	-	0	0	-	652	461	1,113
<b>Sub-Total</b>	<b>1,308</b>	<b>1,231</b>	<b>2,539</b>	<b>122</b>	<b>78</b>	<b>200</b>	<b>7</b>	<b>9</b>	<b>16</b>	<b>1,437</b>	<b>1,318</b>	<b>2,755</b>
Attached Agencies												
NAMRIA	457	203	660	42	18	60	0	0	-	499	221	720
LLDA	91	78	169	13	1	14	24	27	51	128	106	234
NRDC	11	9	20	0	0	-	1	0	1	12	9	21
NWRB	41	61	102	0	0	-	0	0	-	41	61	102
PRRC	34	15	49	0	0	-	0	0	-	34	15	49
<b>Sub-Total</b>	<b>634</b>	<b>366</b>	<b>1,000</b>	<b>55</b>	<b>19</b>	<b>74</b>	<b>25</b>	<b>27</b>	<b>52</b>	<b>714</b>	<b>412</b>	<b>1,126</b>

**Table 1. Manpower Complement by Central Office, Bureau, Region and Attached Agency: 2009 (Continued)**

Office/Agency	Regular			Casual			Contractual (PS)			Grand Total		
	Male	Female	No. of Employees	Male	Female	No. of Employees	Male	Female	No. of Employees	Male	Female	No. of Employees
Region Offices												
NCR	161	180	341	2	2	4	0	0	-	163	182	345
CAR	656	352	1,008	38	22	60	0	0	-	694	374	1,068
1	461	315	776	70	47	117	0	0	-	531	362	893
2	864	473	1,337	43	45	88	0	0	-	907	518	1,425
3	846	492	1,338	33	29	62	0	0	-	879	521	1,400
4-A	465	391	856	20	41	61	0	0	-	485	432	917
4-B	642	310	952	32	57	89	0	0	-	674	367	1,041
5	431	363	794	24	45	69	0	0	-	455	408	863
6	500	442	942	20	38	58	0	0	-	520	480	1,000
7	525	301	826	101	55	156	0	0	-	626	356	982
8	619	355	974	25	34	59	0	0	-	644	389	1,033
9	551	355	906	51	36	87	0	0	-	602	391	993
10	631	410	1,041	20	29	49	0	0	-	651	439	1,090
11	646	426	1,072	31	22	53	4	5	9	681	453	1,134
12	513	251	764	48	31	79	0	0	-	561	282	843
Caraga	520	260	780	12	32	44	0	0	-	532	292	824
Sub-Total	9,031	5,676	14,707	570	565	1,135	4	5	9	9,605	6,246	15,851
Grand Total	11,289	7,672	18,961	781	713	1,494	39	45	84	12,109	8,430	20,539

Source: Personnel Division, Administrative Service

**Table 2a. Number of Graduates/Grantees under the DENR Local Scholarship Program by Gender**  
**As of CY 2009**

Degree/Course	Graduates			On-Going Grantees		
	Male	Female	Total	Male	Female	Total
Bachelor of Science	1	1	2	12	8	20
Masteral	4	2	6	4	6	10
Doctorate		1	1	1	2	3
2009	5	4	9	17	16	33
MPM-BCM	21	9	30			0
2008	21	9	30	0	0	0
<b>Total</b>	<b>26</b>	<b>13</b>	<b>39</b>	<b>17</b>	<b>16</b>	<b>33</b>

Note: MPM-BCM - Master in Public Management - Major in Biodiversity Conservation and Management

Source: *Human Resources Development Service*



**Table 2b. Number of Grantees under the DENR Foreign Scholarship Program  
CY 2001-2009**

<b>Foreign Scholarship</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
E.O. 367 (Study Trips)	96	87	81	102	91	88	94	62	99
E.O. 298 (Non-Study Trips or Meetings/Conferences/Study Tours)	164	136	225	303	272	248	225	211	302

*Source: Human Resources Development Service*

**Table 3. Number of Land Disposition by Gender: 2002-2008**

Year	Male	Female	Total
2002	56,612	33,273	<b>89,885</b>
2003	59,683	38,803	<b>98,486</b>
2004	69,783	41,481	<b>111,264</b>
2005	61,661	39,482	<b>101,143</b>
2006	71,806	45,700	<b>117,506</b>
2007	76,325	50,098	<b>126,423</b>
2008	68,252	44,790	<b>113,042</b>

*Source: Project Development and Evaluation Division, Planning Service*

**Table 4a. Number of Protected Areas (PAs) Local Visitors by Region and by Gender: CY 2006-2008**

Region	2006			2007			2008		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
NCR	224,946	178,122	403,068	231,716	177,074	408,790	251,508	213,968	465,476
CAR	3,726	3,521	7,247	3,811	2,871	6,682	4,251	3,442	7,693
1	12,470	10,865	23,335	10,937	10,624	21,561	10,043	10,129	20,172
2	155	97	252	347	462	809	1,243	1,284	2,527
3	8,316	12,573	20,889	8,839	12,839	21,678	8,438	10,951	19,389
4A	54,404	24,909	79,313	34,086	21,141	55,227	18,647	26,443	45,090
4B	13,354	16,992	30,346	388	405	793	10,315	5,821	16,136
5	3,747	3,000	6,747	5,588	4,112	9,700	2,471	2,551	5,022
6	4,080	3,451	7,531	4,829	3,586	8,415	4,542	5,220	9,762
7	12,065	14,108	26,173	2,381	4,276	6,657	19,321	15,715	35,036
8	1,243	1,208	2,451	1,676	1,808	3,484	12,520	18,472	30,992
9	996	1,325	2,321	784	1,311	2,095	3,390	3,206	6,596
10	2,989	2,439	5,428	3,191	2,491	5,682	4,129	3,605	7,734
11	10,576	8,872	19,448	7,172	7,885	15,057	3,119	4,586	7,705
12	10,386	8,756	19,142	9,384	7,340	16,724	22,999	26,487	49,486
Caraga	476	469	945	786	622	1,408	277	293	570
<b>Philippines</b>	<b>363,929</b>	<b>290,707</b>	<b>654,636</b>	<b>325,915</b>	<b>258,847</b>	<b>584,762</b>	<b>377,213</b>	<b>352,173</b>	<b>729,386</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 4b. Number of Protected Areas (PAs) Foreign Visitors by Region and by Gender: CY 2006-2008**

Region	2006			2007			2008		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
NCR	-		0	-	-	0	79	70	149
CAR	329	291	620	166	161	327	422	153	575
1	75	64	139	72	44	116	28	32	60
2	101	2	103	7	18	25	63	50	113
3	19	3	22	11	8	19	7	3	10
4-A	69	29	98	20	14	34	46	25	71
4-B	4,497	3,105	7,602	768	505	1,273	2,711	8,320	11,031
5	56	78	134	159	102	261	51	44	95
6	57	37	94	21	33	54	46	51	97
7	5,164	3,349	8,513	151	328	479	6,817	4,319	11,136
8	188	76	264	195	126	321	540	458	998
9	-	-	0	-	-	0	4	-	4
10	10	292	302	48	16	64	13	9	22
11	187	32	219	100	5	105	11	55	66
12	61	29	90	46	37	83	214	213	427
Caraga	120	55	175	414	353	767	-	-	0
<b>Philippines</b>	<b>10,933</b>	<b>7,442</b>	<b>18,375</b>	<b>2,178</b>	<b>1,750</b>	<b>3,928</b>	<b>11,052</b>	<b>13,802</b>	<b>24,854</b>

*Source: Protected Areas and Wildlife Bureau*

**Table 5a. Number of Employment of Large Scale Metallic Mines by Company and Gender: CY 2006-2008**

Name of Company	As of 2006			As of 2007			As of 2008		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Apex Mining Company, Inc.	-	-	-	1,031	96	1,127	862	86	948
Benguet Corporation (Acupan Contract Mining Project)	220	41	261	213	41	254	224	58	282
Benguet Corporation (Masinloc Chromite Project)	138	21	159	31	19	50	28	16	44
Berong Nickel Corporation	-	-	-	379	41	420	377	50	427
Cagdianao Mining Corporation	292	27	319	223	31	254	239	29	268
Carmen Copper Corporation	-	-	-	3,565	81	3,646	5,422	195	5,617
Coral Bay Nickel Corporation	-	-	-	2,493	113	2,606	2,473	172	2,645
CRAU Mineral Resources Corporation/PGE	-	-	-	-	-	-	168	20	188
CTP Construction & Mining Corporation -SIRC	-	-	-	703	16	719	642	17	659
Carrascal Nickel Corporation	-	-	-	-	-	-	174	40	214
Heritage Resources & Mining Corporation	120	9	129	110	8	118	110	8	118
Hinatuan Mining Corporation (South Dinagat Nickel Project)	496	33	529	179	29	208	92	24	116
Hinatuan Mining Corporation (Tagana-an Nickel Project)	714	57	771	2,180	46	2,226	82	30	112
Johnson Gold Mining Corporation	99	3	102	77	4	81	183	4	187
Krominco Incorporated	287	12	299	234	16	250	172	16	188
Lepanto Consolidated Mining Company (Teresa Gold Project & Victoria Gold Project)	1,166		1,166	1,904	85	1,989	1,185	74	1,259
Philex Mining Corporation	2,210	223	2,433	2,199	229	2,428	2,261	223	2,484
Philippine Mining Development Corporation	65	14	79	60	13	73	-	-	-
Philsaga Mining Corporation	1,115	40	1,155	887	53	940	1,334	69	1,403
Platinum Group Metals Corporation	-	-	-	177	21	198	35	11	46
Rapu Rapu Mining Corporation	-	-	-	316	63	379	425	75	500
Rio Tuba Mining Corporation	706	99	805	569	104	673	818	107	925
Sagitarious Mines, Inc.	-	-	-	459	53	512	-	-	-
Taganito Mining Corporation	566	48	614	591	68	659	744	73	817
TVI Resources Development Philippines, Incorporated	619	39	658	620	49	669	417	30	447
<b>Total</b>	<b>8,813</b>	<b>666</b>	<b>9,479</b>	<b>19,200</b>	<b>28,679</b>	<b>47,879</b>	<b>18,467</b>	<b>1,427</b>	<b>19,894</b>

Source: Mines and Geosciences Bureau

**Table 5b. Number of Employment of Selected Non-Metallic Mining Companies by Company and Gender: CY 2006-2008**

Name of Company	CY 2006			CY 2007			CY 2008		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Apo Cement Corporation	336	32	368	336	32	368	336	32	368
Apo Land & Quarry Corporation	43	2	45	74	2	76	74	2	76
Continental Operating Corporation	110	14	124	110	14	124	110	14	124
Fortune Cement Corporation	209	20	229	209	20	229	209	20	229
FR Cement Corporation	216	16	232	216	16	232	216	16	232
Gozon Development Corporation	27	4	31	27	4	31	27	4	31
Hardrock Aggregates, Inc.	46	3	49	46	3	49	46	3	49
Holcim Philippines Corporation - Bulacan Plant	269	12	281	270	12	282	270	12	282
Holcim Philippines Corporation - Davao Plant	51	-	51	51	-	51	51	-	51
Holcim Philippines Manufacturing Corporation	383	31	414	383	31	414	383	31	414
Holcim Philippines, Inc.	215	11	226	215	11	226	215	11	226
Iligan Cement Corporation	178	11	189	178	11	189	178	11	189
Island Quarry and Aggregates Corporation	170	4	174	170	4	174	170	4	174
La Concepcion Construction & Development Corporation	8	2	10	8	2	10	8	2	10
Lazi Bay Resources Development, Incorporated	73	5	78	65	5	70	65	5	70
Monte Rock Corporation	26	3	29	26	3	29	26	3	29
Northern Cement Corporation	356	36	392	441	40	481	441	40	481
Pacific Cement Philippines, Inc.	346	41	387	346	41	387	381	41	422
Pacific Concrete Products, Inc.	26	2	28	26	2	28	26	2	28
Pheschem Industrial Corporation	22	8	30	22	8	30	22	8	30
Philippine Mining Service Corporation	38	8	46	38	8	46	38	8	46
Rapid City Realty and Development Corp./Good Seed Mining Corp.	120	10	130	120	10	130	120	10	130
Republic Cement Corporation - Norzagaray Plant	131	17	148	131	17	148	131	17	148
Republic Cement Corporation - Teresa Plant (FR Cement Corp.)	193	10	203	194	9	203	214	15	229
RMR Aggregate Crushing Plant	33	4	37	33	4	37	33	4	37

**Table 5b. Number of Employment of Selected Non-Metallic Mining Companies by Company and Gender: CY 2006-2008 (Continued)**

Name of Company	CY 2006			CY 2007			CY 2008		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
San Isidro Rock Resources, Inc.	25	6	31	25	6	31	25	6	31
Solid Cement Corporation	170	4	174	170	4	174	170	4	174
Solid Earth Development Corporation	58	9	67	58	9	67	68	4	72
Taiheiyo Cement Philippines Incorporated	300	48	348	300	48	348	300	48	348
Teresa Marble Corporation	300	25	325	301	25	326	301	25	326
Viba Aggregation and Marketing	27	1	28	27	1	28	27	1	28
<b>Philippines</b>	<b>4,505</b>	<b>399</b>	<b>4,904</b>	<b>4,616</b>	<b>402</b>	<b>5,018</b>	<b>4,681</b>	<b>403</b>	<b>5,084</b>

*Source: Mines and Geosciences Bureau*

# Glossary of Terms



## Forestry

Term	Definition
Agroforestry	<p>Sustainable management of land, which increases their productivity by properly combining agricultural crops with forest crops simultaneously or sequentially over time through the application of management practices which are compatible with the local climate, topography and slope</p> <p><i>Source: Philippine Forestry Statistics 2007</i></p>
Alienable and Disposable Lands	<p>Land of the public domain, which has been classified and declared as such and available for disposition.</p> <p><i>Source: PD 705, Revising PD 389 Otherwise known as the Revised Forestry Code of the Philippines, 1975; Commonwealth Act 141, Public Land Act, 1945</i></p>
Allowable Cut	<p>Volume of materials, whether of wood or non-wood products, that is authorized to be cut or harvested regularly from a forest.</p> <p><i>Source: PD 1559, Further amending PD705 or the Revised Forestry Code of the Philippines, 1978</i></p>
Almaciga Resin	<p>Resinous exudates obtained from almaciga (<i>Agathis philippinensis</i>)</p> <p><i>Source: Philippine Forestry Statistics 2007</i></p>
Annual Log Requirement	<p>Volume of log needed to sustain the operations of a wood processing plant at full or attainable capacity for a period of one year.</p> <p><i>Source: 2002 Philippine Forestry Statistics</i></p>
Blockboard	<p>A board having a core of blocks, each not exceeding 2.54 cm. (1 inch) in width, connected or glued face to face to form a slab which is glued between two or more outer piles with the direction of the grain of the core block running at right angle to that of the adjacent outer veneers</p> <p><i>Source: Philippine Forestry Statistics 2007</i></p>
Certificate of Ancestral Domain Title	<p>Refers to a title formally recognizing the right of possession and ownership of ICCs/IPs over their ancestral domains identified and delineated in accordance with the IPRA Act of 1997</p> <p><i>Source: RA No. 8371 or the IPRA Law 1997</i></p>

## Forestry

Term	Definition
Certificate of Ancestral Land Title	Refers to a title formally recognizing the right of ICCs/IPs over their ancestral lands. <i>Source: RA No. 8371 or the IPRA Law 1997</i>
Certificate of Stewardship	An agreement entered into by and between the government and individuals/families actually occupying or tilling portions of the forestlands covered by community-based forest management agreement. <i>Source: DAO 2004-29, Revised Rules and Regulations for the Implementation of Executive Order 263 or Community-Based Forest Management Strategy, 2004.</i>
Charcoal	A product obtained from the destructive distillation and/or thermal degradation of wood. <i>Source: Philippine Forestry Statistics 2007</i>
Civil Reservations	Refer to forest land which has been proclaimed by the President for a specific purpose such as townsites, resettlement areas, ancestral lands, etc. <i>Source: Philippine Forestry Statistics 2007</i>
Closed Forest	Formation where trees in various storey and undergrowth cover a high proportion (>40 percent) of the ground and do not have a continuous dense grass layer. They are either managed or unmanaged forests, in advance state of succession and may have been logged over one or more times, having kept their characteristics of forest stands, possibly with modified structure and composition. <i>Source: DAO 2004-29, Revised Rules and Regulations for the Implementation of Executive Order 263 or Community-Based Forest Management Strategy, 2004.</i>
Community-Based Forest Management Agreement	An agreement entered into by and between the government and the local community, represented by people's organization as forest managers, which has a term of twenty five (25) years renewable for another twenty five years. <i>Source: DAO 2004-29, Revised Rules and Regulations for the Implementation of EO 263 or Community-Based Forest Management Strategy, 2004</i>

## Forestry

Term	Definition
Contract	<p>An agreement between the Philippine Government represented by the ENR, and an entity or individual, where by the latter agrees to implement an activity or a series of activities required to reforest a denuded portion of the public domain and the former DENR.</p> <p><i>Source: DENR Memo Circular 1988-11, Implementing Rules and Regulations of Reforestation Contracts, 1998</i></p>
Critical Watershed	<p>A drainage area of a river system supporting existing and proposed hydroelectric power, irrigation works or existing water facilities needing immediate protection and rehabilitation to minimize erosion and improve water yield.</p> <p><i>Source: PD 1559, Further Amending PD705, Otherwise known as the Revised Forestry Code of the Philippines, 1978; DAO 1996-40, Revised IRR of RA 7942 Philippine Mining Act of 1995.</i></p>
Daily Rated Capacity	<p>The maximum volume of output that a mill can produce in one shift of 8 hours based on the actual performance of the machinery/equipment. Sometimes referred to as true rated capacity.</p> <p><i>Source: 2003 Philippine Forestry Statistics</i></p>
Deforestation	<p>The conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10% threshold.</p> <p><i>Source: FAO, 2001, Global Forest Resource Assessment 2000 Main Report, FAO Forestry Paper No.140, Rome.</i></p>
Degradation	<p>A decline in the productivity of an area of land or in its ability to support natural ecosystems or types of agriculture.</p> <p><i>Source: Gilpin, A., 1996, Dictionary of Environment and Sustainable Development England, John Wiley and Sons Ltd.</i></p> <p><i>Source: Marra, A.A., 1992, Technology of Wood Bonding: Principles and Practice.</i></p>
Firewood or Fuelwood	<p>Wood intended for use as fuel</p> <p><i>Source: Philippine Forestry Statistics 2007</i></p>

## Forestry

Term	Definition
Forest	<p>Land with an area of more than 0.5 hectare and tree crown cover (or equivalent stocking level) of more than 10%. The trees should be able to reach a minimum height of 5meters at maturity in situ. It consists either of closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground or open formations with a continuous vegetation cover in which tree crown cover exceeds 10%. Young natural stands and all plantations established for forestry purposes, which have yet to reach a crown density of more than 10% or tree height of 5 meters are included under forest.</p> <p><i>Source: FAO 2000, Global Forest Resource Assessment 2000, Rome</i></p>
Forest Charges	<p>Levies imposed by the government on naturally-growing timber and other forest products cut/harvested by the licensee and from plantations established in compliance with TLA reforestation obligations. The rate of which is provided under Section 70,71 and72 of R.A.7161, otherwise known as the Forest Charges Law.</p> <p><i>Source: DENR Forest Management Bureau2003. Philippine Forestry Statistics Manila</i></p>
Forest Cover	<p>Natural and man-made forests, including forest within wetlands and built-up areas.</p> <p><i>Source: FAO 2000, Global Forest Resource Assessment 2000, Rome</i></p>
Forest Degradation	<p>Changes within the forest whether natural or human-induced which negatively affect the structure or function of the stand or site, and thereby lower the capacity to supply products and/or services resulting to a degraded forest</p> <p><i>Source: DENR Forest Management Bureau. Harmonization Project. Land Use Group 2004.</i></p>
Forest Disturbance	<p>Any relatively discrete event in time that disrupts ecosystem, community, or population structure and changes resources, substrate availability, of the physical environment</p>

## Forestry

Term	Definition
	<i>Source: Helms, J.A. 1998. The Dictionary of Forestry, Society of American Foresters.</i>
Forestland	Includes public forest, permanent forest or forest reserves, and forest reservations. <i>Source: PD 1559, Further Amending PD705, Otherwise known as the Revised Forestry Code of the Philippines, 1978</i>
Forestland Grazing lease Agreement	A long-term privilege granted by the state to a person to occupy and possess in consideration of a specified rental and regulation, any forest land of the public domain found suited for grazing purposes, in order to undertake any authorized activity. <i>Source: MAO 1982-50, Regulations Governing the Administration, Management and Disposition of Grazing Lands, Communal Grazing Lands and Forestlands used for Grazing Purposes, 1982.</i>
Forestland Grazing Management	A production sharing agreement between a qualified person, association and/or corporation and the government to develop, manage and utilize grazing lands. <i>Source: DAO 1999-36, Revised Rules and Regulations governing the Administration, Management, Development and Disposition of Forest Lands Used for Grazing Purposes, 1999</i>
Forest Management	The process of planning and implementing practices for stewardship and use of forestland aimed at fulfilling relevant ecological, economic, and social functions of the forest in a sustainable manner. <i>Source: FAO, Global Forest Resources Assessment 2003, Rome</i>
Forest Products	Goods and services derived from the forest such as but not limited to timber, lumber, veneer, plywood, fiberboard, pulp wood, firewood, bark, tree top, resin gum, wood oil, honey, beeswax, nipa, rattan or other forest growth such as grass, shrub and flowering plant, the associated water, fish, game, scenic, historical, and educational.

## Forestry

Term	Definition
	<i>Source: DAO 1987-80, Regulations Governing the Measurement, Assessment and Payment of Forest Charges on Timber and Other Forest Products, 1987</i>
Forest Reservation	<p>Forest land which has been reserved by the President of the Philippines for any specific purpose or purposes.</p> <p><i>Source: PD 705, Revising PD 389, Otherwise known as the Revised Forestry Code of the Philippines, 1975</i></p>
Forest Reserve	<p>Land of the public domain which has been a subject of the present system of classification and declared to be needed for forest purposes. Also known as Permanent Forest.</p> <p><i>Source: PD 1559, Further Amending PD705, Otherwise known as the Revised Forestry Code of the Philippines, 1978.</i></p>
Forest Resources	<p>Includes soil and all elements found on it, above and below the ground in an area classified as forest land.</p> <p><i>Source: DAO 2000-65, Guidelines Governing the Creation of Subproject Sites Management Office and its Institutionalization in the Forestry Sector Project Implementation, 2000.</i></p>
Fuelwood	<p>Wood used as fuel for purposes of cooking, heating or power production.</p> <p><i>Source: DENR Forest Management Bureau, Harmonization Project, Forest Products Group, 2004</i></p>
Game Refuge	<p>Refers to a forest land designated for the protection of game animals, birds and fish and closed to hunting and fishing in order that the excess population may flow and restock surrounding areas.</p> <p><i>Source: Philippine Forestry Statistics 2007</i></p>
Grazing Land	<p>Portion of the public domain which has been set aside, in view of its topography and vegetation, for the raising of livestock.</p> <p><i>Source: PD 1559, Further Amending PD705, Otherwise known as the Revised Forestry Code of the Philippines, 1978.</i></p>

## Forestry

Term	Definition
Integrated Forest Management Agreement	<p>An agreement entered into by the DENR and a qualified person to occupy and possess inconsideration of a specified rental, any forestland of the public domain in order to establish an industrial forest.</p> <p><i>Source: DAO 1999-53, Regulations Governing the Integrated Forest Management Program, 1999</i></p>
Integrated Social Forestry	<p>The national program provided for by LOI 1260 designed to maximize land productivity and enhance ecological stability, and to improve the socio-economic conditions of forest occupants and communities</p> <p><i>Source: DAO 1991-04, Revised Regulations governing Integrated Social Forestry Program, 1991</i></p>
Kaingin	<p>A portion of the forest land, whether occupied or not which is subjected to shifting and/or permanent slash-and-burn cultivation having little or no provision to prevent soil erosion.</p> <p><i>Source PD 1559, Further amending PD 705, otherwise known as the Revised Forestry Code of the Philippines, 1978</i></p>
Land	<p>Resources both man-made and natural, found on the surface, below, and above the ground including inland waters and the air therein.</p> <p><i>Source: Alvarez, H., House Bill No. 170, An Act providing for the National Land Use Code of the Philippines and other Purposes, 1998.</i></p>
Land Classification	<p>A system for determining land of the public domain into forest land, mineral land, national parks, and agricultural land based on the 1987 Constitution. In current practice, land of the public domain is classified into either forest land or alienable and disposable land.</p> <p><i>Source: NEDA, 2002, National Framework for Physical Planning.</i></p>
Land Use	<p>The manner of utilizing the land, including its allocation, development and management.</p>

## Forestry

Term	Definition
	<i>Source: RA 8435, Agricultural Fisheries Modernization Act.1997</i>
Lease	<p>A privilege granted by the state to a person to occupy and possess, in consideration of a specified rental, any forest land of the public domain in order to undertake any authorized activity therein.</p> <p><i>Source: PD 705, Revising PD 389, Otherwise known as the Revised Forestry Code of the Philippines, 1975</i></p>
License Agreement	<p>A privilege granted by the state to a person to utilize forest resources within any forest land with the right of possession and occupation thereof to the exclusion of others, except the government, but with the corresponding obligation to develop and protect.</p> <p><i>Source: PD 705, Revising PD 389, Otherwise known as the Revised Forestry Code of the Philippines, 1975</i></p>
Log	<p>Any section of the bole, a large branch, or a felled tree after cross cutting with at least 15centimetersin diameter and 1.5 meters in length.</p> <p><i>Source: DENR Forest Management Bureau, Harmonization Project, Project Expert Group. 2005.</i></p>
Logging	<p>Synonymous to TIMBER HARVESTING</p> <p><i>Source: Philippine Official Reference for Forest-Related Terms and Definitions, ITTO P2 222/03 Rev. 1 (F)</i></p>
Lumber	<p>The product of the saw and planning mill. Not further manufactured other than by sawing, resawing and passing lengthwise through standard planning machine, crosscutting to length, and matching.</p> <p><i>Source: USDA, Revised 1987 USDA Forest Products Laboratory Wood Handbook: Wood as an engineering material. Agricultural Handbook, p466. Washington, DC</i></p>
Managed Forest	<p>A forest under a deliberate system of protection, rehabilitation and development which may include utilization of resources, to ensure the sustainable production of desired products and services and the</p>



## Forestry

Term	Definition
	conservation of soil, water, wildlife and other resources therein. <i>Source: DAO 1999-53, Regulation Governing the Integrated Forest Management Program 1999</i>
Mangrove Forest	Forested wetland growing along tidal mudflats and along shallow water coastal areas extending in land along rivers, streams and their tributaries where the water is generally brackish and composed mainly of <i>Rhizophora</i> , <i>Bruguiera</i> , <i>Ceriops</i> , <i>Avicennia</i> , and <i>Aegicera</i> spp. <i>Source: PD 705, Revising PD 389, Otherwise known as the Revised Forestry Code of the Philippines, 1975; Center for International Forestry Research</i>
Military and Naval Reservations	Refers to forest land which has been proclaimed by the President for military purposes, such as Airbase, Campsite, Docks and Harbors, Firing Range, Naval Base, Target Range, Wharves, etc <i>Source: Philippine Forestry Statistics 2007</i>
Mini Sawmill	A sawmill with a daily rated capacity of less than 10,000 board feet and with flywheel diameter allowed by existing regulations. <i>Source: DENR Forest Management Bureau, Harmonization Project, Forest Products Group, 2004</i>
Nipa Shingle	Roofing material made from the fronds of nipa palm ( <i>Nypa fruticans</i> ). <i>Source: Philippine Forestry Statistics 2007</i>
Non-Timber Forest Products	All biological materials and derivatives other than timber, which are extracted from forests for human use. Synonymous to Non-wood forest products. <i>Source: DENR Forest Management Bureau, Harmonization Project, Forest Products Group, 2004</i>
Open Forest	Formations with discontinuous tree layer with coverage of at least 10% and less than 40%. They are either managed or unmanaged forests, in initial state of succession.

## Forestry

Term	Definition
	<i>Source: FAO, 2001, Global Forest Resources Assessment, 2000 Main Report, FAO Forestry Paper No. 140, Rome.</i>
Paper and paperboard	Products made from pulps and waste paper plus fillers, size colouring matter and other additives as required which may be machine or hand-made in rolls or sheets where the rolls exceed 15 cm. in width and the sheets have no side less than 36 cm. <i>Source: Philippine Forestry Statistics 2007</i>
Paper Board	A thick, heavy-weight, rigid, single, or multi-ply type of paper traditionally made on multi-cylinder paper machine with and without dual head boxes or multi-former arrangements. <i>Source: Lavigne, J.R. 1993. Pulp and Paper Dictionary</i>
Particle Board	A generic term for board material manufactured from wood particles or other lignocellulosic materials and a synthetic resin consolidated under heat and pressure. <i>Source: DENR Forest Management Bureau, 2003, Philippine Forestry Statistics, Manila</i>
Permit	A short-term privilege or authority granted by the State to a person to utilize any limited forest resources or undertake a limited activity within any forest land without any right of occupation and possession therein. <i>Source: PD 1559, Further Amending PD 705, otherwise known as the Revised Forestry Code of the Philippines, 1978</i>
Plantation Forest	Forest stands established by planting or seeding in the process of a forestation or reforestation. <i>Source: FAO, 2001, Global Forest Resources Assessment, 2000 Main Report, FAO Forestry Paper No. 140, Rome.</i>
Plywood	A panel consisting of an assembly of veneer sheets bonded together with the direction of the grain in alternate plies generally at right angles.

## Forestry

Term	Definition
	<i>Source: ITTO, 2004, Joint Forestry Sector Questionnaire.</i>
Poles and Piles	Logs for use as electric post, pier piling, railroad ties, sleepers and the like. <i>Source: Philippine Forestry Statistics 2007</i>
Processing Plant	Any mechanical set-up, device, machine or combinations of machines used for the conversion of logs and other forest raw materials into fiberboard, pulp, paper or other finished wood products <i>Source: P.D. 1559</i>
Pulpwood	Any wood cut or prepared primarily for the production of wood pulp. <i>Source: Philippine Forestry Statistics 2007</i>
Rattan	A group of cane-like climbing plant species belonging to genus Calamus, Daemonorops, Korthalsia, and Plectocomia for the family Palmae generally found on most tropical rainforest. It may come in split or unsplit forms which are used primarily in furniture and households fixtures. <i>Source: Philippine Forestry Statistics Yearbook</i>
Rattan, Split	The outer hard portion of rattan cane used in various types of baskets, hats, fish traps, mats and in great quantities for tying together posts, beams, rafters, flooring and roofing of lightwood materials and bamboo houses. <i>Source: Philippine Forestry Statistics Yearbook</i>
Rattan, Unsplit	Rattan canes in its raw form cut into shorter lengths usually 4 meters in length, for ease of handling and transporting; same as unsplit rattan. <i>Source: Philippine Forestry Statistics Yearbook</i>
Reforestation	The establishment of forest plantations on temporarily unstocked lands that are considered as forest. Also called as artificial regeneration. <i>Source: Philippine Forestry Statistics 2007</i>

## Forestry

Term	Definition
Sawlog	<p>A log considered suitable in size and quality for producing sawn timber</p> <p><i>Source: Philippine Forestry Statistics Yearbook</i></p>
Sawmill	<p>A wood processing plant used for the conversion of logs/timber into lumber which includes band or circular resaws with carriage that are operated as independent units for resawing/ripping of lumber, slabs and other wood wastes into desired dimensions and forms are not accessories to the head rig.</p> <p><i>Source: Philippine Official Reference for Forest-Related Terms and Definitions ITTO P2 222/03 Rev. 1 (F)</i></p>
Sawmill, Mini	<p>A stationary sawmill equipped with a log carriage or a portable mill equipped with rails where the head rig moves for sawing, with a daily rated capacity of less than 10,000 board feet.</p> <p><i>Source: MAO 50, series of 1986</i></p>
Sawmill, Regular	<p>A sawmill equipped with a log carriage or with rails on which the head ring runs with a daily rated capacity of at least 10,000 board feet.</p> <p><i>Source: MAO 50, series of 1986</i></p>
Socialized Industrial Forest Management Agreement	<p>Refers to an agreement entered into by and between a natural or juridical to develop, utilize and manage a small tract of forestland, consistent with the principle of Sustainable Development.</p> <p><i>Source: DENR DAO No. 24, series of 1996</i></p>
Timber	<p>The major product of the forest, the standing tree</p> <p><i>Source: Philippine Forestry Statistics Yearbook</i></p>
Timber License Agreement	<p>A long term license executed by and between the Secretary of Environment and Natural Resources on behalf of the government and the grantee for the harvesting and removal from the public forest of timber, and in appropriate cases also of other forest products.</p> <p><i>Source: Philippine Forestry Statistics 2007</i></p>

## Forestry

Term	Definition
Timberland	Includes public forest, permanent forest or forest reserves and forest reservations. <i>Source: Philippine Forestry Statistics 2007</i>
Tree Farm	Any small forest land or tract of land purposely planted with tree crops <i>Source: Philippine Forestry Statistics 2007</i>
Veneer	A thin layer or sheet of wood produced by sawing, peeling or slicing <i>Source: Philippine Forestry Statistics Yearbook</i>
Watershed	A land area drained by a stream or fixed body of water and its tributaries having a common outlet for surface run-off. <i>Source: PD 1559</i>
Watershed, forest reserve	Any watershed that has been delimited and proclaimed by the President of the Philippines as such to be used exclusively for watershed purposes. Such as watershed forest reserves are withdrawn from entry, sale or other disposition, and no portion thereof shall be excluded except with the concurrence of Congress. <i>Source: Philippine Forestry Statistics 2007</i>
Wilderness Area	Refers to land of public domain which have been reserved as such by law to preserve its natural conditions, maintain its hydrologic quality and restrict public use in the interest of national welfare and security, <i>Source: Philippine Forestry Statistics 2007</i>

## Biodiversity

Term	Definition
Abandoned	<p>Wild plants and animals intentionally left by keeper/owner (human) giving up responsibility for care and maintenance or left by "biological" parents (for animals).</p> <p><i>Source: DAO No. 2000-46 Compilation of Policy Issuances CY 2000-2002</i></p>
Alienable and Disposable Lands	<p>Refer to public lands classified as agricultural and therefore alienable and disposable prior to the passage of RA No. 8991, provided that ancestral domains are not considered to be alienable and disposable as they are considered never to have been public.</p> <p><i>Source: Republic Act No. 8991; DAO No. 2000-83 Compilation of Policy Issuances CY 2000-2002</i></p>
Biodiversity	<p>Refer to the variety and variability among all living organisms and the ecological complexes in which they occur.</p> <p><i>Source: Republic Act Nos. 9125, 9147, 9154; DAO No. 2000-13</i></p> <p><i>Compilation of Policy Issuances CY 2000-2002</i></p>
Buffer Zones	<p>Are identified areas outside the boundaries of and immediately adjacent to the Reserve that need special development and control in order to avoid or minimize harm to the Reserve.</p> <p><i>Source: Republic Act No. 9106 Compilation of Policy Issuances CY 2000-2002</i></p>
Convention on International Trade in Endangered Species of Flora & Fauna (CITES)	<p>It is an international treaty ratified by the Philippine Government purposely to regulate, control and prohibit the trade of wildlife.</p> <p><i>Source: DAO No. 2002-19 Compilation of Policy Issuances CY 2000-2002</i></p>
Conservation Dependent	<p>Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories within a period of five (5) years.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 232</i></p>

## Biodiversity

Term	Definition
Critically Endangered	<p>A taxon that is facing an extremely high risk of extinction in the wild in the immediate future.</p> <p>Source: Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002</p>
Data Deficient	<p>A taxon where there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.</p> <p>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 232</p>
Endemic	<p>Native to and restricted to a specific geographic area.</p> <p>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 232</p>
Endangered Species	<p>Shall refer to species or subspecies whose populations are in danger of extinction and whose survival is unlikely if the causal factors continue operating.</p> <p>Source: Republic Act Nos. 9125, 9147 Compilation of Policy Issuances CY 2000-2002</p>
Export Permit	<p>Refers to a permit authorizing an individual to bring out wildlife from the Philippines to any other country.</p> <p>Source: Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002</p>
Extinct	<p>A taxon where there is no reasonable doubt that its last individual has died.</p> <p>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 232</p>
Game Refuge and Bird Sanctuary	<p>Refers to a forest land designated for the protection of game animals and fish, and closed to hunting and fishing in order that the excess population may flow and restock surrounding areas.</p> <p>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</p>
Habitat	<p>A place or environment where a species or subspecies naturally occur or has naturally established its population.</p> <p>Source: Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002</p>

## Biodiversity

Term	Definition
Indeterminate	<p>Species and subspecies of wildlife whose populations are suspected of belonging to either one of the E, V, and R categories but for which insufficient information is currently available to determine definite status.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Integrated Protected Area Fund (IPAF)	<p>Trust fund established for purposes of financing activities of protected areas. IPAF may be derived from income generated from the operation of the Park, such as taxes from the sale of flora and fauna, proceed from lease of multiple-use areas, and contributions from industries and facilities.</p> <p><i>Source: DAO No. 2002-02 Compilation of Policy Issuances, CY 2000-2002</i></p>
Least Concern	<p>Taxa which do not qualify for Conservation Dependent or Near Threatened.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Lower Risk	<p>A taxon when evaluated does not satisfy the criteria for any of the categories Critically Endangered, Endangered and Vulnerable.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Migrant	<p>Species that winter in the Philippines on a seasonal basis or those that cross transboundaries on several states.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Marine Park/Reserve	<p>Any off-shore area inhabited by rare, unique species of marine flora and fauna.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
National Integrated Protected Areas System (NIPAS)	<p>The classification and administration of all designated protected areas to maintain essential ecological processes and life-support systems, to preserve genetic diversity, to ensure sustainable use of resources found therein, and to</p>



## Biodiversity

Term	Definition
	<p>maintain their natural conditions to the greatest extent possible.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
National Park	<p>Refers to a forest reservation essentially of natural wilderness character which has been withdrawn from settlement or occupancy and set aside as such exclusively to preserve the scenery, the natural and historic objects and the wild animals or plants therein, and to provide enjoyment of these features in such a manner as we leave them unimpaired for future generations.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Natural Biotic Area/Reserve	<p>An area set aside to follow the way of life societies living in harmony with the environment to adopt to modern technology at their pace.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Natural Monument/Landmark	<p>A relatively small area focused on protection of small features to protect or reserve nationally significant natural features on account of their special interest or unique characteristics.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>
Natural Park	<p>Refer to a relatively large area not materially altered by human activity where extractive resource use and large-scale infrastructure projects are not allowed in its strict protection zones and maintained to protect outstanding natural and scenic areas of national or international significance for educational, scientific and recreational use.</p> <p><i>Source: Republic Act No. 9125 Compilation of Policy Issuances CY 2000-2002</i></p>
Near Threatened	<p>Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>

## Biodiversity

Term	Definition
Permit	<p>A short term privilege or authority granted by the state to a person to utilize any limited forest resources or undertaken a limited activity within forest land without any right if occupation and possession therein.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234</i></p>
Protected Area Management Board (PAMB)	<p>A multi-sectoral body created in each protected area vested with powers to decide the allocations for budget, approve proposals for funding and decide matters relating to planning, peripheral protection and general administration of the protected area in accordance with the general management strategy, among others.</p> <p><i>Source: DAO No. 2002-02 Compilation of Policy Issuances CY 2000-2002</i></p>
Protected Areas	<p>Refers to identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234</i></p>
Protected Landscape/Seascape	<p>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.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234</i></p>
Protected Species	<p>Refer to any plant or animal declared protected under Philippine laws. These shall include all species listed under the Convention on International Trade of Endangered Species (CITES) and all its Annexes, the Bonn Convention on Migratory Animals, those specified under the redlist categories of the International Conservation of Nature (IUCN), or any plant or animal which the PAMB may deem necessary for conservation and preservation in the Mt. Kanla-on Natural Park.</p> <p><i>Source: Republic Act No. 9154 Compilation of Policy Issuances CY 2000-2002</i></p>

## Biodiversity

Term	Definition
Rare	<p>Species and subspecies of wildlife found only one particular or only in a few areas in very highly specialized habitat types but occur only in very small numbers and are therefore, seldom met with, even within their preferred habitat types. Their populations are not at present endangered or vulnerable but are at risk.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234</i></p>
Resident	<p>Breed or are suspected of breeding in the Philippines normally living there throughout the year.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234</i></p>
Resource Reserve	<p>An extensive 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 resources pending the establishment of objectives which are based upon appropriate knowledge and planning.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234</i></p>
Transport Permit	<p>Permit issued authorizing an individual to bring wildlife from one place to another within the territorial jurisdiction of the Philippines.</p> <p><i>Sources: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 234;</i></p> <p><i>Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002</i></p>
Threatened Species	<p>A general term to denote species or subspecies considered as critically endangered, endangered, vulnerable or other accepted categories of wildlife whose population is at risk of extinction.</p> <p><i>Source: 1) Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002;</i></p> <p><i>2) 2002 Statistics on Philippine Protected and Wildlife Resources p. 234</i></p>

## Biodiversity

Term	Definition
Vulnerable Species	<p>Refers to a species or subspecies that is not Critically Endangered or Endangered but is under threat from adverse factors throughout their range and likely to move to the endangered category in the near future.</p> <p><i>Source: 1) Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002;</i></p> <p><i>2) 2002 Statistics on Philippine Protected and Wildlife Resources p. 234</i></p>
Watershed Forest Reserve	<p>It is a land area drained by a stream or fixed body of water and its tributaries having a common outlet for a surface run-off.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources p. 234</i></p>
Wetlands	<p>Areas of (marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static, flowing, fresh, brackish or salt, including areas of marine water), the depth of which at low tide does not exceed six meters.</p> <p><i>Source: 1999 Statistics on Philippine Protected and Wildlife Resources p. 239</i></p>
Wilderness Area	<p>Refers to land of public domain which has been reserved as such by law to preserve its natural conditions, maintain its hydrologic quality and restrict public use in the interest of national welfare and security. This include foreshore protection forests, mossy forests and mangrove forests essentially needed for foreshore protection and maintenance of estuarine and marine life including critical watershed reservations and special forest which are the exclusive habitat of rare and endangered Philippine Flora and Fauna.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources p. 234</i></p>
Wildlife	<p>Means wild form of varieties of flora and fauna, in all developmental stages, including those which are in captivity or are being bred or propagated.</p> <p><i>Source: 1 ) DAO No. 2000-66 Compilation of Policy Issuances CY 2000-2002</i></p> <p><i>2 ) 2002 Statistics on Philippine Protected and Wildlife Resources, p. 235</i></p>

## Biodiversity

Term	Definition
Wildlife Collector's Permit	<p>Means a permit to take or collect from the wild certain species and quantities of wildlife for commercial purposes.</p> <p><i>Sources: Republic Act No. 9147; DAO No. 2000-19</i> <i>Compilation of Policy Issuances CY 2000-2002</i></p>
Wildlife Farm /Culture Permit	<p>Means a permit to develop, operate, and maintain a wildlife breeding farm for conservation, trade and/or scientific purposes.</p> <p>Source: Republic Act No. 9147 Compilation of Policy Issuances CY 2000-2002</p>
Wildlife Export	<p>The conveyance of wildlife and its by products from any place within the territorial jurisdiction of the Philippines to another country.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 235</i></p>
Wildlife Sanctuary	<p>Comprises an area which assures the natural conditions necessary to protect nationally significant species, group of species, biotic communities or physical features of the environment where these may require specific human manipulation for their perpetuation.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 235</i></p>

## Coastal And Marine

Term	Definition
Coastal Area	<p>Is a band of dry land and adjacent ocean space (water and submerged land) in which terrestrial processes and uses directly affect oceanic processes and uses, and vice versa; its geographic extent may include areas within a landmark limit of one kilometer from the shoreline at high water tide to include mangrove, swamps, brackish water ponds, nipa swamps, estuarine rivers, sandy beaches and other areas within a seaward limit of 200 meters isobath to include coral reefs, algal flats, seagrass beds and other soft-bottom areas (as defined by RA 8550)</p> <p><i>Source: DAO No. 2000-83 Compilation of Policy Issuances CY 2000-83</i></p>
Coral Reef	<p>A natural aggregation of coral skeleton, with or without living coral polyps, occurring in inter-tidal and sub-tidal marine water.</p> <p><i>Source: R.A. 8550 Fisheries Code of the Philippines</i></p>
Coral Triangle	<p>Is a geographical term referring to the tropical marine waters of Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor-Lester that contains at least 500 species of reef building corals in each region. This region encompasses portions of two bio-geographic regions: the Indonesian-Philippines Region and the Far Southwestern Pacific Region. The Coral Triangle is considered to be the global epicenter of marine biodiversity, and a global priority for conservation.</p> <p><i>Source: Wikipedia</i></p>
Foreshore	<p>A string of land margining a body of water, the part of seashore between the low-water line usually at the seaward margin of a low tide terrace and the upper limit of wave wash at high tide usually marked by a beach scarp or berm.</p> <p><i>Source: DAO No. 2000-83 Compilation of Policy Issuances CY 2000-2002</i></p>
Mangrove	<p>A term applied to the type of forest occurring on flats along the sea coast, extending along streams where the water is brackish.</p> <p><i>Source: 2002 Statistics on Philippine Protected and Wildlife Resources, p. 233</i></p>

## Coastal And Marine

Term	Definition
Nearshore	Part of the offshore but immediately next to the foreshore. <i>Source: DAO No. 2000-83 Compilation of Policy Issuances CY 2000-2002</i>
Seagrass Bed	Areas of salt tolerants that occur in shallow nearshore waters, estuaries, lagoons and adjacent to coral reefs. They hold sediment in place, support a rich detrital community and provide food and habitat for many important nearshore species. <i>Source: Castro and Juber, 1997</i>

## **Mines and Geosciences**

<b>Term</b>	<b>Definition</b>
Contingent Liability and Rehabilitation Fund	An environmental guarantee fund mechanism to ensure just and timely compensation for damages and progressive and sustainable rehabilitation for any adverse effect a mining operation may cause
Exploration Permit	Refers to the permit granted to the qualified persons to conduct exploration activities in specified areas.
Financial or Technical Assistance Agreement (FTAA)	Means a contract involving financial or technical assistance for large scale exploration, development and utilization of mineral resources.
Geologic Hazard or Geohazard	Refer to natural and man induced geological processes that have potential to cause destruction and pose threat or risks to man's life and property.
Industrial Sand And Gravel Permit (IP)	Refers to the permit granted to the qualified person for the extraction and utilization of sand and gravel and other unconsolidated materials with use of mechanical processing covering an area not more than five (5) hectares or a term of five (5) years but not to exceed a total term of twenty-five (25) years.
Large-Scale Mining	Mining activities which uses mechanized equipment, plant facilities explosives for development, production and marketing of minerals and of minimum lot coverage of five (5) hectares.
Local Government Unit	The concerned Barangay, Municipality, City or Province
Metallic Mineral	Means a mineral having a brilliant appearance, quite opaque to light, usually gives a black or very dark streak and where a metallic element/component can be extracted/utilized for profit.
Mill Tailings	Means materials whether solid, liquid or both segregated from the ores during concentration/milling operations which has no present economic value to the generator of the same



## **Mines and Geosciences**

<b>Term</b>	<b>Definition</b>
Mine Waste	Means soil and/or rock materials from the surface or underground mining operations with no present economic value to the generator of the same.
Mine Waste and	The basic fees that shall accrue to the MWT Reserve
Tailing Fund	Funds shall be P 0.05/MT of mine waste produced and P 0.10/MT of mill tailings generated from mining operations.
Minerals	Refers to all naturally occurring in organic substances in solid, liquid, gas or any intermediate state excluding energy coal, petroleum, natural gas, radioactive materials and geothermal energy.
Mineral Agreement	Means a contract between the government and a Contract, involving Mineral Product Sharing Agreement and Joint Venture Agreement, or Co-Production Agreement.
Mining Permits	Include Exploration, Quarry, Sand and Gravel (Commercial, Industrial and Exclusive), Gratuitous (Government or Private), Guano, Gemstone Gathering, and Small- Scale.
Mineral Processing	The milling, beneficiation, leaching, smelting, cyanidation, calcination or upgrading of ores, minerals, rocks, mill tailings, mine waste, and/or other metallurgical by-products or by similar means to convert the same into marketable products.
Mineral Processing Permit	Refers to the permit granted to a qualified person for milling, beneficiation, leaching, smelting, cyanidation calcinations or upgrading of ore(s)/mineral(s) rocks/mill tailings waste/other metallurgical by products or by similar means to convert the same into a marketable product.

## Mines and Geosciences

Term	Definition
Mineral Production Sharing Agreement (MPSA)	An agreement wherein the government grants the contractor the exclusive) right to conduct mining operations within the contract area and shares in the production whether in kind or in value as owner of the minerals therein.
Mineral Products	Means materials derived from mineral ores/rocks and prepared into marketable state by metallurgical process which include, but not limited to milling, beneficiation, leaching, smelting, cyanidation calcinations and other similar process.
Mineral Reservation	Area set aside and established when national interest so requires, such as when there is a need to preserve strategic raw materials for Industries critical to national development or certain minerals for scientific, cultural or ecological value.
Mineral Resources	Any concentration of ores, minerals and/or rocks with proven or potential economic value.
Non-Metallic Mineral	Refers to mineral usually having a dull luster, generally light-colored, transmit light, usually gives either colorless or colored streak and where a non-metallic element/component can be extracted/utilized for a profit.
Ore	Naturally occurring substance or materials from which a mineral or An element can be mined and/or processed for profit.
Producing Mine	Any mine presently involved in the development and utilization of mineral deposit/s / Any mine involved in the utilization of mineral resources.
Quarrying	The process of extracting, removing and disposing quarry resources found on or underneath the surface of public or private land.

## Mines and Geosciences

Term	Definition
Quarry Permit (QP)	Refers to the permit granted to the qualified person for the extraction and utilization of quarry resources.
Royalty	The payment contractor/permit holders/lessees shall pay to the bureau which shall not be less than five percent (5%) of the market value of the gross output of the minerals/mineral products extracted or produced from the Mineral Reservation exclusive of all other taxes.
Small-Scale Mining	Mining activities which rely heavily on manual labor using simple implements and methods and do not use explosives or heavy mining equipments with maximum lot area coverage of five (5) hectares. These permits are issued by the Local Government Unit.

*Note: All the definition of terms are taken from the ‘ Revised Implementing Rules and Regulations of Republic Act No. 7942’, Otherwise Known as the “Philippine Mining Act of 1995”*

---

## Lands

Term	Definition
Administratively Titled Lands	<p>Refers to the lands of the public domain of a certain city/ municipality that has been titled through the issuance of patents and deeds of conveyances by the DENR. Indicate the corresponding no. of lots/area in hectares.</p> <p><i>Source: Lands Management Bureau</i></p>
Approved Cadastral Survey	<p>Refers to the completely approved cadastral survey, usually covers an entire city/municipality</p> <p><i>Source: Geodetic Surveys Division, LMB</i></p>
Areas Turned Over to Other Agencies by Virtue of Proclamations	<p>Refers to the parcel/s of the classified A &amp; D lands that were transferred to other government agencies, branches, instrumentalities for public or quasi-public purposes through a proclamation of the President of the Philippines.</p> <p><i>Source: Lands Management Bureau</i></p>
Cadastral Survey	<p>Comprises all surveys of extensive areas consisting of several lots for cadastral proceedings, agricultural development, or other purposes pursuant to the cadastral laws.</p> <p>-Involves the survey of whole municipality (or an extensive portion) for identifying and delineating the individual claims of all land owners and claimants which will be the basis of the issuance of titles or patents. It also includes the delineation of the boundaries of the various political units (barangay, municipality, province) as well as the boundaries between the forested area and the alienable and disposable lands.</p> <p><i>Source: Manual on Land Surveys, LMB</i></p>
Classified A & D Lands in Hectares	<p>Refers to the lands of the public domain of a certain city/municipality which have been declared as not needed for forest purposes and place under the management and jurisdiction of the DENR in accordance with the existing laws and regulations. Indicate the corresponding area in hectares.</p> <p><i>Source: Lands Management Bureau</i></p>
Comprehensive Agrarian Reform Program	<p>To promote social justice and industrialization, providing the mechanism for its implementation, and for other purposes.</p>

## Lands

Term	Definition
	<i>Source: RA 6657 or "Comprehensive Agrarian Reform Law (CARL) of 1998</i>
Fake or Spurious Certificate of Title	<p>Is one that was not a result of any recognized proceeding for titling. Hence, it was not processed regularly or there were defects affecting validity or its authenticity. It confers no right and affords no protection to the holder of the certificate and can be considered as a mere scrap of paper.</p> <p><i>Source: Manual for Settlement and Lands Dispute</i></p>
Foreshore Areas	<p>The part of the shore which is alternately covered and uncovered by the ebb and flow of the tide.</p> <p><i>Source: DAO 2004-04 re: Revised Rules and Regulations Governing the Administration and Management of Foreshore Lands.</i></p>
In-Progress Cadastral Survey	<p>Refers to the cadastral survey wherein fieldwork operation is on-going or the survey returns were submitted to the LMS and the IVAS is in process.</p> <p>operation is on-going or the survey returns were submitted to the LMS for Inspection, Verification and Approval of Survey (IVAS) activity.</p> <p><i>Source: Geodetic Surveys Division, LMB</i></p>
Judicially Titled Lands	<p>Refers to the lands of the public domain of a certain city/municipality that has been titled through court proceedings. Indicate the corresponding no. of lots/area in hectares.</p> <p><i>Source: Lands Management Bureau</i></p>
Land Claim	<p>An assertion of an individual to a right against a public land applicant</p> <p><i>Source: Manual on Settlement of Land Disputes</i></p>
Land Conflict	<p>Arises when two or more persons apply for the same parcel of land.</p> <p><i>Source: Manual on Settlement of Land Disputes</i></p>

## Lands

Term	Definition
Land Title	<p>Refers to the legal right to own a property and the certificate of title is the document which confers such right of ownership to an individual association or corporation.</p> <p><i>Source: Manual on Land Disposition, LMB</i></p>
Non-Agricultural	<p>Refers to the parcel/s of the classified A &amp; D lands that were reserved for public or quasi-public uses like roads, plazas, right of ways, etc. This also includes those areas that were not transferred to other agencies by specific laws and/or proclamations which the DENR has ceased its jurisdiction.</p> <p><i>Source: Lands Management Bureau</i></p>
Patent	<p>Is an official document confirming absolute ownership of an applicant to a parcel of land.</p> <p><i>Source: Manual for Land Disposition, LMB</i></p>
Partially Surveyed	<p>a) When there is lot survey of extensive of portion of municipality under the project of the government such as public land subdivision survey, group settlement survey and townsite survey.</p> <p>b) When created municipality of which a portion is from a cadastrally surveyed municipality and the other portion is from unsurveyed municipality.</p> <p>c) When there are barangays which were already surveyed and approved before the cadastral project was abandoned or the cadastral survey approved does not constitute the above municipality such as pre-wars surveys.</p> <p><i>Source: Manual on Land Survey, LMB</i></p>
Patrimonial Property of the State	<p>Is the property it owns but which is not devoted to public use, public service or the development of the national wealth. It is wealth owned by the state in its private as distinguished from its public capacity.</p> <p><i>Source: Lands Management Bureau</i></p>
PRS '92	<p>Refers to Philippine Reference System of 1992, which aims to replace the old geodetic network of control points by adopting a common reference system of all surveys and maps in the country using</p>

## Lands

Term	Definition
	<p>Geographic Positioning System (GPS), a satellite-based technology.</p> <p><i>Source: Lands Management Bureau and National Mapping and Resource Information Authority (NAMRIA)</i></p>
Remaining Untitled Lands	<p>Refers to the remaining areas of the classified A &amp; D lands under the DENR management and jurisdiction expressed in number of hectares of a certain city/municipality less those titled lands and lands that were transferred to other agencies and reserved for specific public and quasi-public purposes by existing laws and regulations.</p> <p><i>Source: Lands Management Bureau</i></p>
Unsurveyed	<p>a) When there is no lot survey yet of the whole municipality under the project of the government</p> <p>b) When the cadastral survey returns of the result of final lot survey were not submitted for verification and approval, when the contractor abandoned the project.</p> <p>c) When the approved cadastral mapping and cadastral sketching are both yet converted into numerical cadastre.</p> <p>d) When the cadastral survey project was not implemented.</p> <p><i>Source: Manual on Land Survey, LMB</i></p>

## Environment

Term	Definition
Ambient Air Quality	<p>Means the general amount of pollution present in abroad area; and refers to the atmosphere's average purity as distinguished from discharge measurements taken at the source of pollution.</p> <p><i>Source: The Philippine Clean Air Act of 1999 or R.A. 8749</i></p>
Ambient levels of standard	<p>Refers to the allowance of maximum levels of selected pollutants in a water body of the surrounding air, 'with an adequate margin of safety, that will protect public health and the environment'.</p> <p><i>Source: DAO No. 11, s. of 1994</i></p>
Area Sources	<p>Relatively large areas of specific activities that generate significant amounts of air pollutants. These include busy roads and hubs, construction sites, aircraft operations, forest fires or the burning of wastes, residential sites, and similar dispersed sources.</p> <p><i>Source: National Air Quality Status Report, 2002</i></p>
Biochemical Oxygen Demand (BOD)	<p>A measure of the approximate quantity of dissolved oxygen that will be required by bacteria to stabilize organic matter in wastewater or surface water. It is a semi-quantitative measure of the wastewater organics that are oxidizable by bacteria. It is also a standard test in assessing wastewater strength.</p> <p><i>Source: DAO No. 35, s. of 1990; DAO No. 51 s. of 1998</i></p>
Chemical Control Order (CCO)	<p>Prohibits, limits and regulates the use, manufacture, import, export, transport, processing, storage, possession and wholesale of priority chemicals.</p> <p><i>Source: DAO No. 36, s. of 2004</i></p>
Chemical Oxygen Demand (COD)	<p>A measure of the approximate quantity of dissolved oxygen equivalent of the organic matter content of a sample that is susceptible to oxidation by a strong chemical oxidant. For samples from a specific source, COD can be related empirically to BOD, organic carbon, or organic matter.</p> <p><i>Source: DAO No. 51, s. of 1998</i></p>
Chlorofluorocarbons (CFCs)	<p>A family of chemicals that contain chlorine, fluorine and carbon, used as refrigerants, aerosol propellants, cleaning solvents and in the manufacture of foam.</p>



## Environment

Term	Definition
	<i>Source: DAO No. 8, s. of 2004</i>
Cease and Desist Order (CDO)	<p>A decision handed down by the Pollution Adjudication Board (PAB), the DENR Regional Executive Director (RED), or the Laguna Lake Development Authority (LLDA), directing the discontinuance of the emission or discharge which constitutes an immediate threat to life, public health, safety or welfare, or to plant or animal life, or exceeds the allowable DENR standard, or the temporary suspension or cessation of operations of the establishment or firm generating such pollutants.</p> <p><i>Source: DAO No. 4, s. of 1997</i></p> <p>Refers to an Order issued by the Pollution Adjudication Board requiring respondents to refrain from further operating their establishment, machines, equipment or other facilities generating or causing pollution.</p> <p><i>Source: DAO No. 30, s. of 1992</i></p>
Controlled dump	<p>Shall refer to a disposal site at which solid waste is deposited in accordance with the minimum prescribed standards of site operation.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Cyanide	<p>Means any substance containing the cyanide ion, CN, as found in metallic cyanide and hydrogen cyanide.</p> <p><i>Source: DAO No. 39, s. of 1997</i></p>
Dumping	<p>Means any unauthorized or illegal disposal into any body of water or land of wastes or toxic or hazardous material: provided that it does not mean a release of effluent coming from commercial, industrial and domestic sources which are within the effluent standards.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Ecological Solid Waste Management	<p>Shall refer to the systematic administration of activities which provide for segregation of source, segregated transportation, storage, transfer, processing, treatment, and disposal of solid waste and all other waste management activities which do</p>

## Environment

Term	Definition
	not harm the environment. <i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i>
Effluent	Means any wastewater, partially or completely treated, or any waste liquid flowing out of mining operations, wastewater treatment plants or tailings disposal system. <i>Source: DAO No. 40 s. of 1996</i>
Effluent standard	Means any legal restriction or limitation or quantities, rates, and/or concentrations or any combination thereof, of physical, chemical or biological parameters of effluent which a person or point source is allowed to discharge into a body of water or land. <i>Source: DAO No. 10 s. of 2005</i>
Emission	Means any air contaminant, pollutant, gas stream or unwanted sound from a known source which is passed into the atmosphere. <i>Source: The Philippine Clean Air Act of 1999 or R.A. 8749</i>
Environmentally Critical Area (ECA)	1) Areas prone to volcanic activities (refers to all areas identified as such by Philippine Institute of Volcanology and Seismology (PHIVOLCS) 2) Areas located along fault lines or within fault zones (refers to all areas identified as such by Philippine Institute of Volcanology and Seismology (PHIVOLCS) 3) Drought-prone areas (refers to all areas identified as such by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) <i>Source: DAO No. 30 s. of 2003</i>
Environmental Clearance Certificate (ECC)	The document issued by the Department certifying that based on the representations of the proponent and the preparers, as reviewed and validated by the Environmental Impact Assessment Review Committee (EIARC), the proposed project or undertaking will not cause a significant negative environmental impact; that the proponent has complied with all the requirements of the EIS System and that the proponent is committed to implement its

## Environment

Term	Definition
	<p>approved Environmental Management Plan in the Environmental Impact Statement or mitigation measures in the Initial Environmental Examination.</p> <p><i>Source: DAO No. 37 s. of 1997</i></p>
Environmentally Critical Projects (ECPs)	<p>Four main categories of ECPs are (1) heavy industries; (2) resource extractive industries; (3) infrastructure projects and (4) golf course projects.</p> <p><i>Source: DAO No. 30 s. of 2003</i></p>
Hazardous waste	<p>Are substances that are without any safe commercial, industrial, agricultural or economic usage and area shipped, transported or brought from the country of origin for dumping or disposal into or in transit through any part of the territory of the Philippines.</p> <p><i>Source: DAO No. 29 s. of 1992</i></p> <p>As substances that are without any safe commercial, industrial, agricultural or economic usage and are shipped, transported or brought from the country of origin for dumping or disposal into or in transit through any part of the territory of the Philippines. Shall also be refer to by-products, side products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations, and as consumer discards of manufacture products.</p> <p><i>Source: Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990 or R. A. 6969</i></p> <p>Are substances which present either: 1) Short-term acute hazards such as acute toxicity by ingestion, inhalation or skin absorption, corrosivity or other skin or eye contact hazard of the risk of fire or explosion; 2) Long-term environmental hazards – including chronic toxicity upon repeated exposure, carcinogenicity (which may in some case result from acute exposure but with a long latent period), resistance to detoxification process such as biodegradation, the potential to pollute underground or surface waters, or aesthetically objectionable properties such as offensive odors.</p> <p>Substances that are without any safe commercial, industrial, agricultural or economic usage and are shipped, transported or brought from the country of</p>

## Environment

Term	Definition
	<p>origin for dumping or disposal into or in transit through any part of the territory of the Philippines.</p> <p>by-products, side –products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations and as consumer discards of manufactured products which present unreasonable risk and/or injury to health and safety and to the environment</p> <p><i>Source DAO No. 36 s. of 2004</i></p>
Materials Recovery Facility (MRF)	<p>Includes a solid waste transfer station or sorting station, drop-off center, a composing facility, and a recycling facility.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Mobile Source	<p>Means any vehicle propelled by or through combustion of carbon-based or other fuel constructed and operated principally for the conveyance of persons or the transportation of property or goods.</p> <p><i>Source: The Philippine Clean Air Act of 1999 or R.A. 8749</i></p>
Pollutant	<p>Shall refer to any substance, whether solid, liquid, gaseous or radioactive, which directly or indirectly: alters the quality of any segment of the receiving water body so as to affect or tend to affect adversely any beneficial use thereof;</p> <p>is hazardous or potentially hazardous to health</p> <p>imparts objectionable odor, temperature change, or physical, chemical or biological change to any segment of the water body; or;</p> <p>is in excess of the allowable limits or concentrations, or quality standards specified, or in contravention of the condition, limitation or restriction prescribed in this Act</p> <p><i>Source: The Philippine Clean Air Act of 1999 or R.A. 8749</i></p>
Pollution	<p>Means any alteration of the physical, chemical and/or biological properties of any water, air and/or land resource of the Philippines, or any discharge thereto of any liquid, gaseous or solid waste, or any production of unnecessary noise, or any emission of objectionable odor, as will or likely to create or to render such water, air and/or land resources harmful,</p>

## Environment

Term	Definition
	<p>detrimental and injurious to public health, safety or welfare, or which will adversely affect their utilization for domestic, industrial, agricultural, recreational or other legitimate purposes.  <i>Source: DAO No. 29 s. of 1992</i></p>
	<p>Refers to any alteration of the physical, chemical and/or biological properties of any water, air and/or land resources of the Philippines; or any discharge thereto of any liquid, gaseous or solid wastes, or any production of unnecessary noise or any emission of objectionable odor, as will or is likely to create or to render such water, air and land resources harmful, detrimental or injurious to public health, safety or welfare, or which will adversely effect their utilization for domestic, commercial, industrial, agricultural, recreational or other legitimate purposes.  <i>Source: DAO No. 40 s. of 1996</i></p>
Sanitary landfill	<p>Shall refer to a waste disposal site designed, constructed, operated and maintained in a manner that exerts engineering control over significant potential environmental impacts arising from the development and operation of the facility.  <i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Solid Waste	<p>Shall refer to all discarded household, commercial waste, non-hazardous institutional and industrial waste, street sweepings, construction debris, agricultural waste, and other non-hazardous/non-toxic solid waste.  <i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Solid Waste Management	<p>Shall refer to the discipline associated with the control of generation, storage, collection, transfer and transport, processing and disposal of slid wastes in a manner that is in accord with the best principles of public health, economics, engineering, conservation, aesthetics and other environmental considerations, and that is also responsive to public attitudes.  <i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>

## Environment

Term	Definition
Solid Waste Management Facility	<p>Shall refer to any resource recovery system or component thereof; any system, program, or facility for resource conservation; any facility for the collection, source separation, storage, transportation, transfer, processing, treatment, or disposal of solid waste.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Stationary Source	<p>Means any building or immobile structure, facility or installation, which emits or may emit any air pollutant.</p> <p><i>Source: The Philippine Clean Air Act of 1999 or R.A. 8749</i></p>
TSD (Treatment, Storage and Disposal Facilities)	<p>Facilities where hazardous wastes are stored, treated, recycled, reprocessed, or disposed of.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
TSP (Total Suspended Particulates)	<p>Are small or liquid particles suspended in air. Major sources of TSP are diesel vehicles and coal-burning power plants. Dust is also a major source of TSP especially during the dry months. Dust can come from unpaved roads and construction activities.</p> <p><i>Source: National Air Quality Status Report, 2003-2004</i></p>
Waste Generator	<p>Means a person (natural or judicial) who generates or produces hazardous wastes, through any commercial, industrial, or trade activities.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Waste Transporter	<p>Means a person (natural or judicial) who is licensed to transport hazardous waste.</p> <p><i>Source: Ecological Solid Waste Management Act of 2000 or R. A. No. 9003</i></p>
Wastewater	<p>Means waste in liquid state containing pollutants.</p> <p><i>Source: The Philippine Clean Water Act of or R. A. 9275</i></p>

## Environment

Term	Definition
Water body	<p>Means both natural and man made bodies of fresh, brackish, and saline waters, and includes but is not limited to aquifers, groundwater, springs, creeks, streams, rivers, ponds, lagoons, water reservoirs, lakes, bays, estuarine, coastal and marine waters. Water bodies do not refer to those constructed, developed and used purposely as water treatment facilities and/or water storage for recycling and re-use which are integral to process industry or manufacturing.</p> <p><i>Source: Philippine Clean Water Act of 2004 or R. A. 9275</i></p>

## Water Resources

Term	Definition
Groundwater	Subsurface water that occurs beneath a water table in soils and rocks, or in geological formations <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Surface Water	All water which is open to the atmosphere and subject to surface run-off <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Domestic Purposes	The utilization of water directly drawn from a source by household for drinking, washing, bathing, cooking, watering of gardens or animals and other domestic uses <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Fisheries	Utilization of water for the propagation and culture of fish as a commercial enterprise or any other aquaculture ventures <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Industrial Purposes	The utilization of water in factories, industrial plants and mines including the use of water as an ingredient of a finished product <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Irrigation	The utilization of water for producing agricultural crops <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Livestock Raising	Utilization of water for large herds or flocks of animals raised as a commercial enterprise <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Municipal Purposes	The utilization of water for supplying the water requirements of a community, whether by piped or bulk distribution for domestic use, direct consumption, the drawer or abstractor of which being the national government, its subsidiary agencies, local government units, private persons, cooperatives or corporations



## Water Resources

Term	Definition
	<i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Power Generation	Use of water for producing electrical or mechanical power <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Use of Water for Recreational Purposes	Utilization of water for swimming pools, bathhouses, boating, water skiing, golf courses and other similar facilities in resorts and other places of recreation <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Water Production	Water produced from any source, e.g., wells, springs, surface water, etc., that is fed into the water supply system for distribution <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Water Quality	The characteristics of water which define its use in terms of physical, chemical, biological, bacteriological or radiological characteristics by which the acceptability of water is evaluated <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Water Resources	Water available, or capable of being made available, for use in sufficient quantity and quality at a location and over a period of time appropriate for an identifiable demand <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Water Service Provider (WSP)	An entity operating and maintaining a waterworks system <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>
Water Use	Water intake of industries and households for production and consumption activities. Water Use is the sum of water use within the economy and water use from the environment. Water use may be for the following purposes <i>Source: National Statistical Coordination Board Resolution No. 17, Series of 2009</i>

## Laguna De Bay

Term	Definition
Fishcage	<p>Any aquaculture structure not exceeding one hectare and is existing within the fishcage belt.</p> <p><i>Source: Laguna Lake Development Authority</i></p>
Shoreland	<p>Also known as the buffer zone, is that part of the lake bed along the lakeshore lying at elevation 12.5 meters and below and alternately submerged or exposed by the normal annual rising and lowering of the lake levels. Datum elevation is a point 10.0 meters below Mean Lower Low Water (MLLW). This is a linear strip of open space designed to separate incompatible elements or uses, or to control pollution/nuisance and or identifying and defining development areas or zones.</p> <p><i>Source: Laguna Lake Development Authority</i></p>

## Gender And Development

Term	Definition
Gender	<p>Refers to the socially differentiated roles, characteristics and expectations attributed by culture to women and men. It is created, produced, reproduced and maintained by social institutions. It is a set of characteristics that identifies the social behavior of women and men and the relationships between them. Gender roles and attributes are not natural nor biologically given.</p> <p><i>Source: The Rationale Behind Mainstreaming, National Commission on the Role of Filipino Women, 2001</i></p>
Gender Bias/Issues	<p>The preference for an individual or group on account of their gender.</p> <p><i>Source: Trainor's Manual Gender Sensitivity Training for Cooperators, National Confederation of Cooperatives, 1995</i></p>
Gender and Development	<p>A development perspective that recognizes the legitimacy of gender equality as a fundamental value that should be reflected in development choices. It promotes a positive bias for women since they are more generally excluded or disadvantaged in relation to social and economic resources and decision-making. It recognizes that gender equality does not exist and there is an imbalance in the status of women and men.</p> <p><i>Source: The Rationale Behind Mainstreaming, National Commission on the Role of Filipino Women, 2001</i></p>
Gender Equality	<p>Means that women have a fair share of the benefits, as well as the responsibilities of society; they received equal treatment before the law, equal access to resources, social services and education; and equal pay for work of equal value. Gender equality is a goal for women that requires specific indicators in order that programs, policies and projects implemented do not leave women worse off than men.</p> <p><i>Source: Trainor's Manual Gender Sensitivity Training for Cooperators, National Confederation of Cooperatives, 1995</i></p>

## Gender And Development

Term	Definition
Social Division of Labor	<p>The belief and practice of discrimination against women on the basis of assumed biological and psychological inferiority; the system and practice of discriminating against a person on the grounds of sex; refers to unfair prejudice against women, the stereotyping of women, the defining of women in regard to their sexual availability and attractiveness to men, and all the conscious or unconscious assumptions that cause women to be treated as not fully human, while men are identified as the norm.</p> <p><i>Source: Trainor's Manual Gender Sensitivity Training for Cooperators, National Confederation of Cooperatives, 1995</i></p>
Sex	<p>A natural distinguishing variable based on biological characteristics of being a women or man. It refers to physical attributes pertaining to a person's body contours, features genitals, hormones, genes, chromosomes and reproductive organs. Sex differences between women and men are natural.</p> <p><i>Source: The Rationale Behind Mainstreaming, National Commission on the Role of Filipino Women, 2001</i></p>
Women in Development and Nation Building Act	<p>An Act promoting the integration of women as full and equal partners of men in development and nation building or R.A. No. 7192 and for other purposes. The State recognizes the role of women in nation building and shall ensure the fundamental equality before the law of women and men. The State shall provide rights and opportunities equal to that of men.</p> <p><i>Source: Trainor's Manual Gender Sensitivity Training for Cooperators, National Confederation of Cooperatives, 1995</i></p>

# Acronyms and Abbreviations

## Forestry

Acronyms	Description
AAC	Annual Allowable Cut
ALR	Annual Log Requirement
ARMM	Autonomous Region of Muslim Mindanao
CADT	Certificate of Ancestral Domain Title
CALT	Certificate of Ancestral Land Title
CAR	Cordillera Administrative Region
CBFMA	Community Based Forest Management Agreement
CIF	Cost Insurance Freight
CV	Certificate of Verification
cu.m.	Cubic Meter
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DRC	Daily Rated Capacity
FLAg	Forest Land Use Agreement
FLAgT	Forest Land Use Agreement for Tourism Purposes
FLGLA	Forest Land Grazing Lease Agreement
FLMA	Forest Land Management Agreement
FLUP	Forest Land Use Plan
FMB	Forest Management Bureau
FOB	Free on Board
GRBS	Game Refuge and Bird Sanctuaries
Ha	Hectare
IFMA	Industrial Forest Management Agreement
IPR	Individual Property Rights
ISF	Integrated Social Forestry
ITPLA	Industrial Tree Plantation Lease Agreement
K	Kilo
Lm	Lineal Meter
LGU	Local Government Unit
NA	No Data
NCR	National Capital Region
NIS	National Irrigation System
No.	Number
PD	Presidential Decree
PFDA	Private Forest Development Agreement
PLTP	Private Land Timber Plantation
PTC	Permit to Cut
PTLA	Pulpwood Timber License Agreement
SCP	Special Cutting Permit
SIFMA	Socialized Industrial Forest Management Agreement
SLUP	Special Land Use Permit
SMF	Self-Monitoring Form

Acronyms	Description
SP	Special Permit
t	Ton
TF	Tree Farm
TLA	Timber License Agreement
TFLA	Tree Farm Lease Agreement
WA	Wilderness Area
Php	Philippine Peso
( -)	None
m3	Cubic Meter

## Biodiversity

Acronyms	Description
A & D	Alienable and Disposable Lands
ADB	Asian Development Bank
BZ	Buffer Zones
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
CMCP	CITES Measurement and Coordination Program
CD	Conservation Dependent
CR	Critically Endangered
CWR	Certificate of Wildlife Registration
DD	Data Deficient
E	Endemic
EN	Endangered Species
EX	Extinct
GP	Gratuitous Permit
GRBS	Game Refuge and Bird Sanctuary
I	Indeterminate
IPAF	Integrated Protected Area Fund
LC	Least Concern
LGU	Local Government Unit
LR	Lower Risk
LTP	Local Transport Permit
M	Migrant
MP/R	Marine Park/Reserve
NIPAS	National Integrated Protected Areas System
NP	National Park
NT	Near Threatened
OGA	Other Government Agency
PA	Protected Areas
PAMB	Protected Area Management Board
PLS	Protected Landscape/Seascape
R	Rare
	Resident
T	Threatened
VU	Vulnerable
WA	Wilderness Area
WCP	Wildlife Collector's Permit
WFP	Wildlife Farm Permit
WFR	Watershed Forest Reserve



## Mines and Geo-Sciences

Acronyms	Description
CLRF	Contingent Liability and Rehabilitation Fund
Cm. M.	Cubic Meter
DMT	Dried Metric Ton
FTAA	Financial or Technical Assistance Agreement
IP	Industrial Sand and Gravel Permit
LGU	Local Government Unit
LSM	Large Scale Mining
MPP	Mineral Processing Permit
MPSA	Mineral Production Sharing Agreement
MT	Metric Ton
MWTF	Mine Waste and Tailing Fund
QP	Quarry Permit
SSM	Small-Scale Mining

## **Lands**

<b>Acronyms</b>	<b>Description</b>
A & D Lands	Alienable and Disposable Lands
CARP	Comprehensive Agrarian Reform Program
EO	Executive Order
FLA	Foreshore Lease Agreement
FLC	Foreshore Lease Contracts
IVAS	Inspection, Verification and Approval of Survey
LAMP	Land Administration and Management Project
LMB	Lands Management Bureau
OSG	Office of Solicitor General
PRS '92	Philippine Reference System of 1992

## Environment

Acronyms	Description
BOD	Biochemical Oxygen Demand
CCO	Chemical Control Order
CFCs	Chlorofluorocarbons
CN	Cyanide
COD	Chemical Oxygen Demand
CO	Carbon Monoxide
ECC	Environmental Compliance Certificate
EIS System	Environmental Impact Statement (EIS) System
EIA	Environmental Impact Assessment
FLO	Formal Lifting Order
HWG	Hazardous Waste Generator
mg/L	milligram per liter
NOVs	Notice of Violations
NO <sub>x</sub>	Nitrogen Oxide
ODS	Ozone Depleting Substances
PAB	Pollution Adjudication Board
PICCs	Philippine Inventory of Chemicals and Chemical Substances
PM	Particulate Matter
SLF	Sanitary Landfill
SO <sub>x</sub>	Sulfur Oxide
SQI	Small Quantity Importation
TLO	Temporary Lifting Order
TSD	Treatment, Storage and Disposal
TSP	Total Suspended Particulates
ug/Ncm	Microgram per Normal cubic meter
VOC	Volatile Organic Compounds

## Laguna de Bay

Acronyms	Description
FC	Fishcage
FP	Fishpen
LDB	Laguna de Bay
LLDA	Laguna Lake Development Authority
SLA	Shoreland Lease Agreement
SOP	Shoreland Occupancy Permit
TR	Tributaries
ZOMAP	Zoning and Management Plan

## Gender and Development

Acronyms	Description
GAD	Gender and Development
HR	Human Resource
HRDS	Human Resource Development Service
PDPW	Philippine Development Plan for Women



