



NEW INITIATIVES

Outline

- 1 DENR Control Map**
- 2 Demo of Control Map (courtesy of DA Jose Cabanayan of NAMRIA)**
- 3 DENR Data Portal**
- 4 Way Forward**

DENR CONTROL MAP

- **Standard map of the country's environment and natural resources**
- **Integration of the maps produced by the different offices of the Department**

Objectives

- **Prescribe use of standard basemap
Ortho rectified image/ortho image,
digital elevation model from NAMRIA**
- **Provide a unified procedure in the
production of maps**
- **Institutionalize the use of GIS in the
production of ENR data and statistics**

Impacts

- Prevent issuance of patents in areas not suitable for titling
- Prevent conflicting policy issues
- Provide basis for resolution of overlapping surveys/claims
- Monitoring of Programs and Projects
- Improve plans

Establishment of DENR Control Map

- To be established at
 - Central Office
 - Bureaus
 - Attached agencies
 - Field offices (Regions, PENROs, CENROs)
- Prescribed scale :
 - CENROs - 1:10000
 - PENROs – 1:10000 and 1:50000
 - Regional Offices, Bureaus and Central Office - 1:50000 and 1:250000
 - Other scales - depending on the application and purpose of the maps

Procedure in the Establishment of DENR Control Map

- **Submission**
 - Central Office thru KISS-SDRMD
- **Integration**
 - NAMRIA
- **Updating**
 - regularly based on Procedural Manual
 - by concerned offices
- **Rectification of any discrepancy**
 - by concerned offices for rectification

Data Repository and Sharing

- **Repository**
 - **DENR- KISS**
- **Integrity of information**
 - **DENR-KISS and the concerned offices reserves the right to reproduce, display, replace, and rectify the datasets**
- **Sharing and Access**
 - **subject to the written approval of DENR and the concerned offices**
- **data mine or retrieval**
 - **by assigned custodian**

Initial Layers

Office	Layer	Status
LMB	Political Boundary Maps	Submitted
FMB	Land Classification Maps	
	Watershed Maps	
	<ul style="list-style-type: none">• Critical• Proclaimed	
	Tenured Areas	
	<ul style="list-style-type: none">• CBFM• IFMA• FLAg• FLAgT, etc.	
	NGP sites	

Initial Layers

Office	Layer	Status
EMB	Air Quality Monitoring Stations	
	Water Quality Monitoring Stations	
	Water Quality Management Area Map	
	Water Region Maps	
RBCO	Maps of the 18 Major River Basins	

Initial Layers

Office	Layer	Status
BMB	Protected Areas	
	Key Biodiversity Areas	
	Critical Habitat	
	Classified Caves	
	Wetlands of Luzon	
	Maps of the 18 Major River Basins	

Initial Layers

Office	Layer	Status
MGB	Flood and Landslide Susceptibility Maps	Submitted
	Mining Tenement Map	
	Mineral Reservation Map	
	Groundwater Availability Map	
	Geology of the Philippines	
	Mineral Distribution Map	
	Mineral Potential Map	

Initial Layers

Office	Layer	Status
LLDA	Laguna de Bay Basin and sub-basin Boundaries	
	River networks of Laguna de Bay Basin	
	Flood Hazard Maps of Laguna de Bay Basin	
	Shoreland Areas of Laguna de Bay Basin	
	Stream flow	
	Water Quality Monitoring Stations of Laguna de Bay Basin	



DEMO OF DENR CONTROL MAP

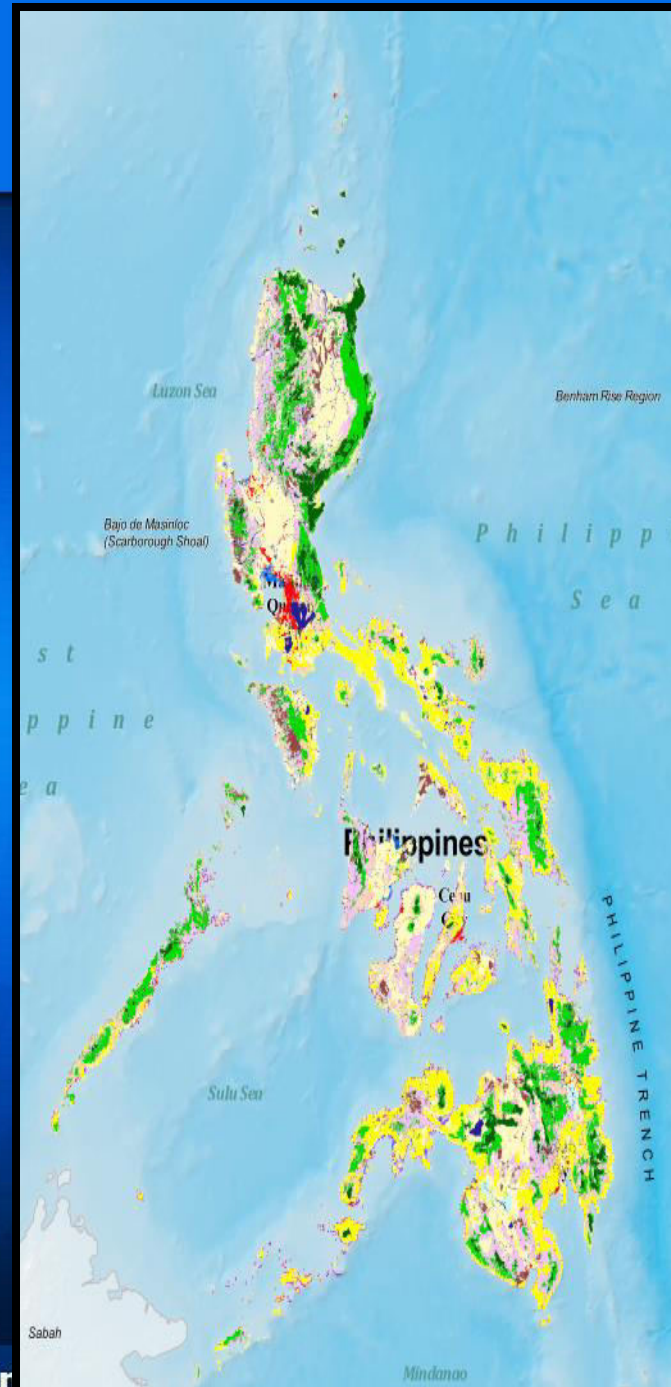
Courtesy of
DA JOSE CABANAYAN, JR.
NAMRIA

Land Cover Map

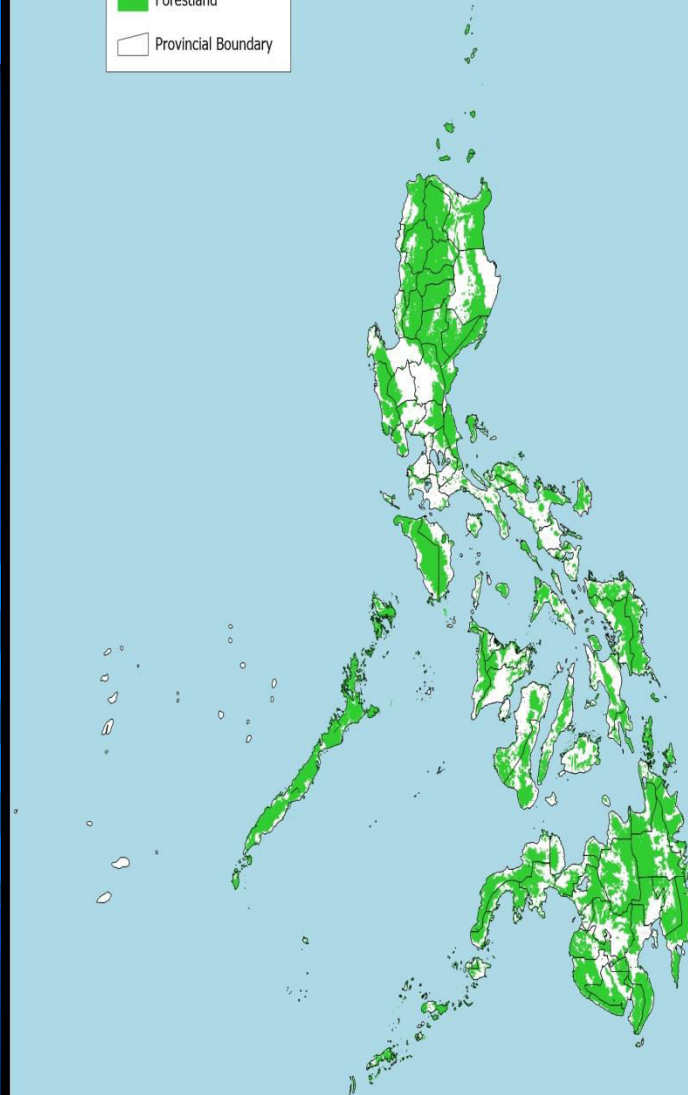
Legend

Land Cover (2010)

- Closed Forest
- Open Forest
- Shrubs
- Wooded Grassland
- Grassland
- Fallow
- Perennial Crop
- Annual Crop
- Built-up
- Open/Barren
- Mangrove Forest
- Marshland/Swamp
- Fishpond
- Inland Water



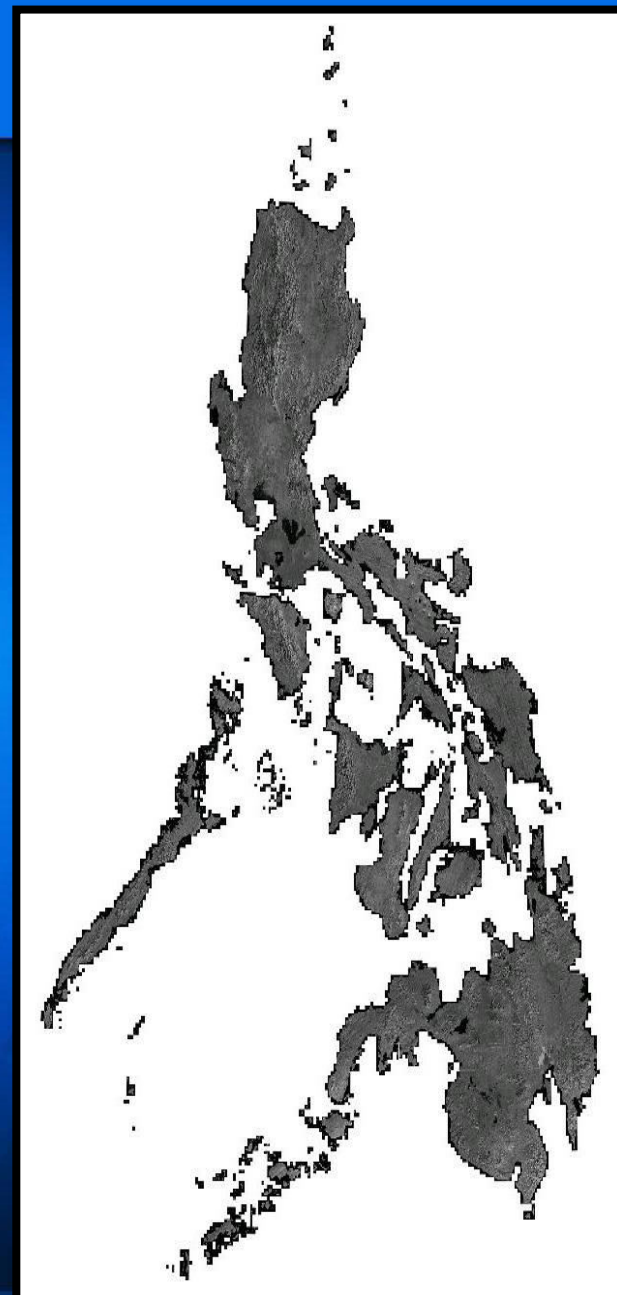
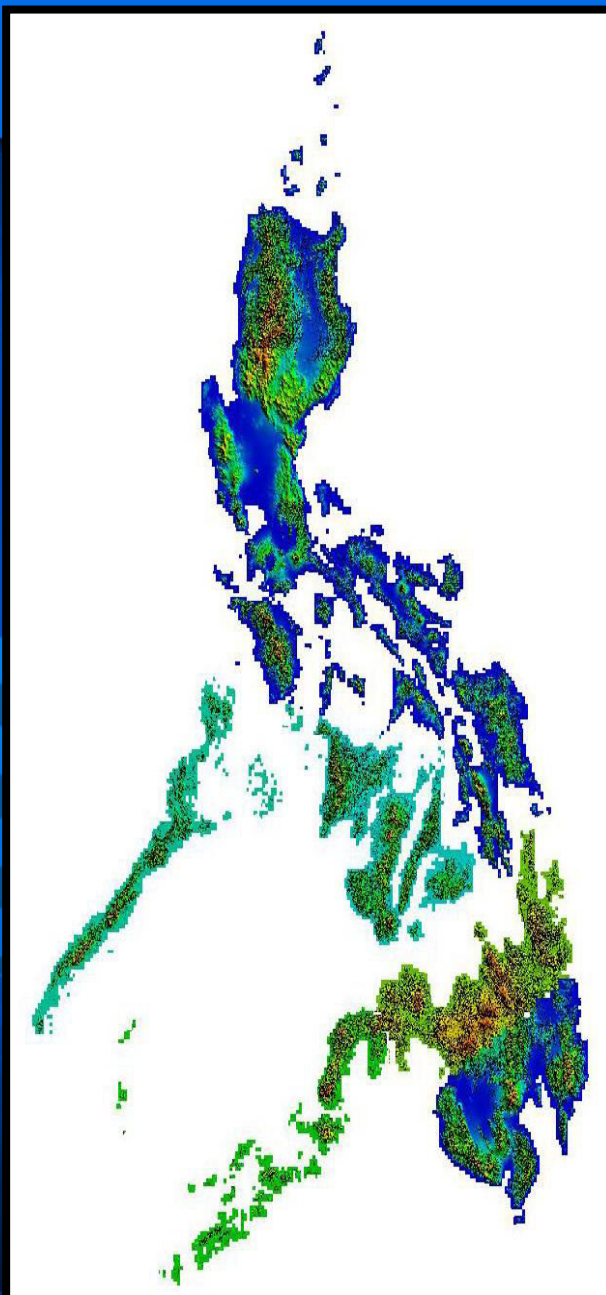
Forestland

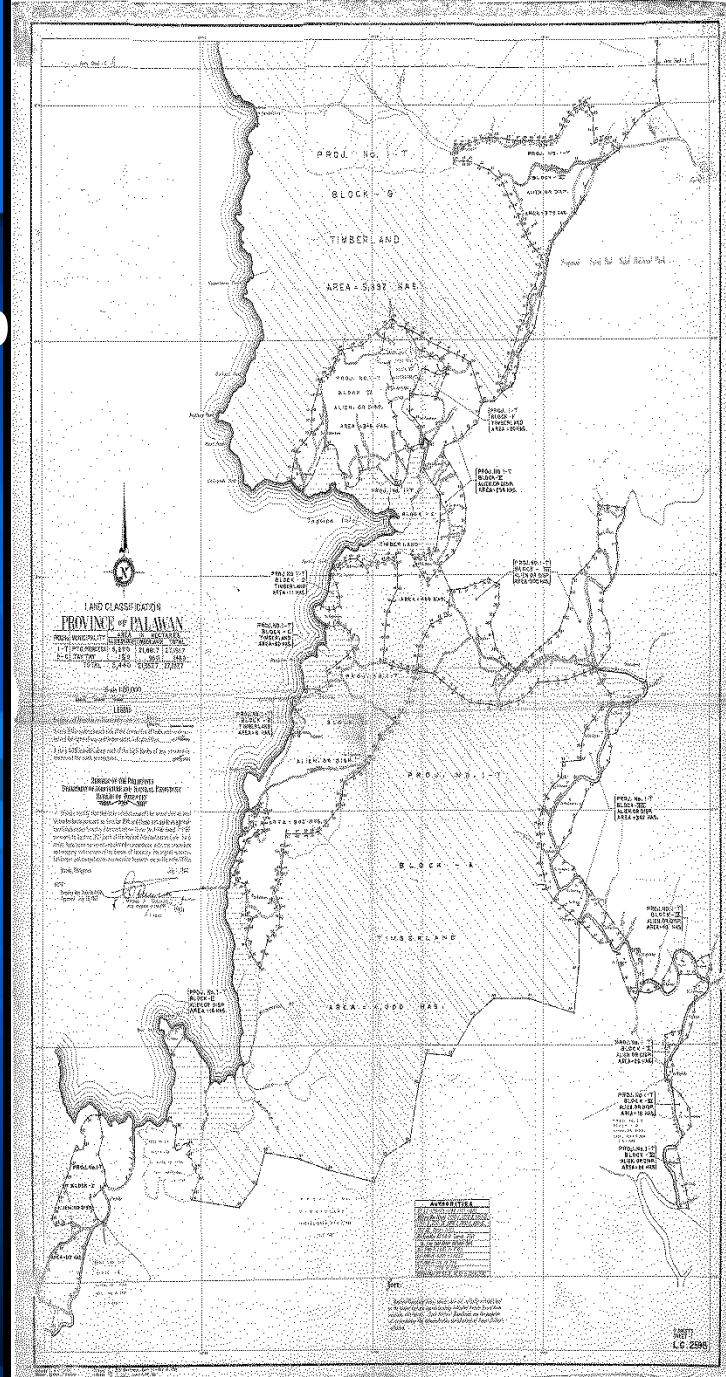


Municipal Water Boundary



Digital Elevation Model





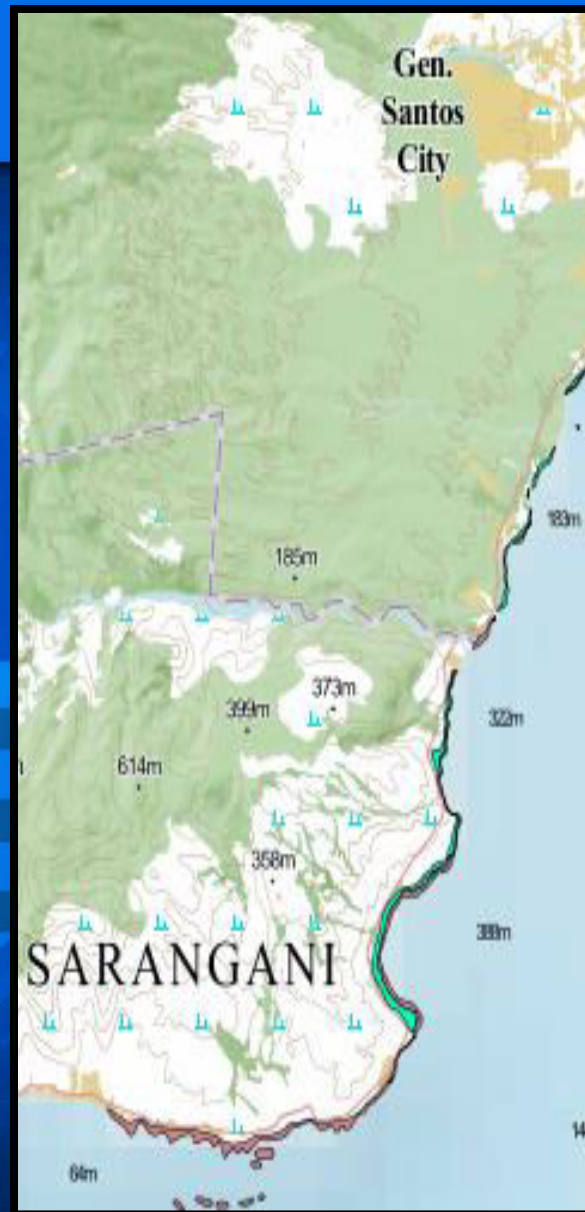
Coastal Resources

Legend

Coastal Resource Data (Preliminary)

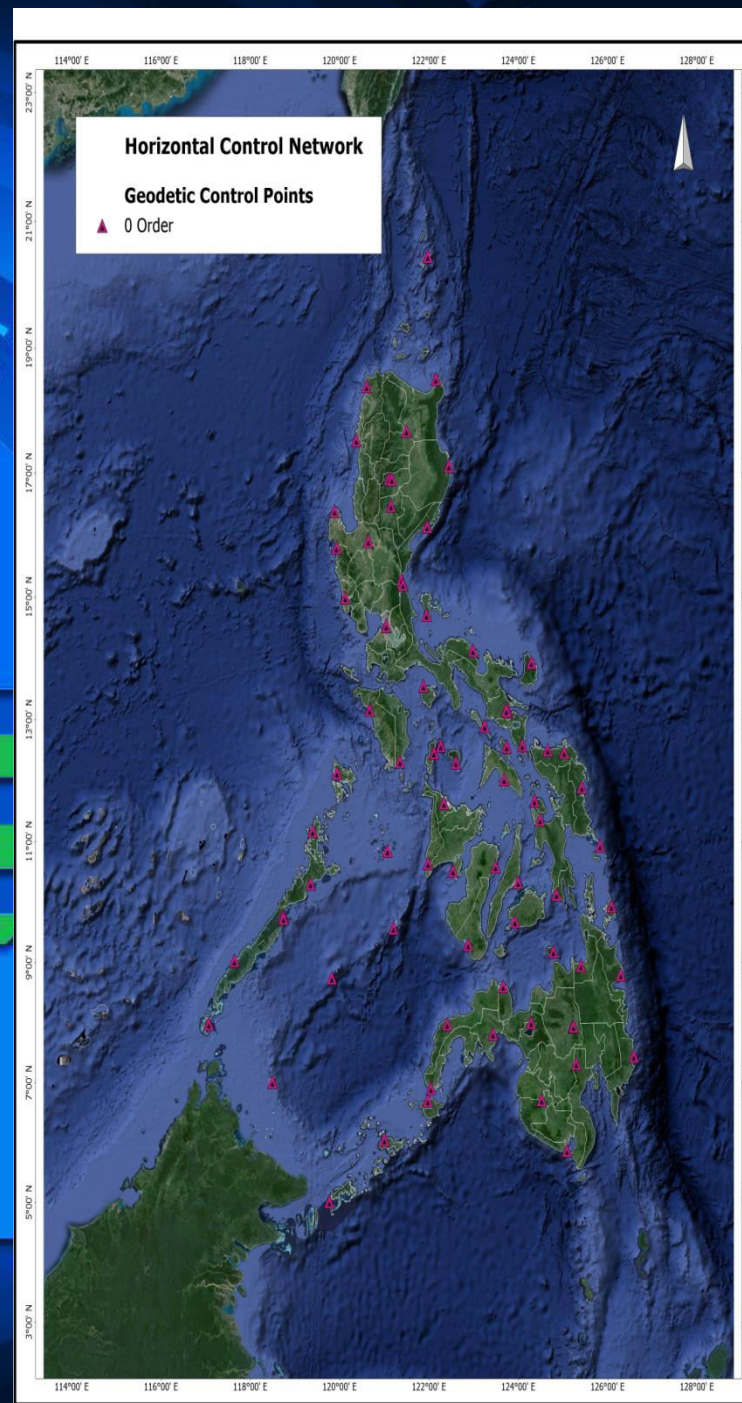
Corals

Seagrass/Seaweeds



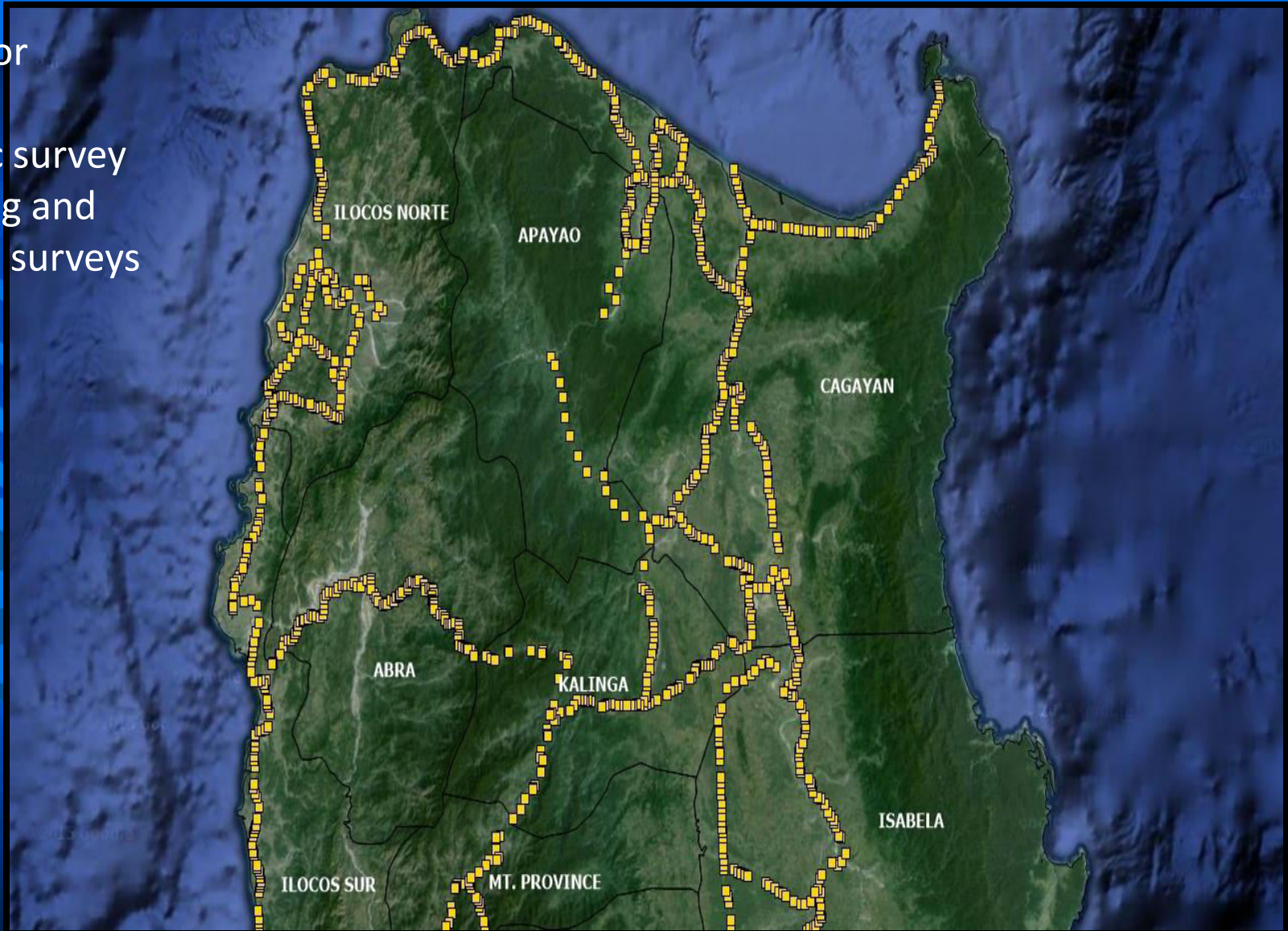
Horizontal Control Network

Reference for
horizontal
positioning for
topographic
mapping and GIS
applications



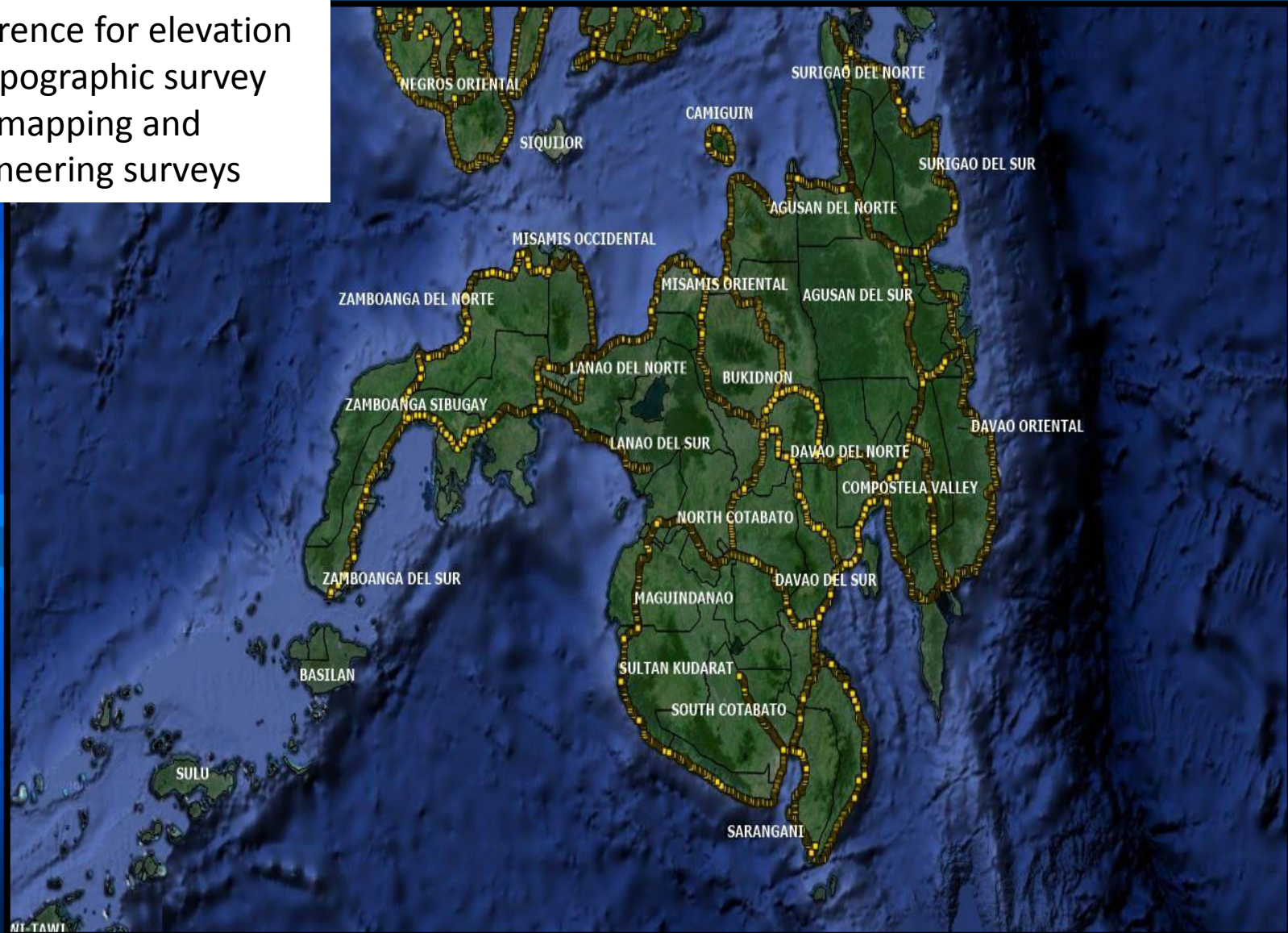
Vertical Control Network

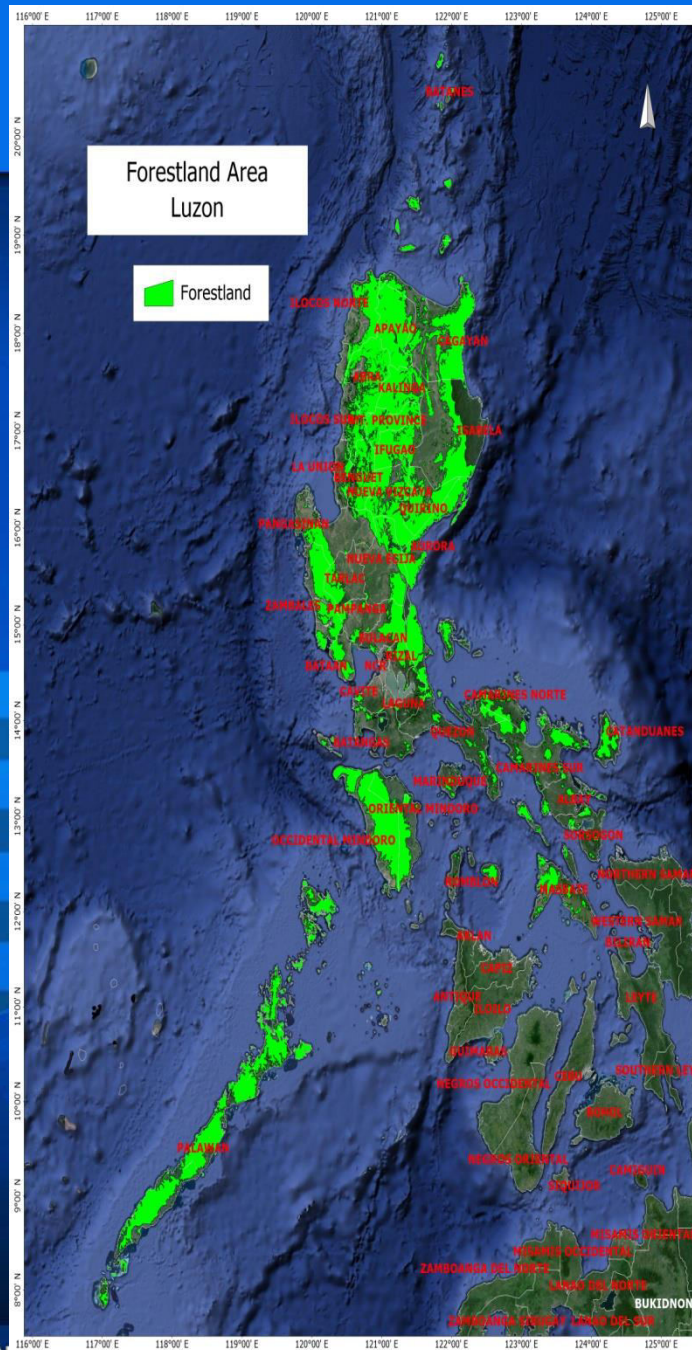
Reference for
elevation in
topographic survey
and mapping and
engineering surveys

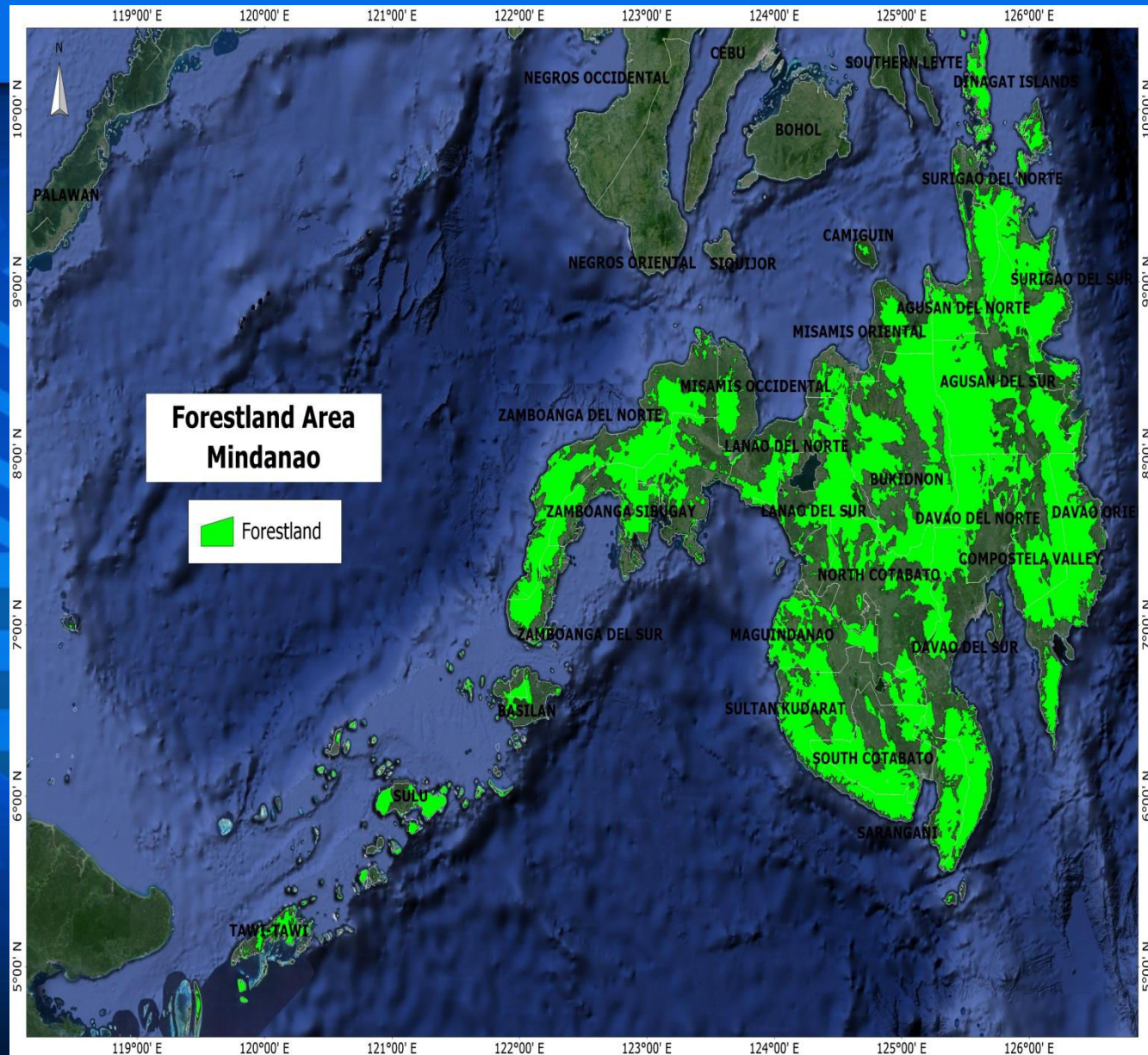


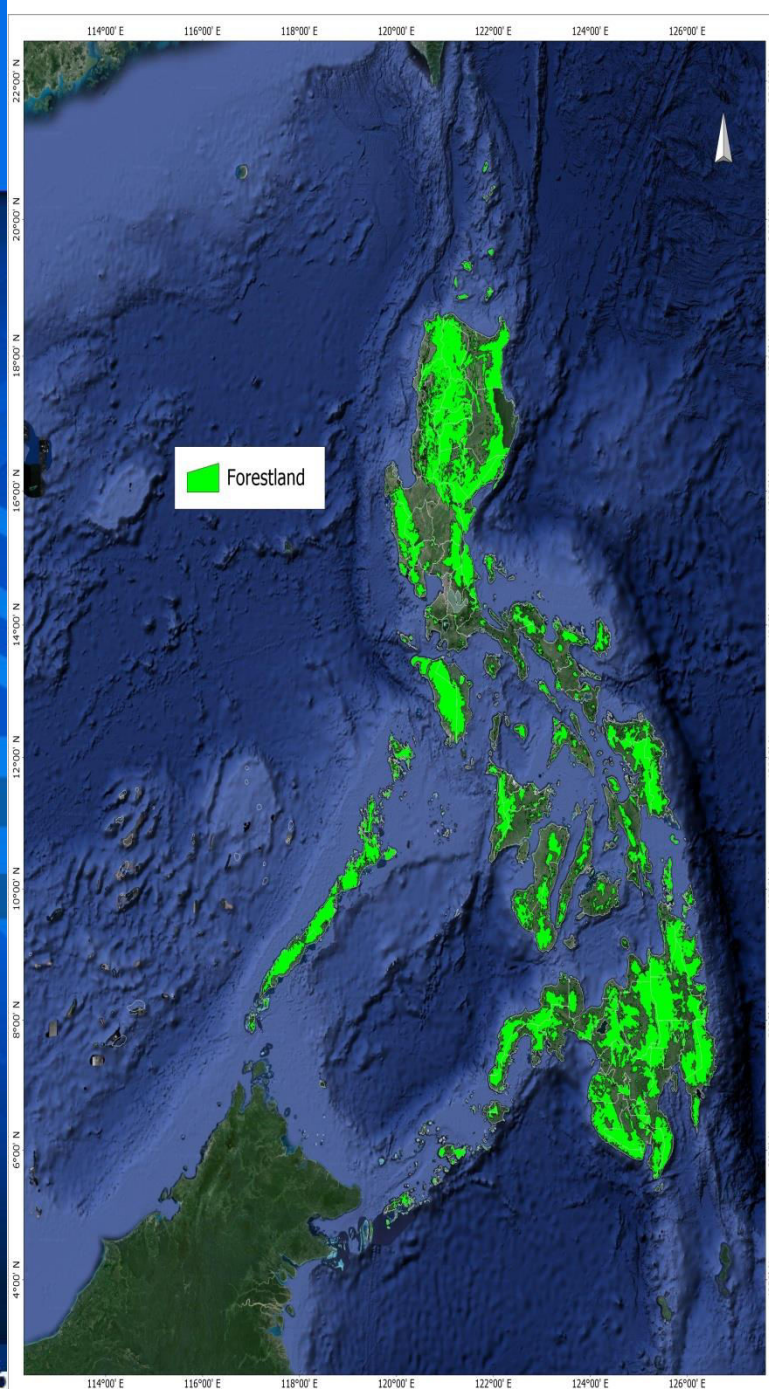
Vertical Control Network

Reference for elevation
in topographic survey
and mapping and
engineering surveys



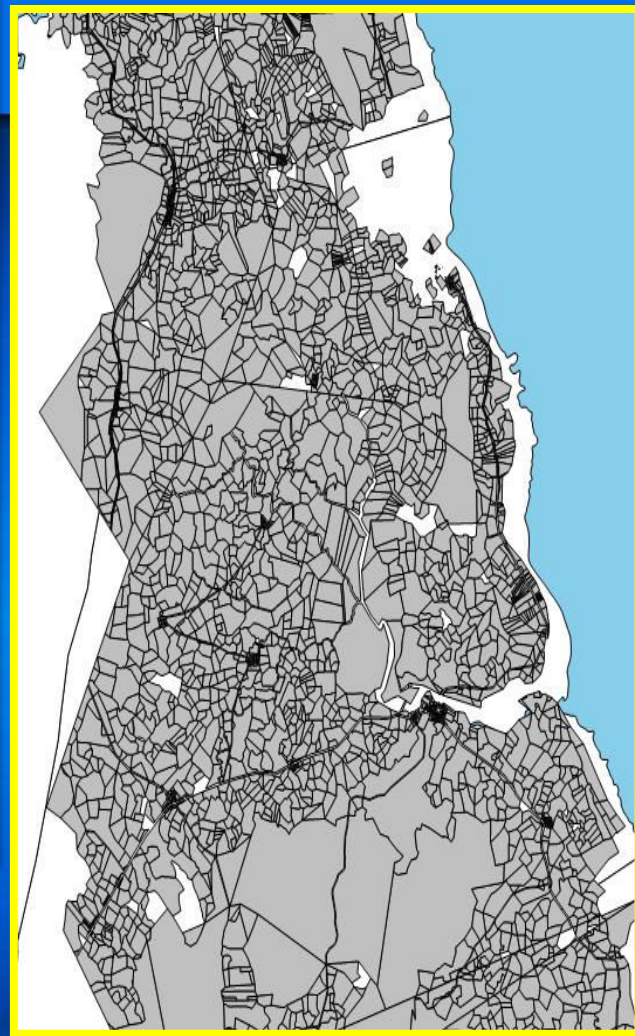
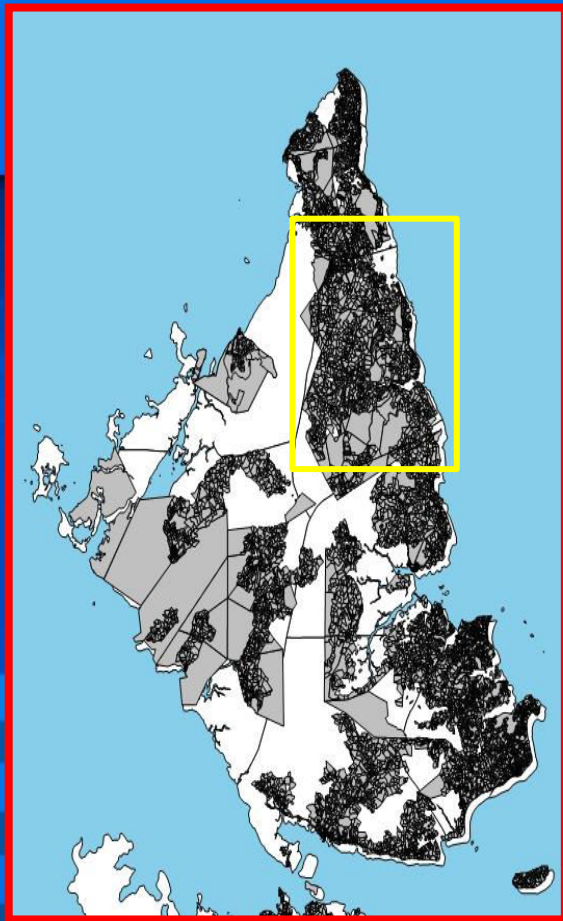
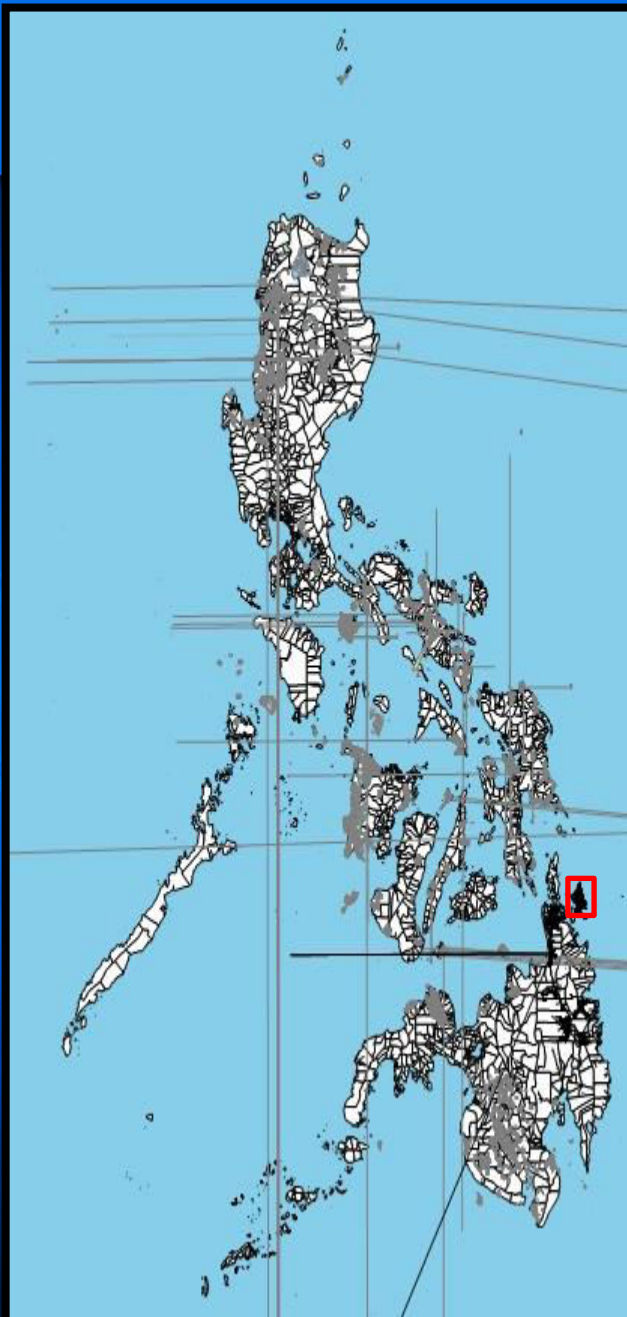




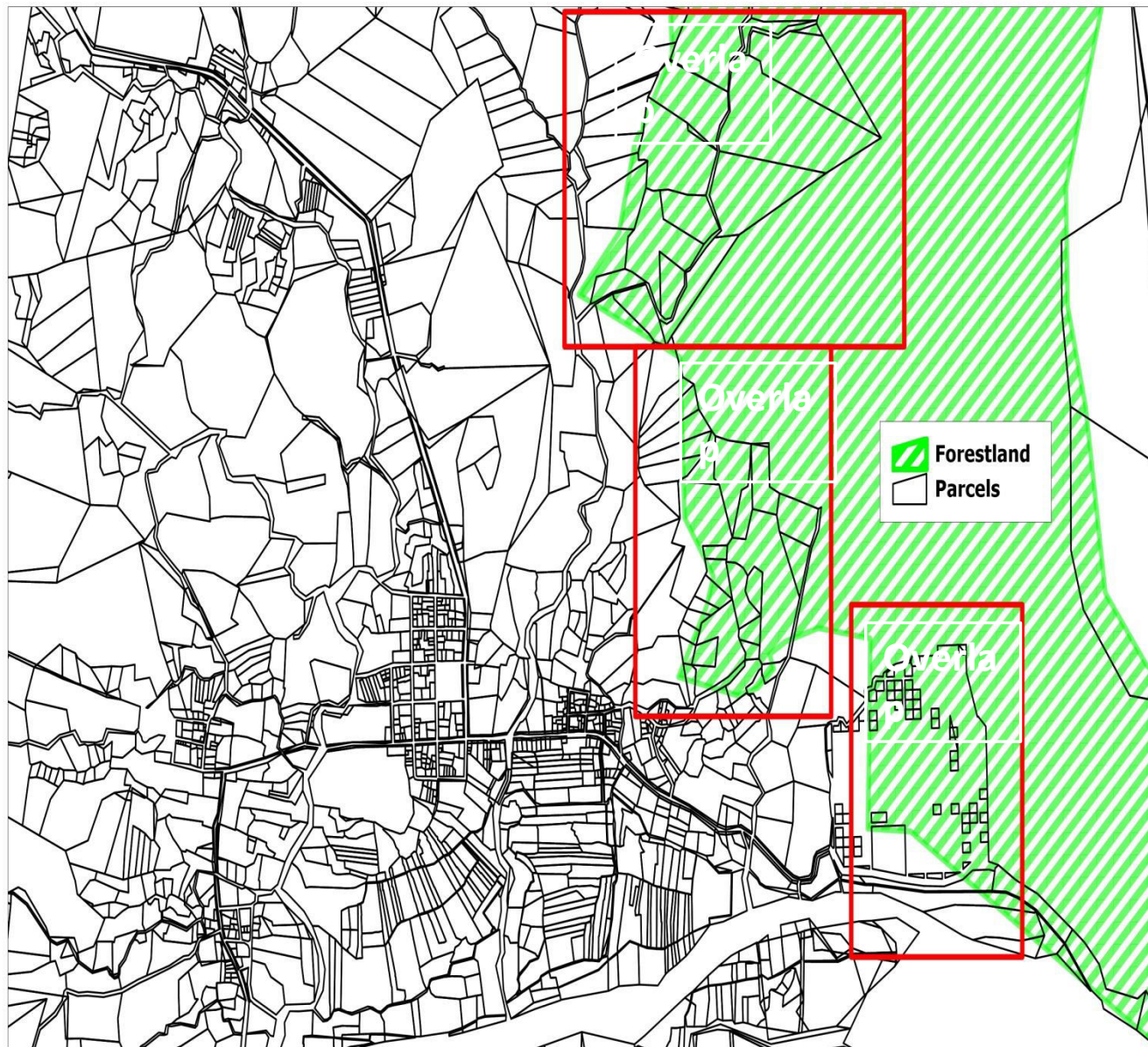


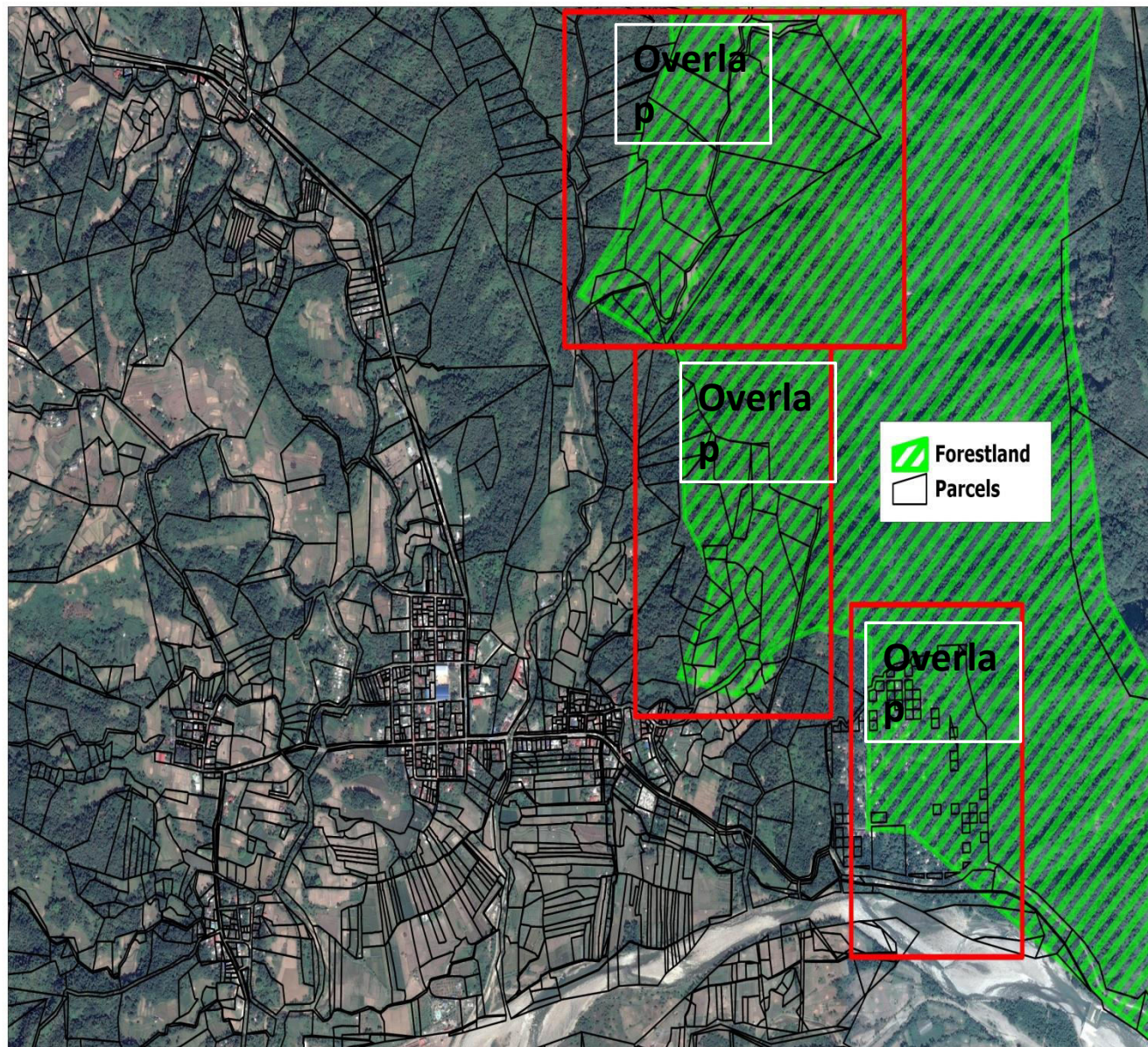
Approximate Area:

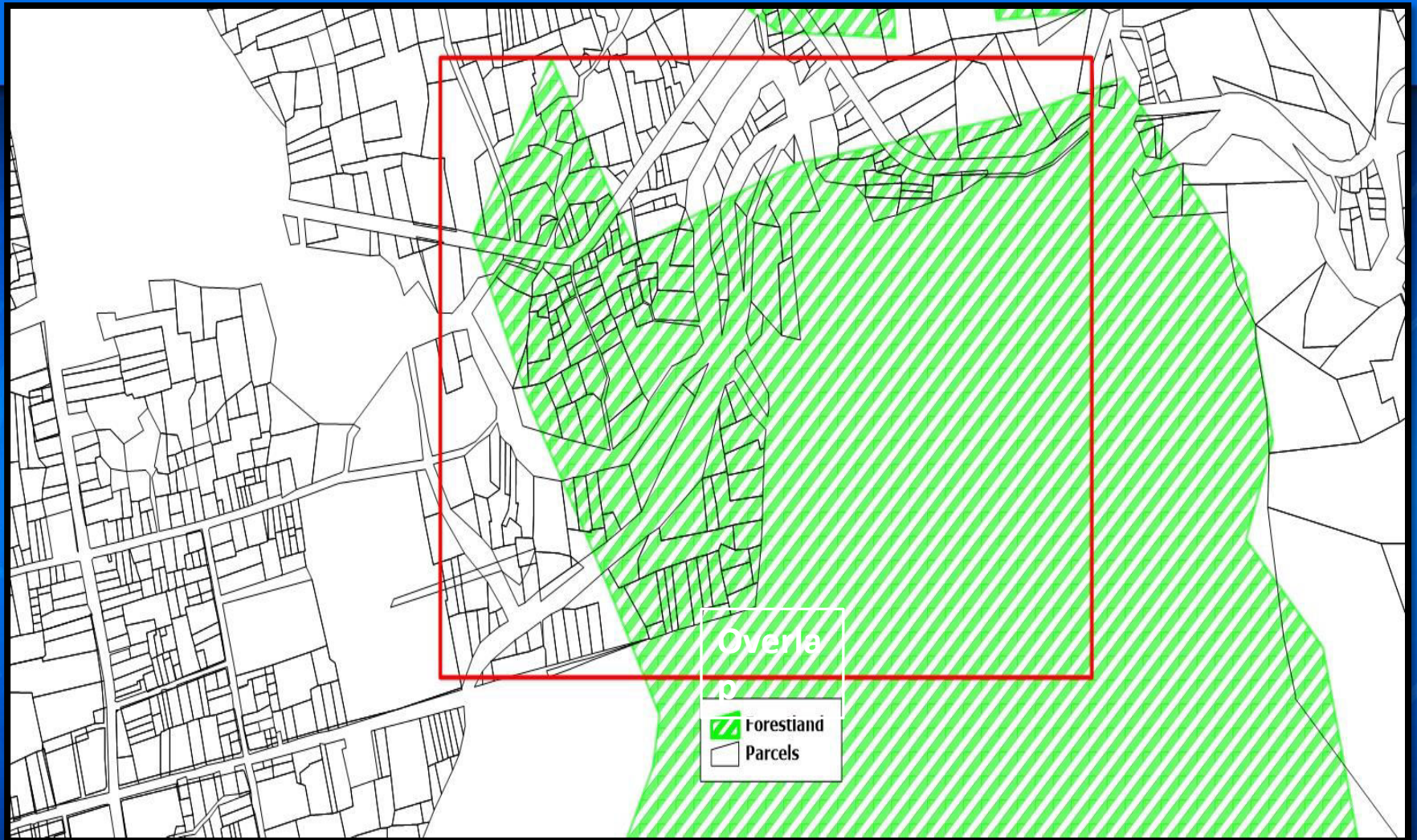
**15.121 million
hectares**

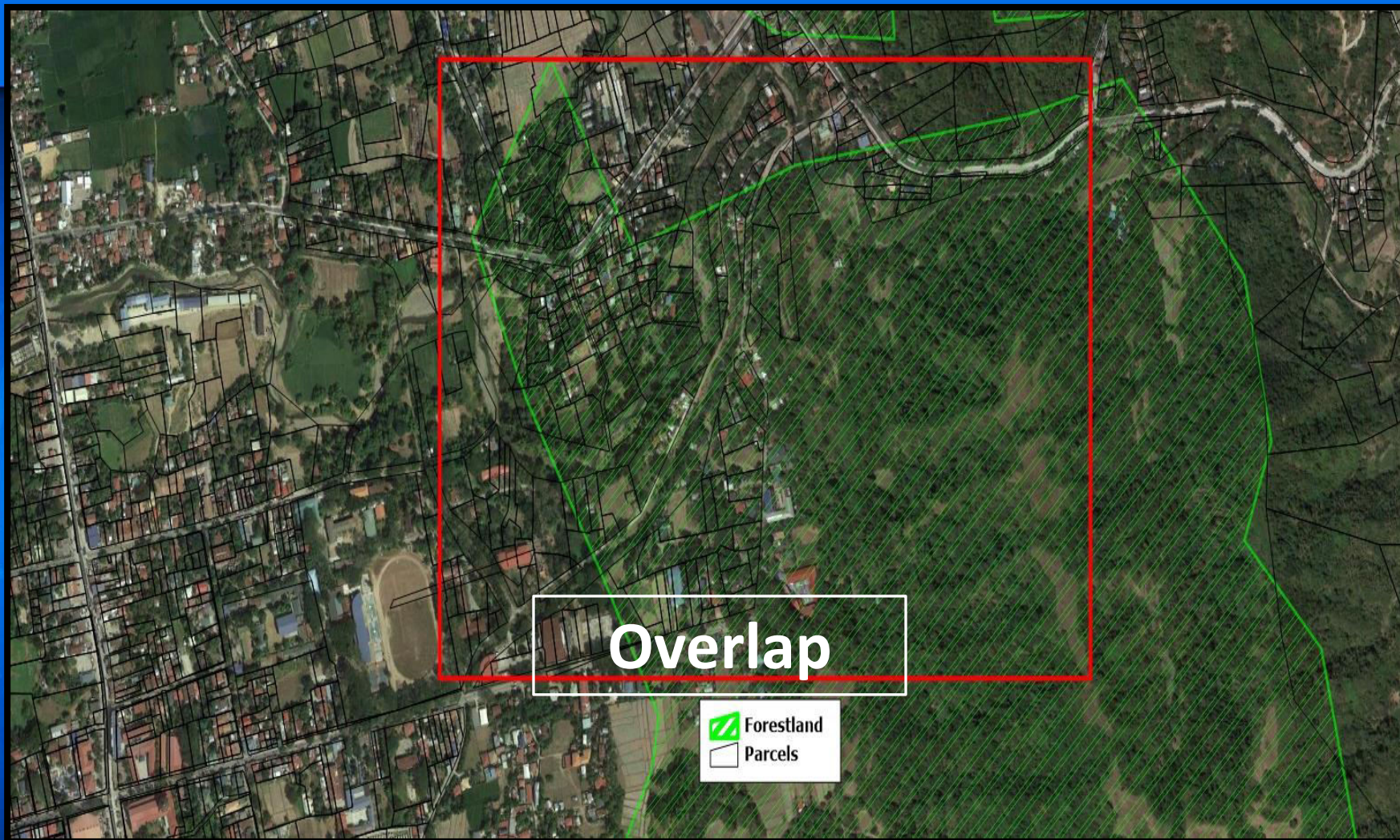


Parcels plotted using the Land Survey
Data Management System (LSDMS) for
PRS92 Project

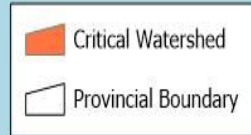
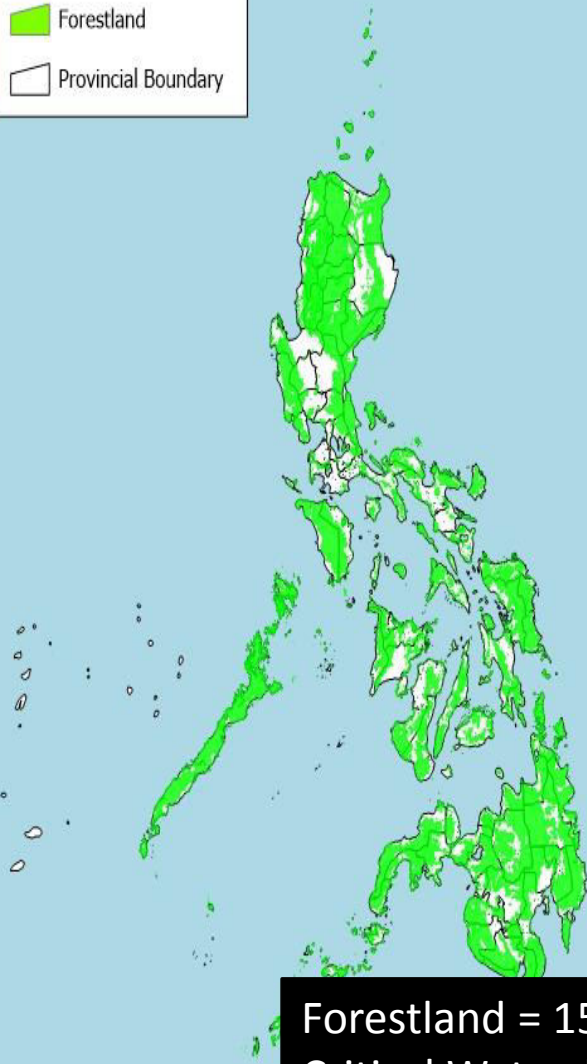




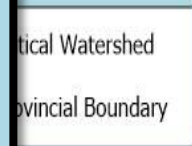
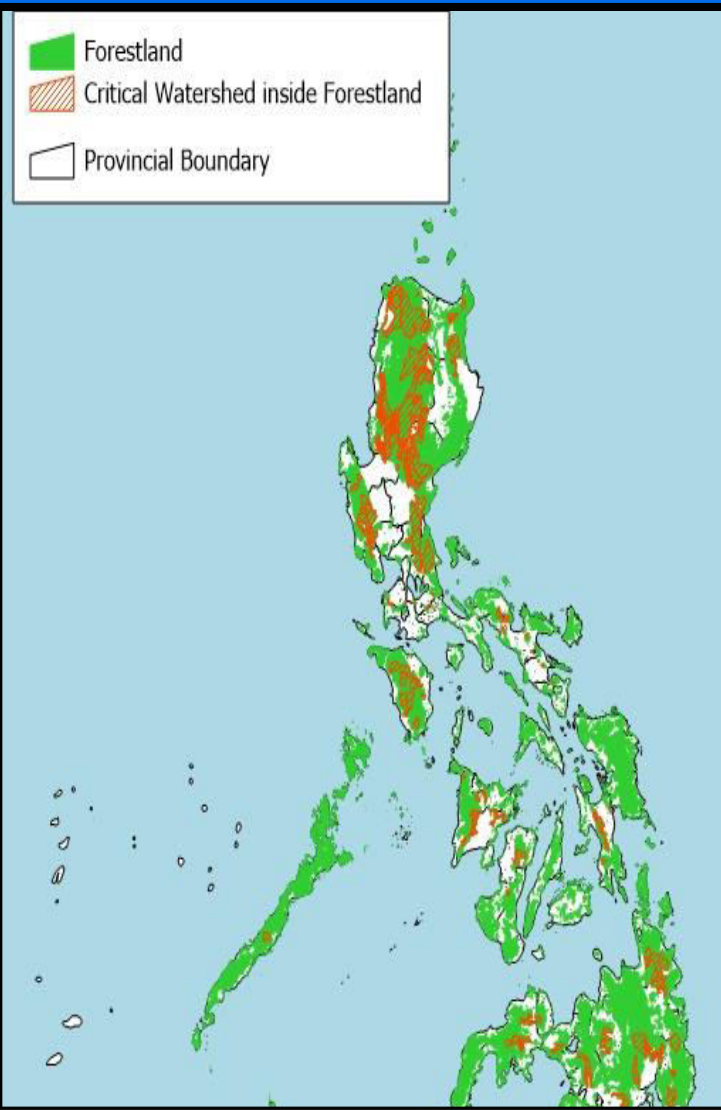




Critical Watersheds

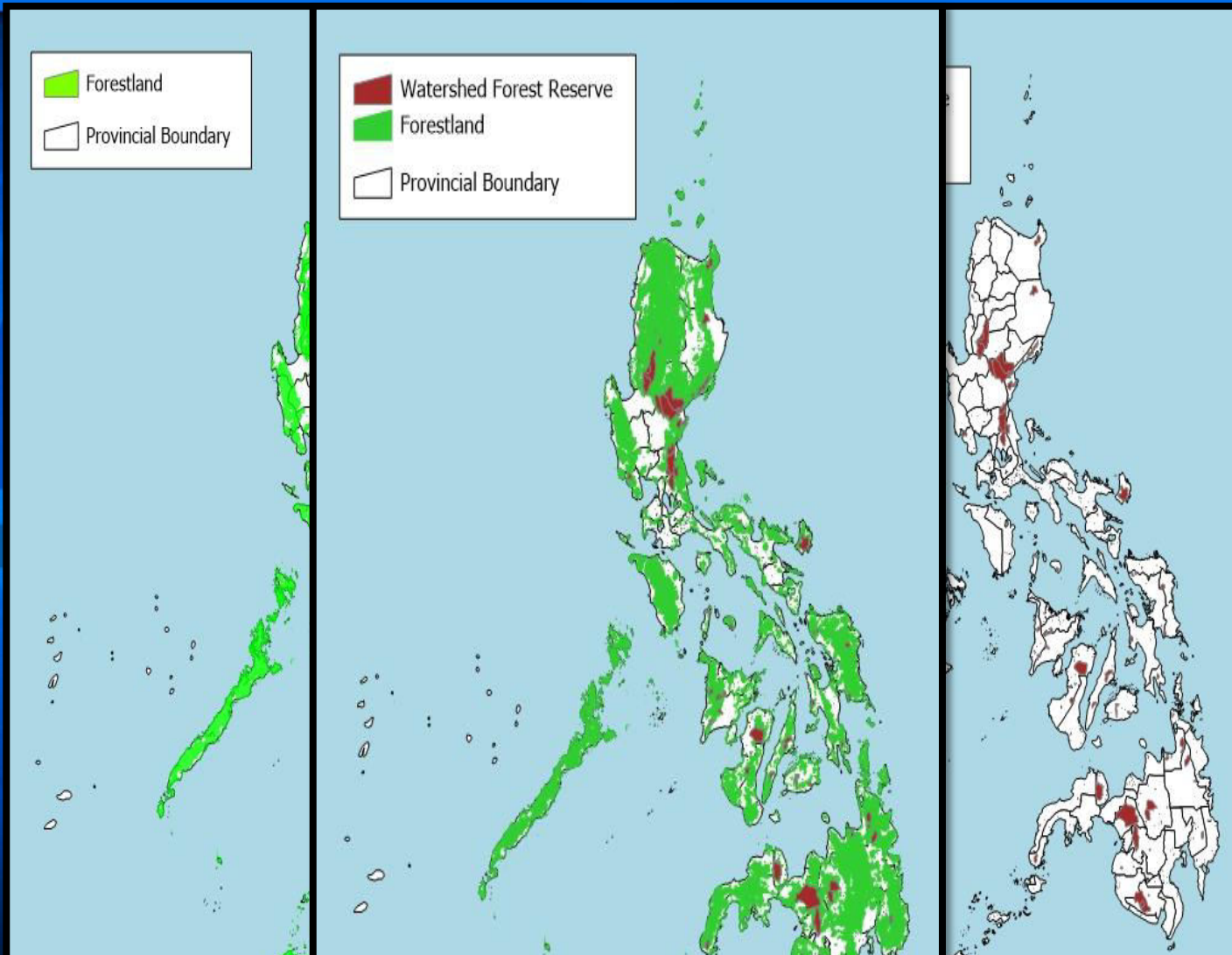


Forestland = 15.121 million hectares (NAMRIA)
Critical Watershed = 4.622 million hectares (FMB)



Forestland = 15.121 million hectares
Critical Watershed = 4.622 million hectares
Critical Watershed inside Forestland = 4.619 million hectares

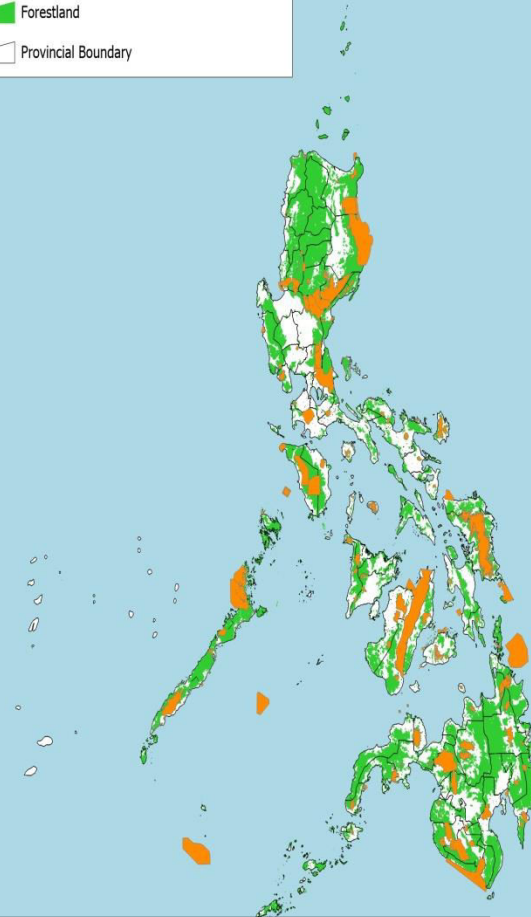
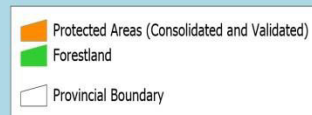
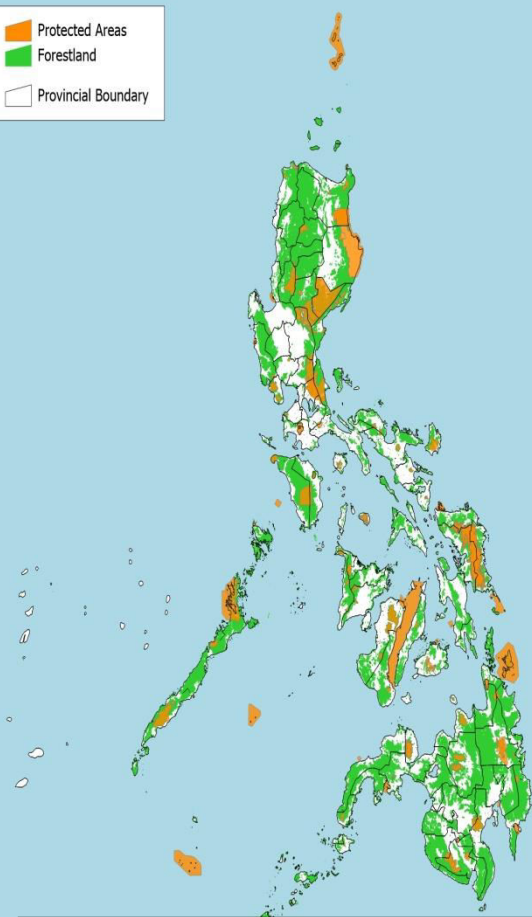
Watershed Forest Reserves



Forestland = 15.121 million hectares (NAMRIA)

Watershed Forest Reserve = 1.666 million hectares (FMB)

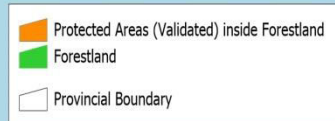
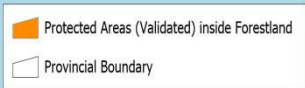
Protected Areas



Forestland = 15.121 million hectares (NAMRIA)

Protected Areas = 5.775 million hectares (BMB)

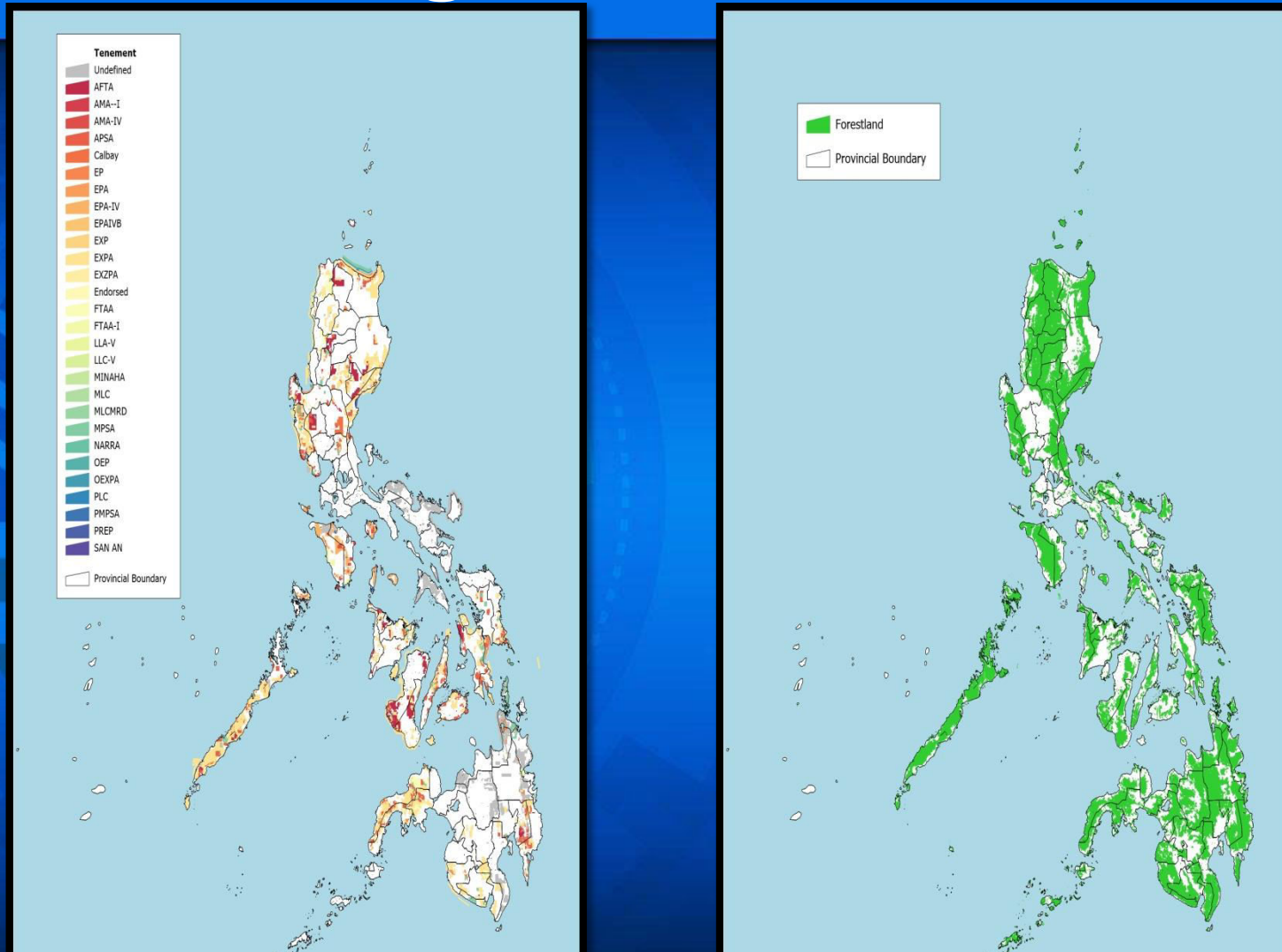
Protected Areas (validated) = 5.556 million hectares (NAMRIA)



Forestland = 15.121 million hectares

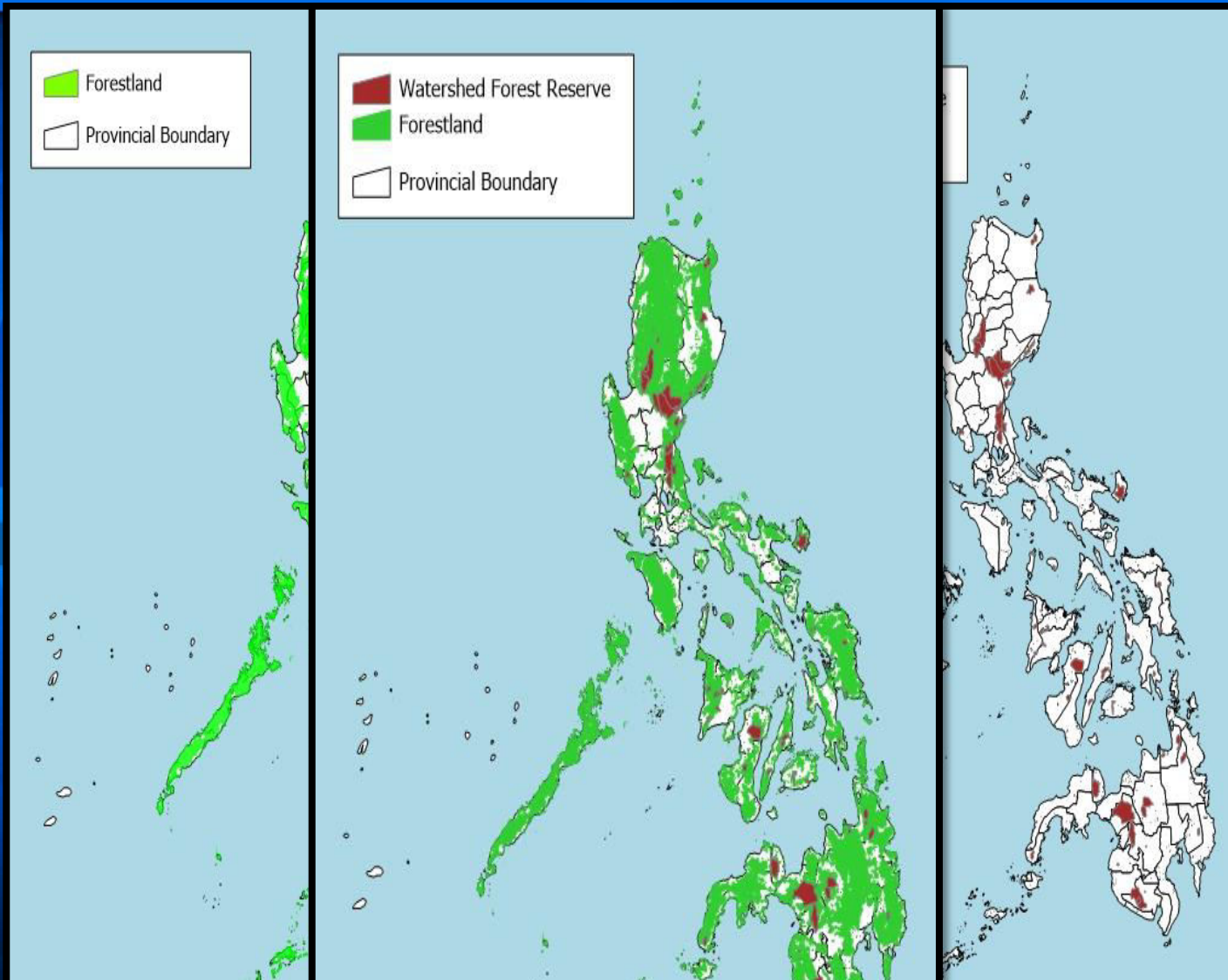
Protected Areas (validated) inside Forestland = 2.316 million hectares

Mining Tenements



Forestland = 15.121 million hectares
Tenement = 9.167 million hectares (MGB)

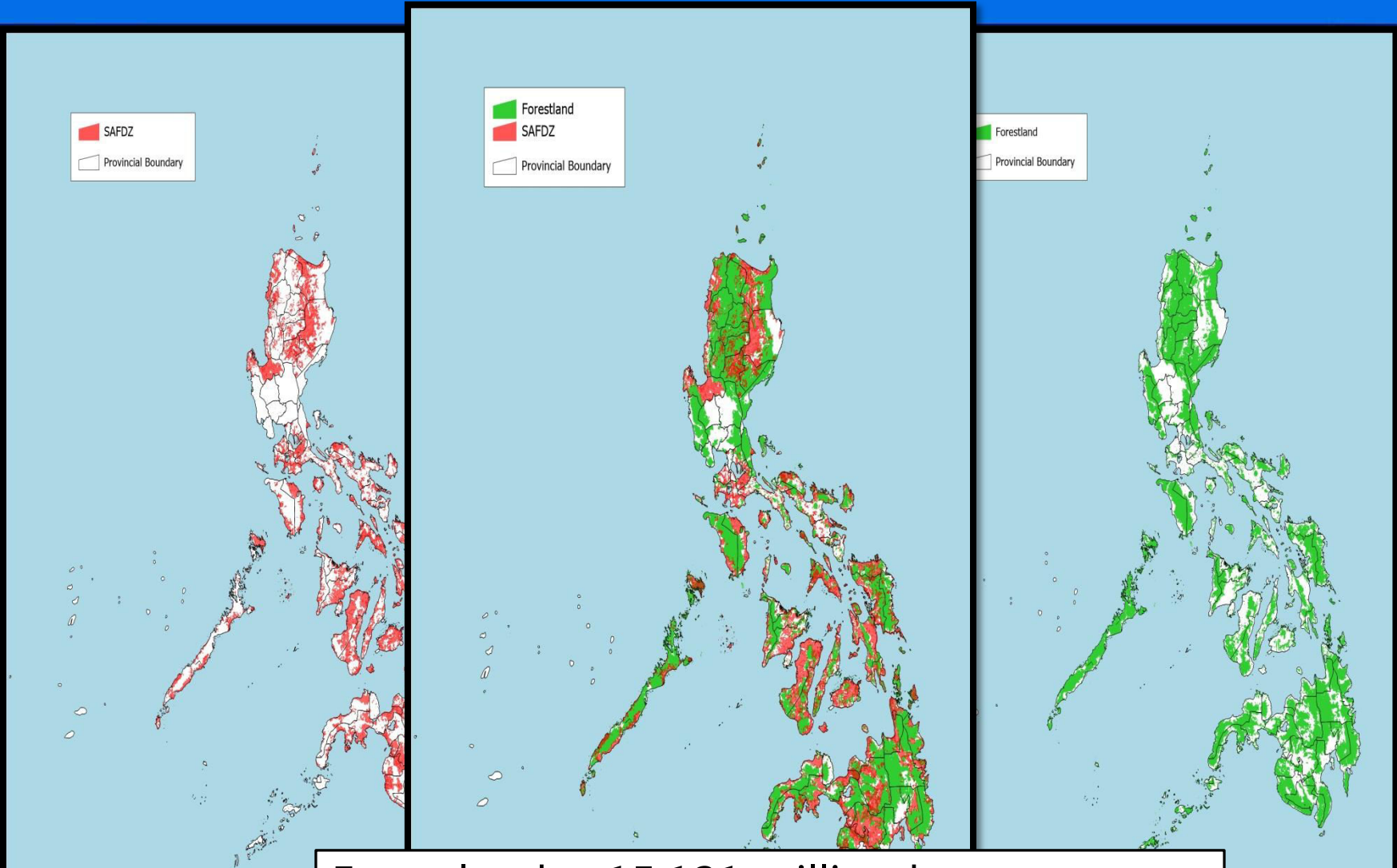
Watershed Forest Reserves



Forestland = 15.121 million hectares (NAMRIA)

Watershed Forest Reserve = 1 666 million hectares (EMR)

SAFDZ

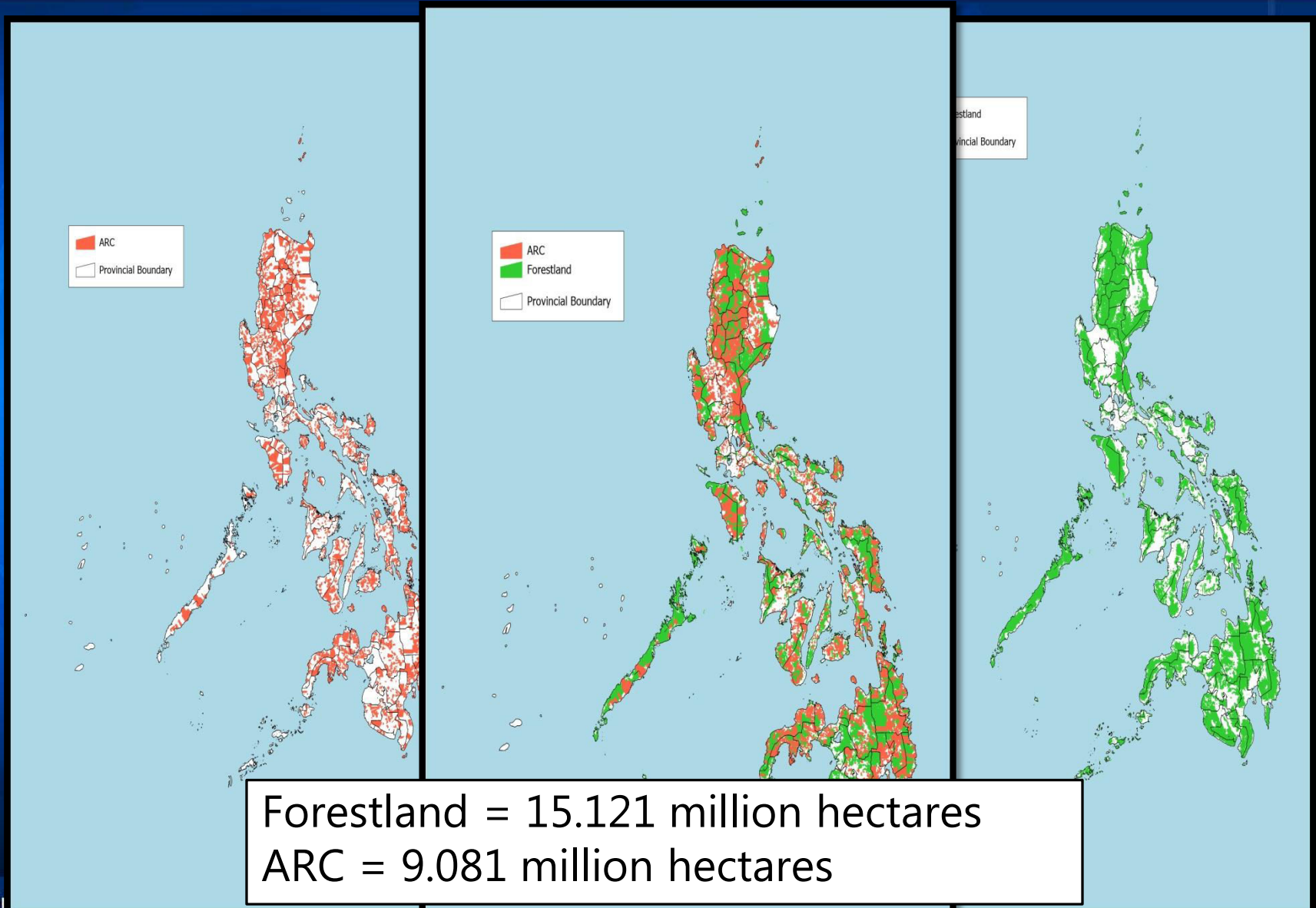


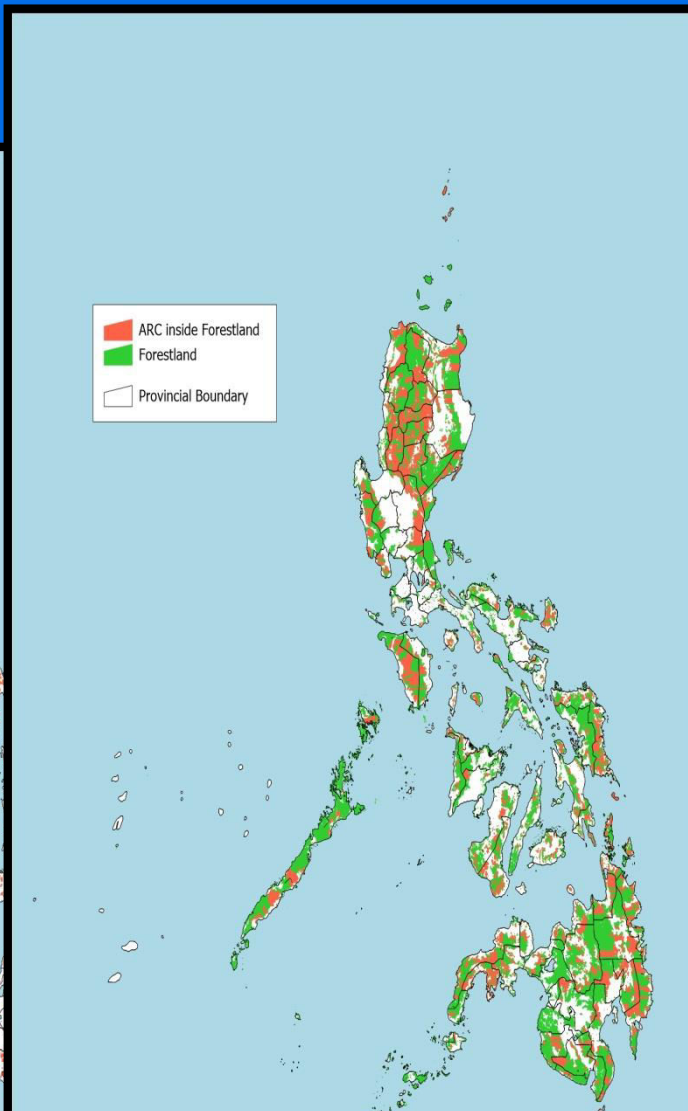
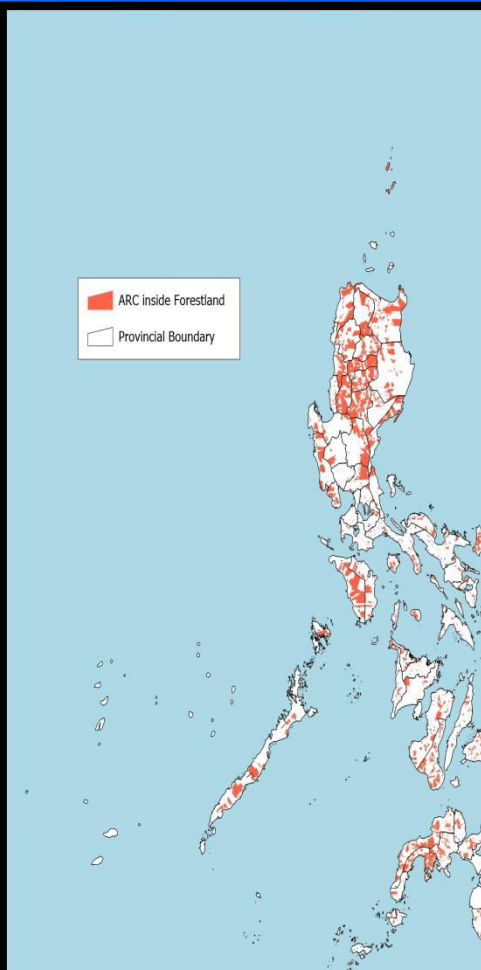
Forestland = 15.121 million hectares
SAFDZ = 7.730 million hectares (BSWM)



Forestland = 15.121 million hectares
SAFDZ = 7.730 million hectares
SAFDZ inside Forestland = 6.860 million hectares

Agrarian Reform Communities



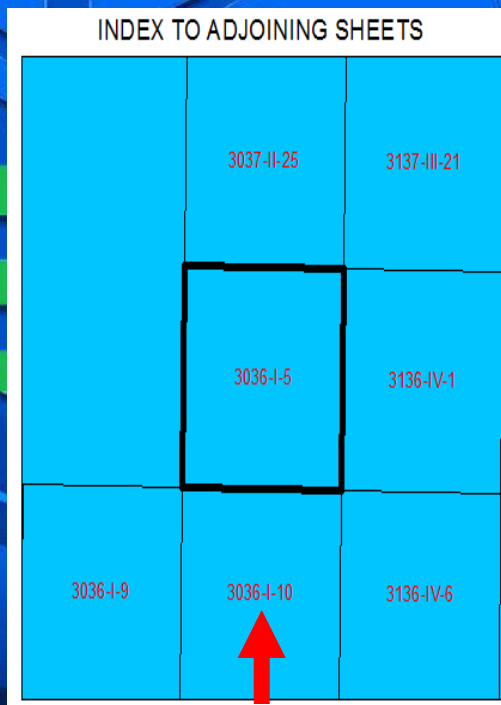


Forestland = 15.121 million hectares
ARC = 9.081 million hectares (DAR)
ARC inside Forestland = 4.590 million hectares

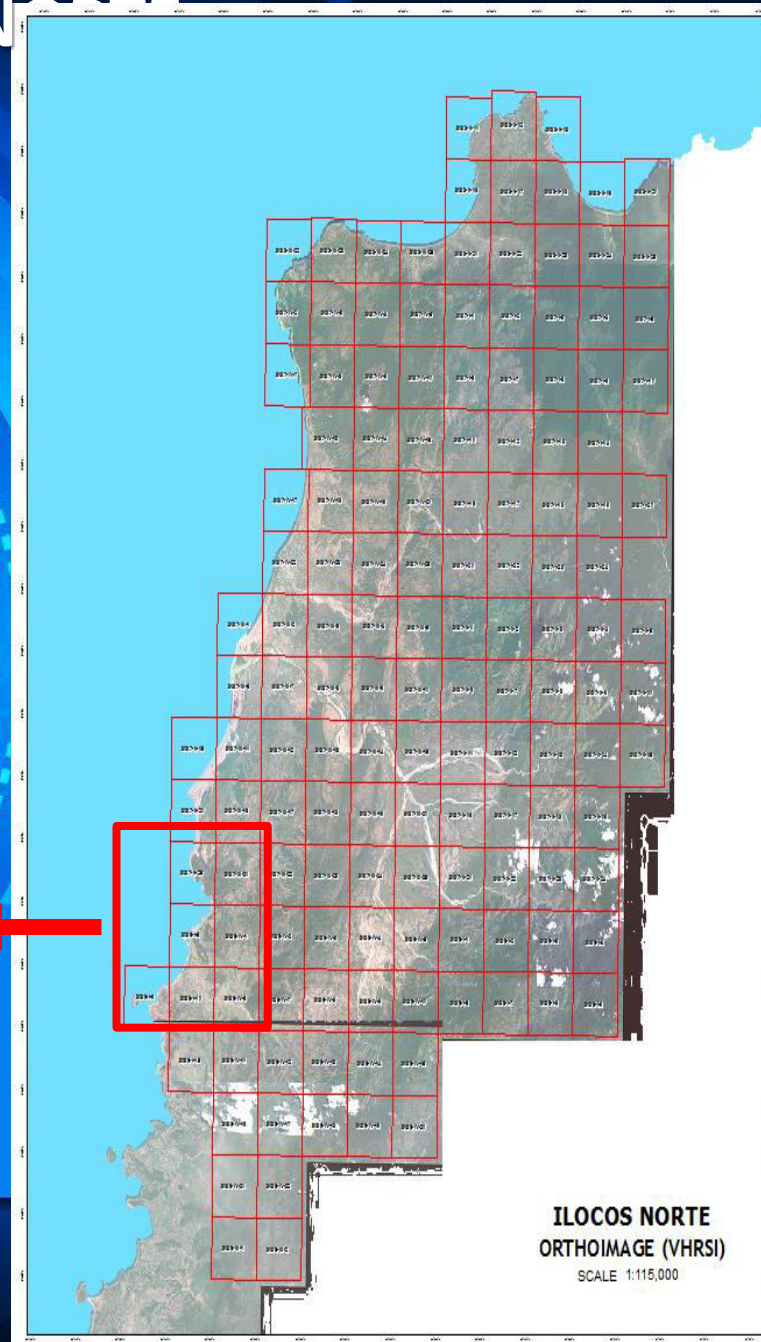
PROVINCE OF ILOCOS N

MAP INDEX

- Orthoimage (Very High Resolution Satellite Imagery)
- Orthorectified Radar Image (ORI)
- Orthoimage (Very High Resolution Satellite Imagery)
- Each tile has corresponding unique map sheet number
- 146 map sheets @ 1:10,000

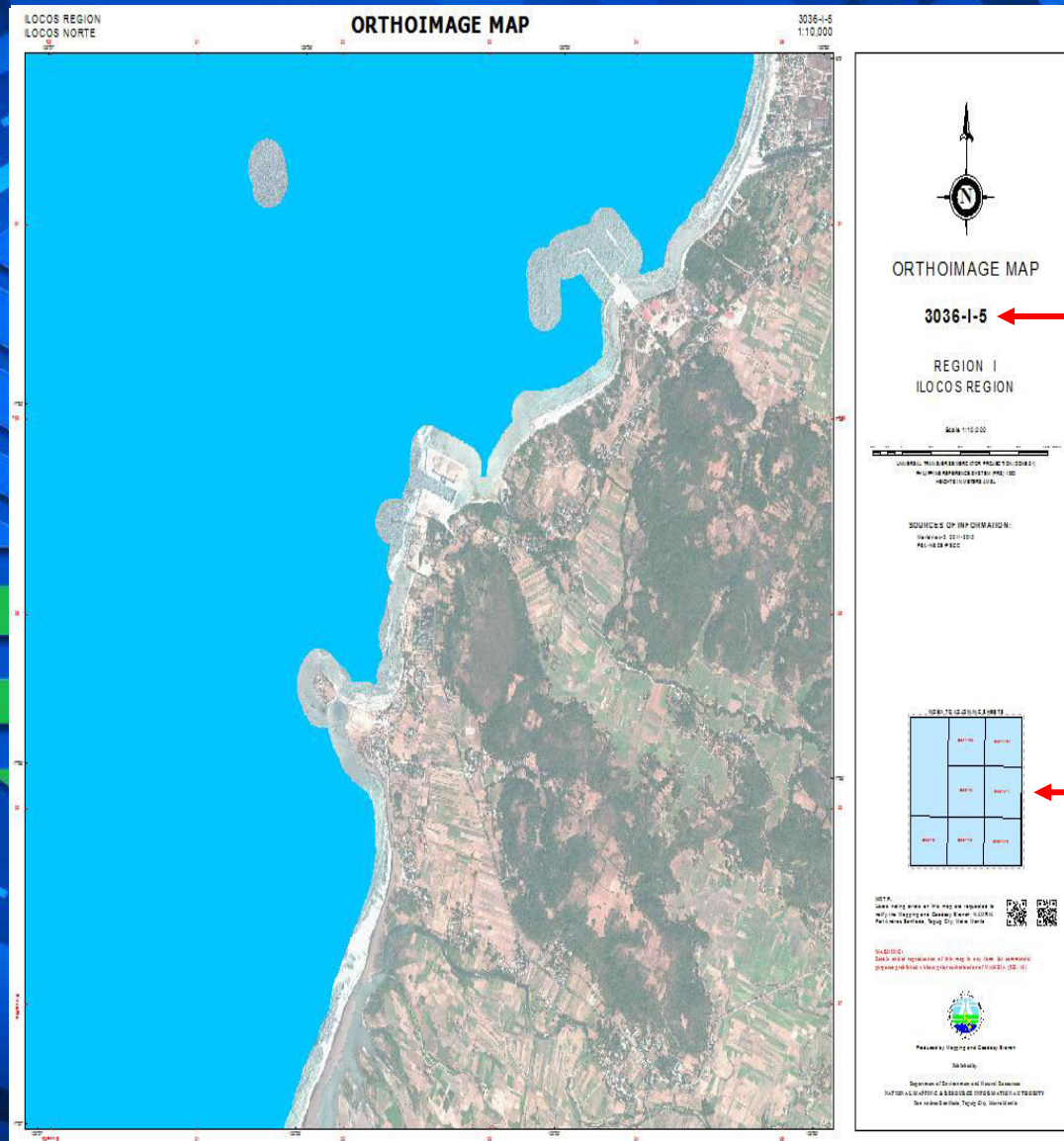


MAP SHEET
NUMBER



PROVINCE OF ILOCOS NORTE

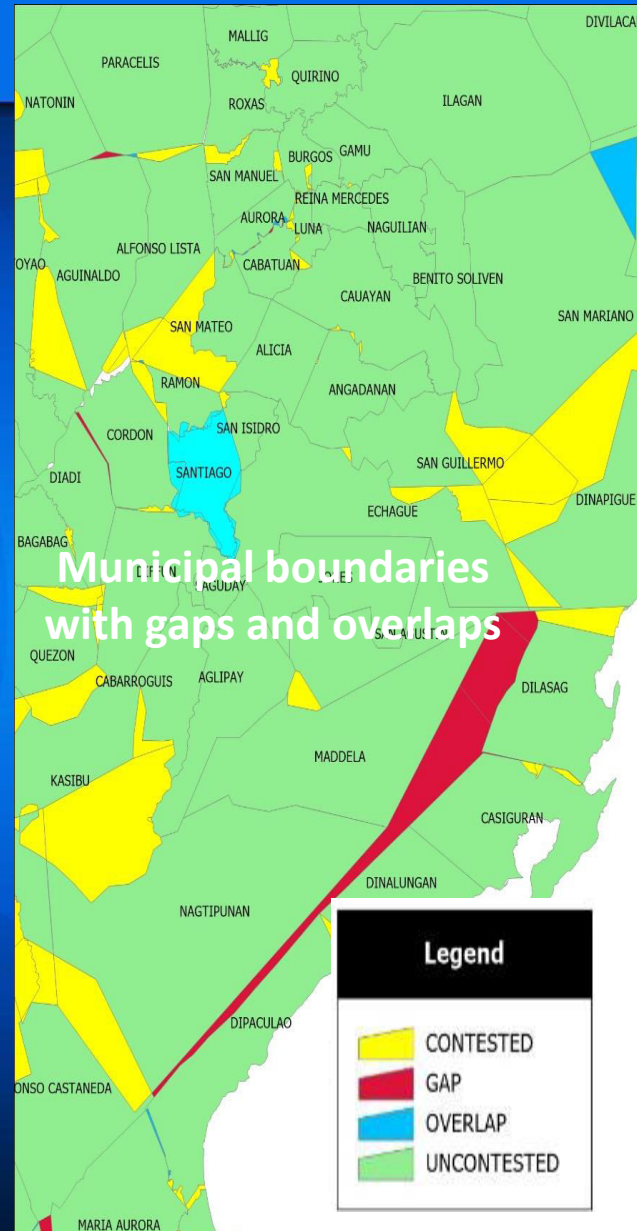
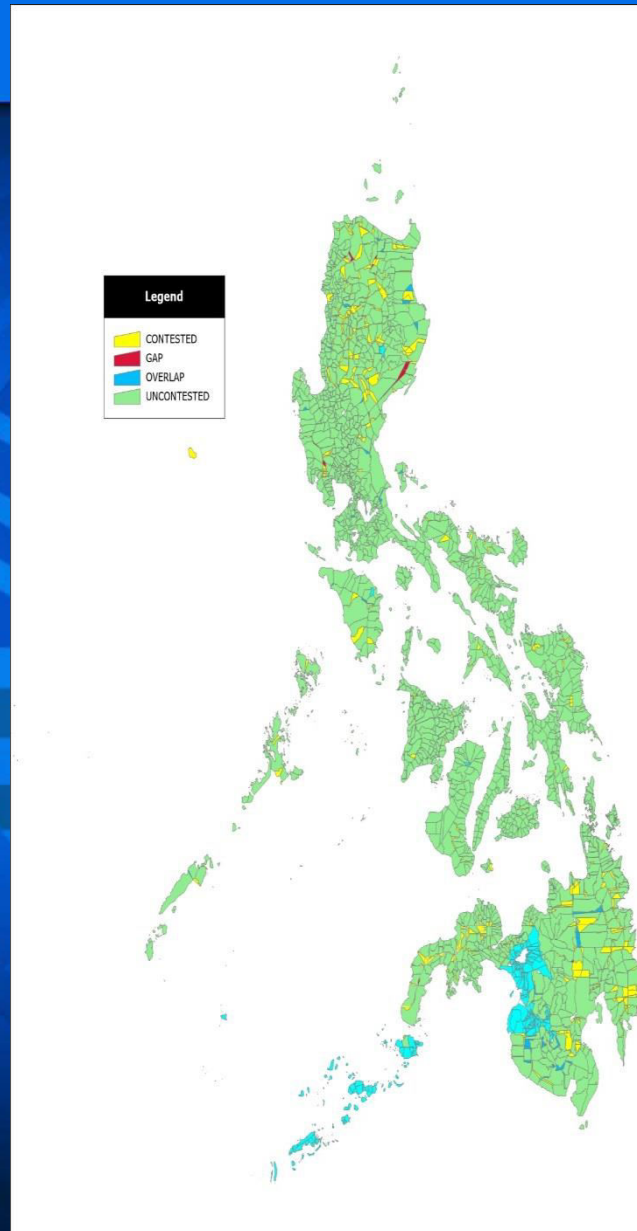
ORTHOIMAGE
1:10,000 SCALE



MAP SHEET NUMBER

INDEX TO
ADJOINING SHEET

LMB Municipal Boundary Data



NUMBER OF MAP SHEETS PER REGION

REGION	NUMBER OF MAP SHEETS
CAR	700
Ilocos Region	558
Cagayan Valley	1,081
Central Luzon	844
CALABARZON	637
MIMAROPA	1,439
BICOL REGION	870
WESTERN VISAYAS	549
CENTRAL VISAYAS	479
EASTERN VISAYAS	950
ZAMBOANGA PENINSULA	601
NORTHERN MINDANAO	697
DAVAO REGION	764
SOCCSKSARGEN	734
Caraga	778
ARMM	468
NIR	507
NCR	37

Total 12,693

Technical Committee

Created - July 10, 2017 S.O. No. 2017-526

• **Composition**

- 
- Chair
- ASEC , Financial Management and Information Systems
- Vice-Chair
- Deputy Administrator, NAMRIA
- Members
- Assistant Directors
BMB, EMB, ERDB, FMB, LMB, MGB
 - Assistant General Manager, LLDA
 - Deputy Executive Director, NWRB
 - Director
PPS, OUFO, FASPS
 - Executive Director, River Basin Control Office

Technical Committee

- **Functions**

- Conduct inventory of all existing maps
- Determine the basemap and projections used
- Prepare the Procedural Manual for the
- Provide guidance
- Oversee the maintenance, use and dissemination of the control map
- Supervise the integration of the Control Map in the DENR Data Portal
- Ensure the regular updating of the control maps.

Technical Committee

- **Support**
 - Working group
 - composed of technical personnel from bureaus and attached agencies
 - Secretariat
 - Technical Staff, SDRMD
- **Organizational Meeting**
 - July 18, 2017

Way Forward

Activities

- MOA between NAMRIA and Central Office, bureaus, attached agencies and field offices
- Storage medium for the data
 - Funds for the purchase of 2 Terrabyte HD for each Regional Office and PENROs
 - For RDs of MGB and EMB (to be shared by Regions)
- NAMRIA to provide digital map at 1:10,000 scale
 - Ortho rectified RADAR image
 - Very High Resolution Orthorectified Satellite image
 - Digital Elevation Model (digital surface model and digital terrain model)
 - Map index

Timeline

August 2017

June 7, 2017

up to 1 month
first come first served
basis upon submission
of the MOA and
storage medium

Way Forward

Activities

- Issuance of Administrative Order
‘Prescribing Guidelines and Standards in the Establishment and Use of DENR Control Map’
- Creation of Working Group
- Preparation of the Procedural Manual
- Purchase of ArcGIS software
- Training for Basic and Advance GIS to be conducted by NAMRIA

Timeline

ASAP

July 30, 2017

September 2017

September 2017 (under process with DBM-PS)

Upon purchase of software (September 2017 onwards)

Way Forward

Activities

- Adoption
- Launching

Timeline

Target Training Participants

Office	Number of Participants	Total
Regional Office	4	68
PENRO	2	152
CENRO	3	420
Bureau, except MGB	2	10
LLDA and NWRB	2	4
Policy and Planning Service	2	2
Foreign Assisted and Special Projects Service	2	2
		660



DENR DATA PORTAL

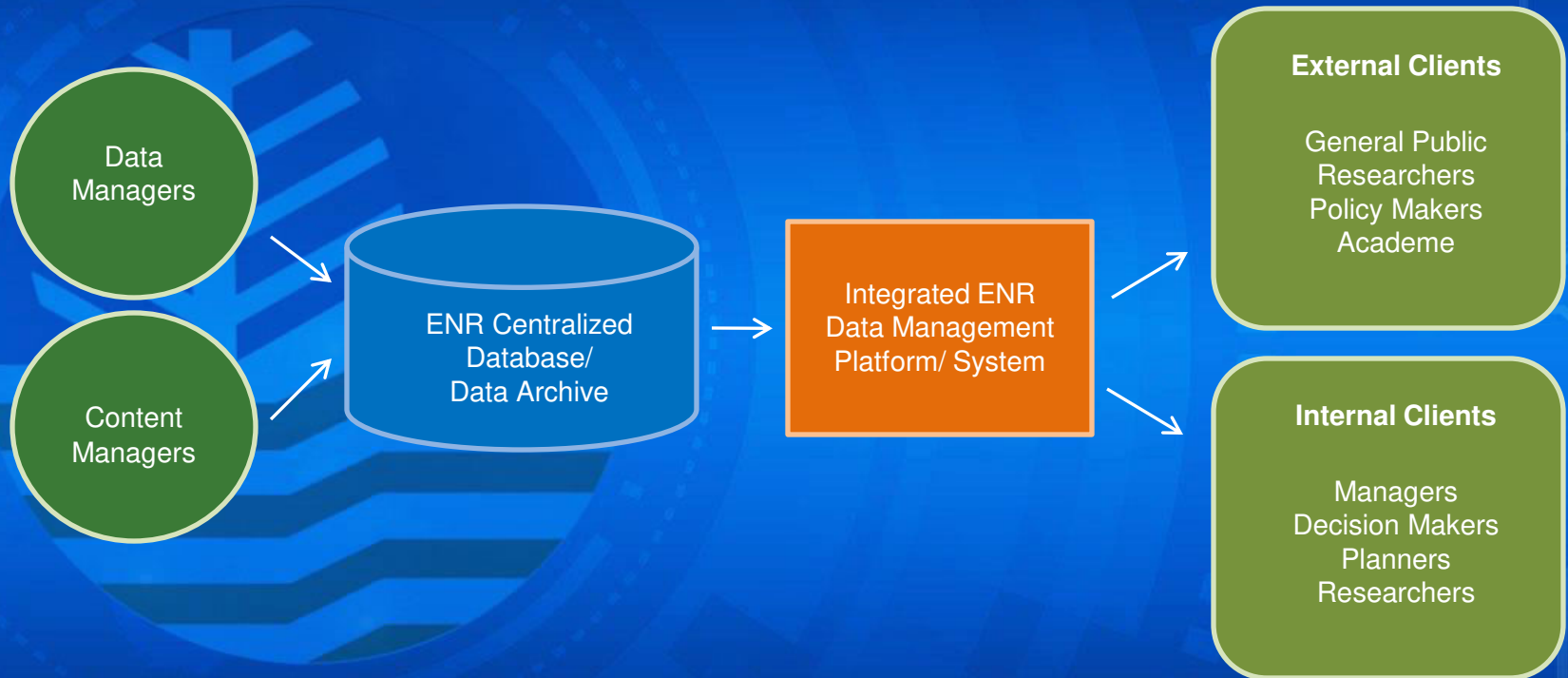
DENR Data Portal

- Visualization and analysis and tool that will include knowledge-based decision support system
- Help decision makers
 - compilation and integration of the department's real-time data, historical time-series data, and geo-spatial information

DENR Data Portal

- An integrated information system that combines queries, table and chart generation, and map visualization
- An integrated platform to monitor priority programs of the department using real-time accomplishment reports

General Framework of DENR Data Portal





DENR Data Portal

[Log in](#)
[Home](#)
[Database](#)
[Metadata](#)

Search



Air



Water



Biodiversity



Forest



Minerals



Land


Climate
Change

Environmental
Research


Waste



Disaster



QUICK STAT

Land Classification of the Philippines

Total Land Area (in ha)

30,000,000

Certified A&D

14,194,675

Classified

15,050,316

Unclassified

755,009

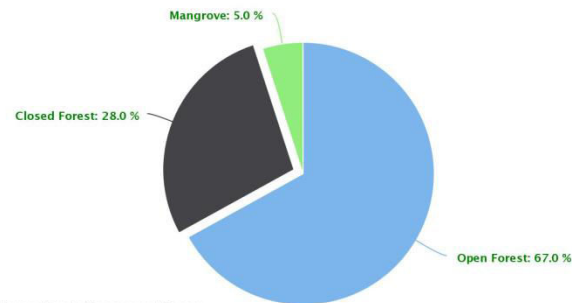
Source: National Mapping and Resource Information Authority (2015)



Welcome to DENR Data Portal!

DENR Data Portal is an analysis and visualization tool that will include knowledge-based decision support system

Distribution of Forest Cover of the Philippines by Type of Forest, 2010

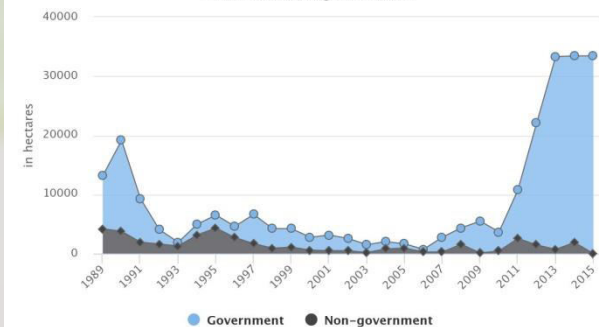


Source: Forest Management Bureau

Highcharts.com

Area Reforested by Sector 1989-2015 (in hectares)

Source: Forest Management Bureau



Highcharts.com

Status of Philippine Biodiversity

Total Number of Threatened Species


43

Mammals


126

Birds


29

Reptiles


14

Amphibians


409

Angiosperms


11

Gymnosperms


104

Pteridophytes


2

Bryophytes



Enhanced National Greening Program



By virtue of Executive Order No. 26 issued on February 24, 2011, the National Greening Program (NGP) is established. It is a massive forest rehabilitation program which seeks to grow 1.5 billion trees in 1.5 million hectares of land within a period of 6 years, from 2011 to 2016. This project is also seen as a way to mitigate the effects of climate change and provide alternative livelihood activities.

According to the Global Forest Resources Assessment for 2015, the Food and Agriculture Organization ranked the Philippines as 5th worldwide in terms of forest area gained from 2010 to 2015. This prompt the former President Benigno Aquino III to sign the Expanded National Greening Program on November 12, 2015 extending the scope and coverage of the program from the original 2011 to 2016 into 2016 to 2028. This program will now cover all the remaining unproductive, denuded and degraded forestlands.

2011

110% of Target Area Planted/Reforested

2016

Target of NGP

2016

8.05% Accomplished as of May 19, 2017

2022

2016

4.02% Accomplished as of May 19, 2017

2028

Target of E-NGP



Goal

Restoration of Forest and Protected Areas

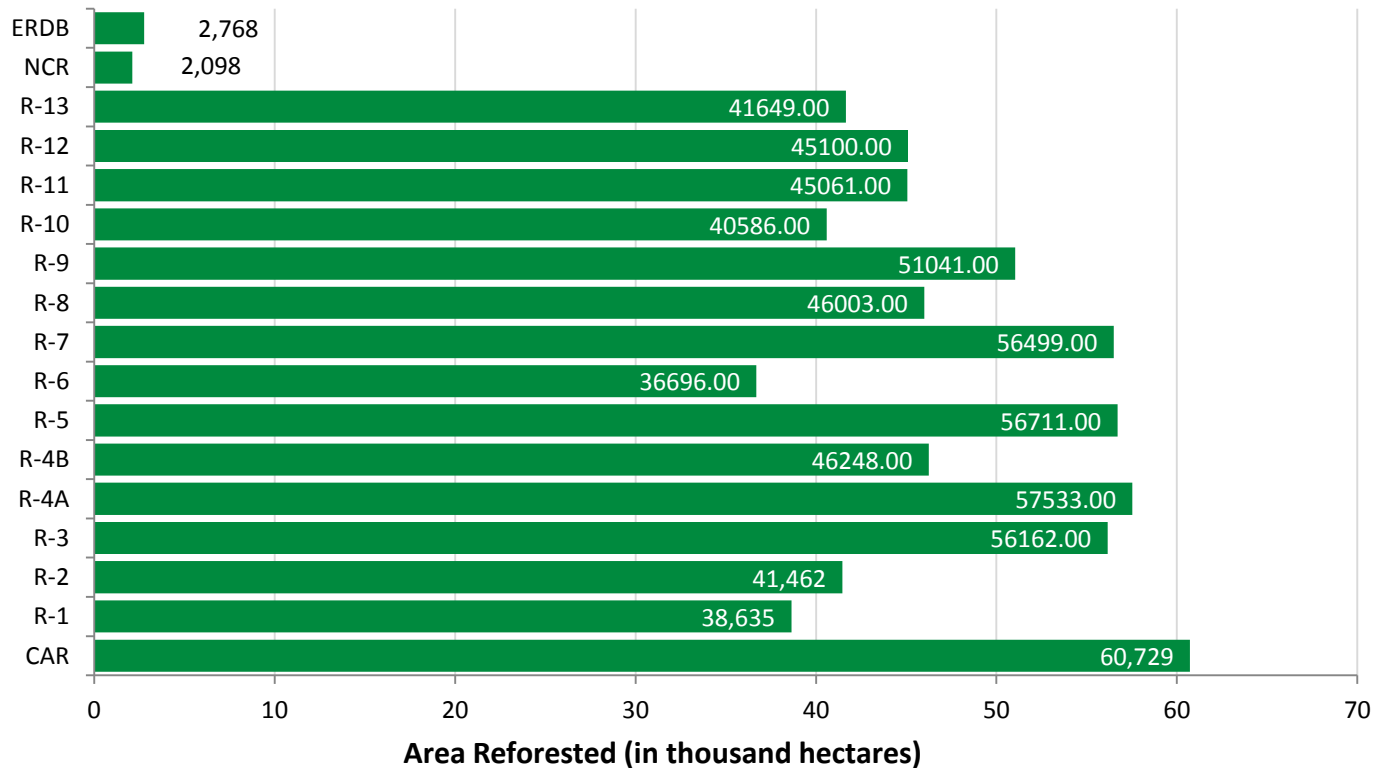
Enhanced National Greening Program

2016

8.05% Accomplished as of May 19, 2017

2022

Area Reforested



Data Explorer





Forest



NGP Sites



National Greening Project Sites

- 2011
- 2012
- 2013
- 2014
- 2015
- 2016

Save



Forest



NGP Sites



National Greening Project Sites

- 2011
- 2012
- 2013
- 2014
- 2015
- 2016



Forest



NGP Sites



National Greening Project Sites

- 2011
- 2012
- 2013
- 2014
- 2015
- 2016



Air



Goal

Good and Effective Governance in Environmental Protection

Real Time Air Quality Monitoring

Ambient Air Quality Indicators

Particulate Matter (PM10) Emissions in the National Capital Region

Particulate Matter (PM2.5) Emissions in Major Cities and Urban Centers

Roadside Total Suspended Particulates (TSP) Level in the National Capital Region

Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers

Monitoring Stations



**Makati
Station**



**Marikina
Station**



**Las Piñas
Station**



**Muntinlupa
Station**



**North
Caloocan
Station**



**Taguig
Station**



**Pasig
Station**



**Pateros
Station**



**Mandaluyong
Station**



**Malabon
Station**



**Navotas
Station**



**San Juan
Station**

Air



Goal

Good and Effective Governance in Environmental Protection

Real Time Air Quality Monitoring

Ambient Air Quality Indicators

Particulate Matter (PM10) Emissions in the National Capital Region

Particulate Matter (PM2.5) Emissions in Major Cities and Urban Centers

Roadside Total Suspended Particulates (TSP) Level in the National Capital Region

Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers

Filter by

- Monitoring stations
- Time

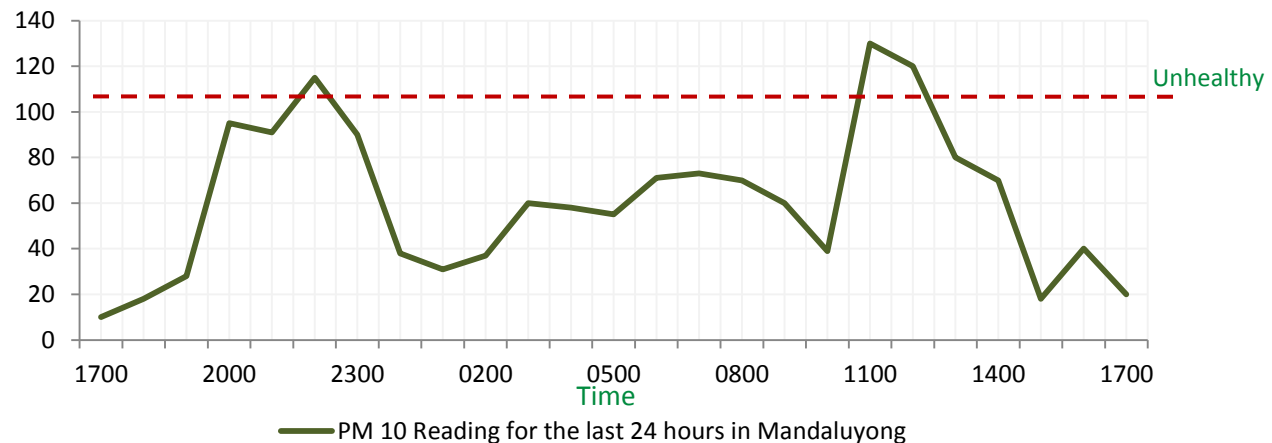


Mandaluyong Station



Location: Plaza Hardin, Martinez Highway, Addition Hill, Mandaluyong City

Date: June 07, 2017



Air



Goal

Good and Effective Governance in Environmental Protection

Real Time Air Quality Monitoring

Ambient Air Quality Indicators

Particulate Matter (PM10) Emissions in the National Capital Region

Particulate Matter (PM2.5) Emissions in Major Cities and Urban Centers

Roadside Total Suspended Particulates (TSP) Level in the National Capital Region

Roadside Total Suspended Particulates (TSP) Levels in Major Cities and Urban Centers

Filter by

● Monitoring stations

- ☐ Mandaluyong
- ☐ Las Piñas
- ☐ Marikina
- ☐ Muntinlupa
- ☐ Navotas
- ☐ Pasig

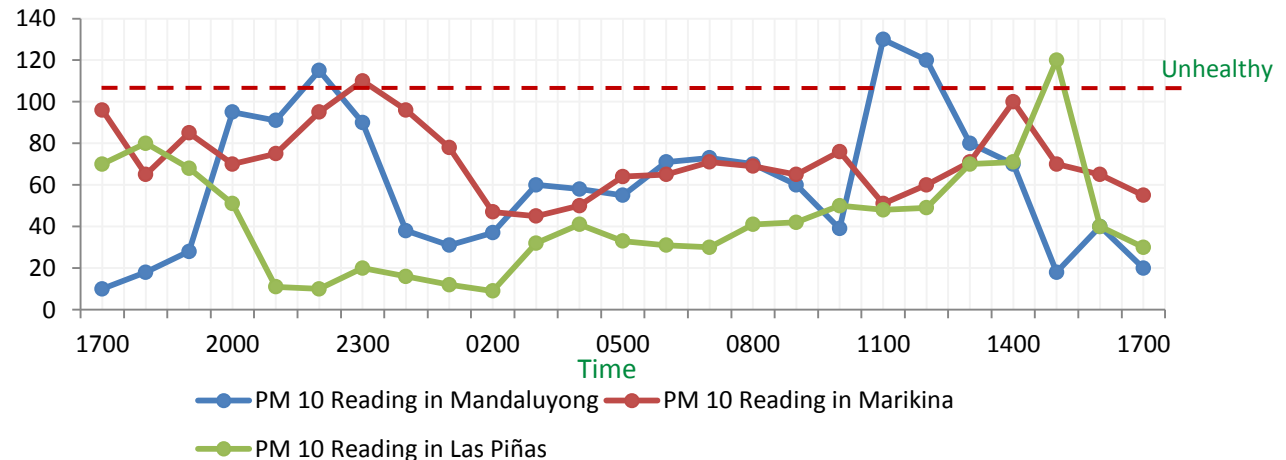


Mandaluyong Station



Location: Plaza Hardin, Martinez Highway, Addition Hill, Mandaluyong City

Date: June 07, 2017



Biodiversity



Dataset

Area of Proclaimed Protected Areas

Initial components of National Integrated Protected Areas System (NIPAS)

Proclaimed Protected Areas with PAMB

Proclaimed Protected Areas under NIPAS

Protected Areas Community-Based Resource Management Agreement Issued

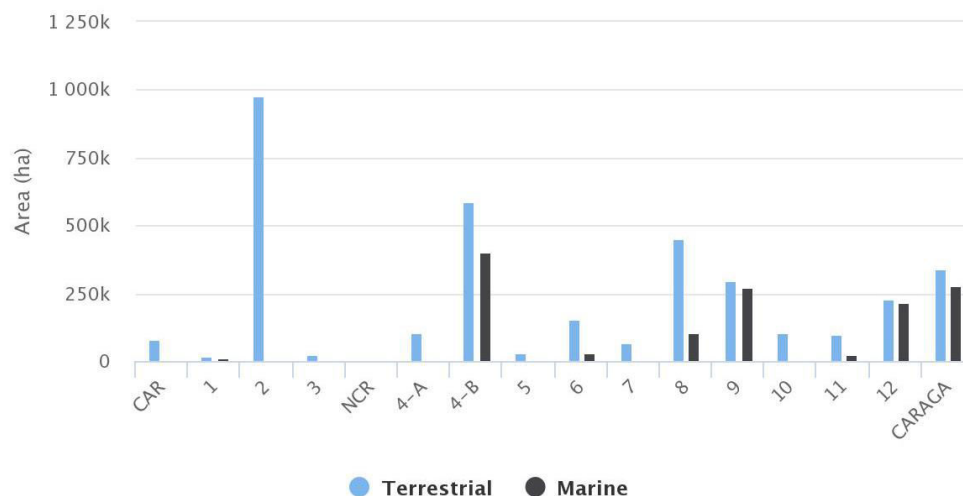
Filter by

● Ecosystem Type

- ☒ Terrestrial
- ☐ Marine

Proclaimed Protected Areas per Ecosystem Type As of December 2015

Source: Biodiversity Management Bureau



Highcharts.com

Data Explorer



[Biodiversity](#)[Protected Areas](#)

National Integrated Protected Area System

Initial Component

Legislated

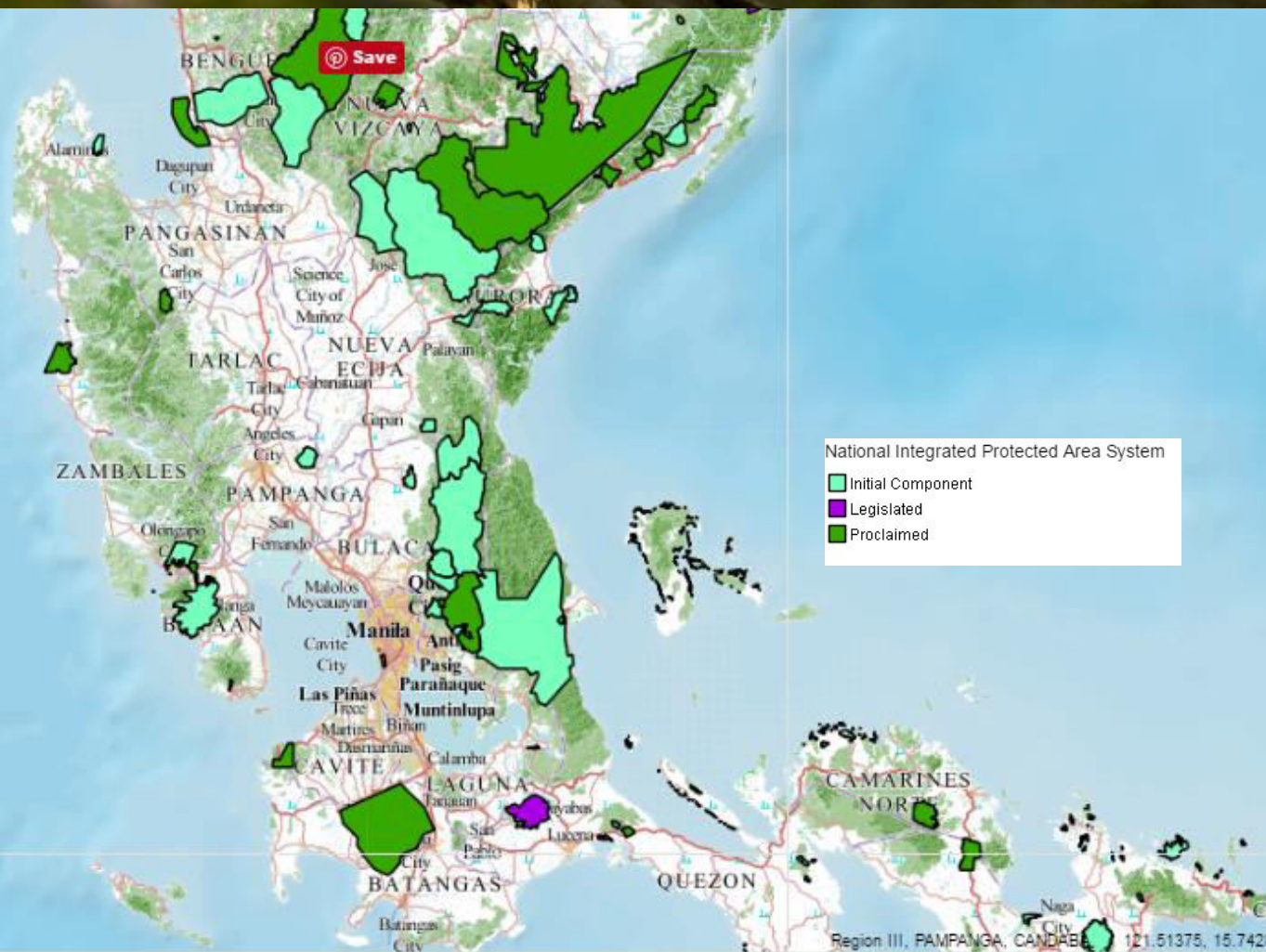
Proclaimed



Biodiversity



Protected Areas



National Integrated Protected Area System

- Initial Component
- Legislated
- Proclaimed




Biodiversity

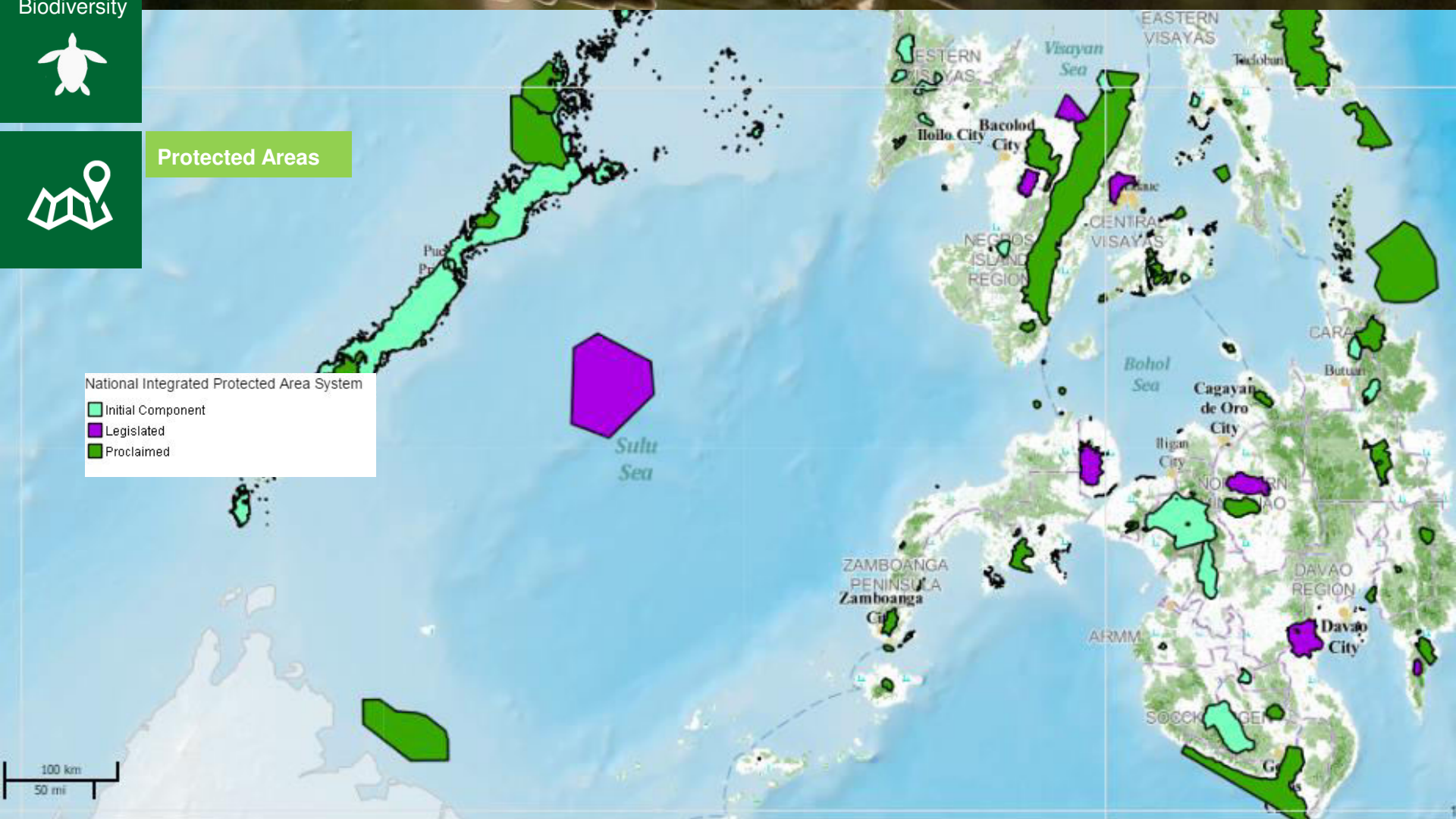


Protected Areas



National Integrated Protected Area System

-  Initial Component
-  Legislated
-  Proclaimed



Water

Goal

Good and Effective Governance in Environmental Protection



Dataset

Adjudication and Orders Issued

Annual Average Biochemical Oxygen Demand (BOD) Concentration of Selected Waterbodies

Annual Average Dissolved Oxygen(DO) Concentration of Selected Waterbodies

Environmental User Fee

Lake Water Levels of Laguna de Bay

Lake Water Volume of Laguna de Bay

Number of Classified Waterbodies

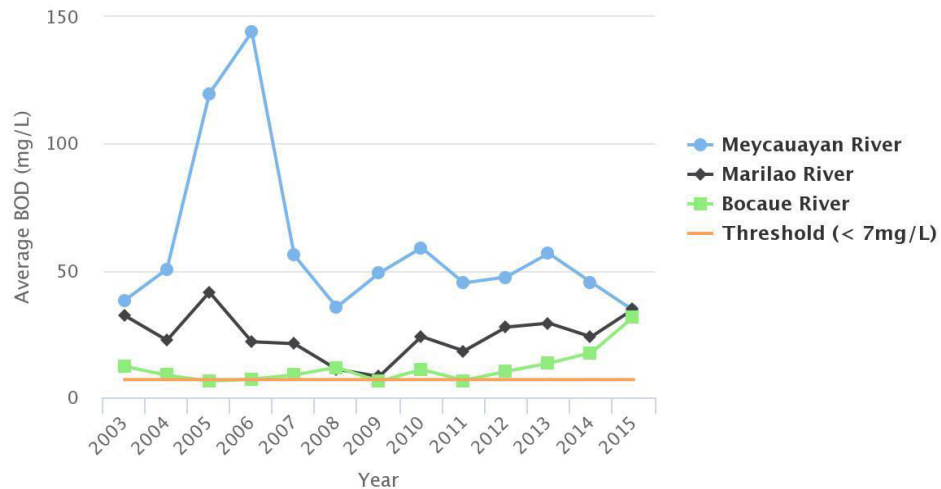
Number of Water Permits Issued and Volume of Water Allocated

Permits & Licenses Issued

Priority Watersheds in the Philippines Assessed for their Vulnerability

Annual Average Biochemical Oxygen Demand Concentrations of Waterbodies

Source: Environmental Management Bureau



Data Explorer



REGION 3

Highcharts.com



Dataset

Adjudication and Orders Issued

Annual Average Biochemical Oxygen Demand (BOD) Concentration of Selected Waterbodies

Annual Average Dissolved Oxygen(DO) Concentration of Selected Waterbodies

Environmental User Fee

Lake Water Levels of Laguna de Bay

Lake Water Volume of Laguna de Bay

Number of Classified Waterbodies

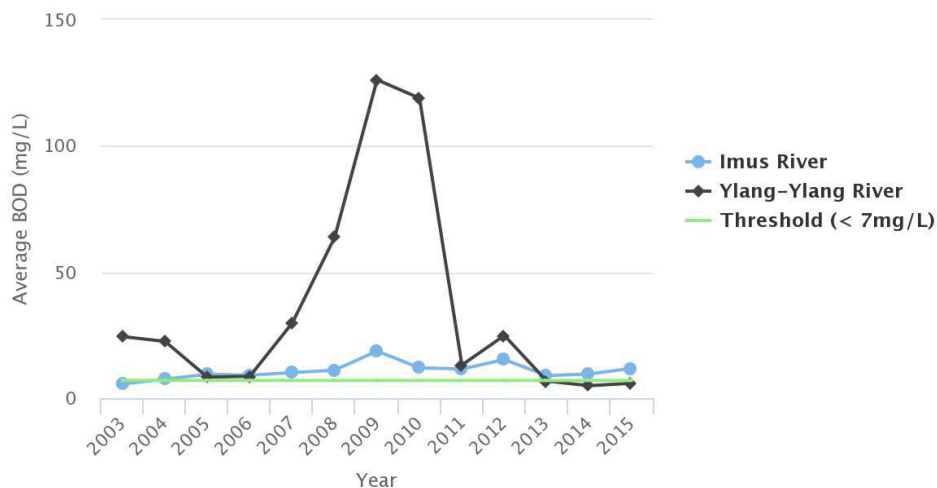
Number of Water Permits Issued and Volume of Water Allocated

Permits & Licenses Issued

Priority Watersheds in the Philippines Assessed for their Vulnerability

Annual Average Biochemical Oxygen Demand Concentrations of Waterbodies

Source: Environmental Management Bureau



Data Explorer



REGION 4A



Dataset

Adjudication and Orders Issued

Annual Average Biochemical Oxygen Demand (BOD) Concentration of Selected Waterbodies

Annual Average Dissolved Oxygen(DO) Concentration of Selected Waterbodies

Environmental User Fee

Lake Water Levels of Laguna de Bay

Lake Water Volume of Laguna de Bay

Number of Classified Waterbodies

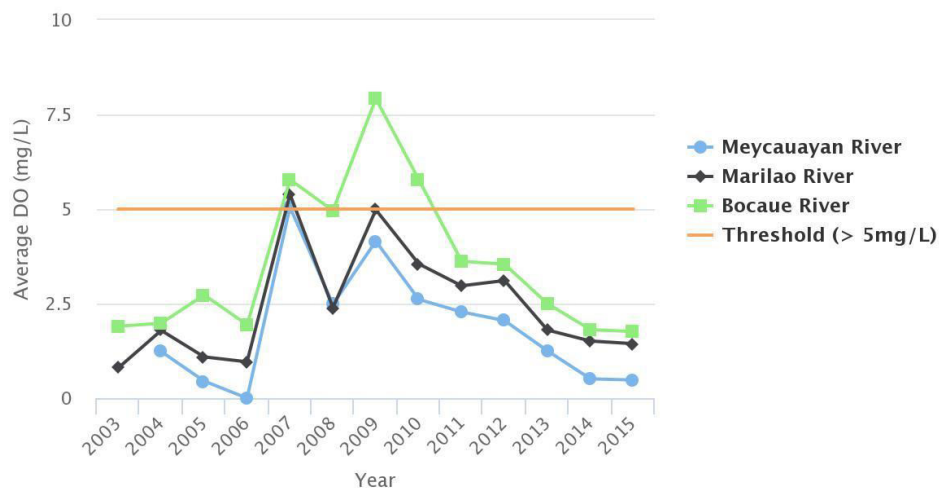
Number of Water Permits Issued and Volume of Water Allocated

Permits & Licenses Issued

Priority Watersheds in the Philippines Assessed for their Vulnerability

Annual Average Dissolved Oxygen Concentrations of Waterbodies

Source: Environmental Management Bureau



Highcharts.com

Data Explorer



REGION 3



Dataset

Adjudication and Orders Issued

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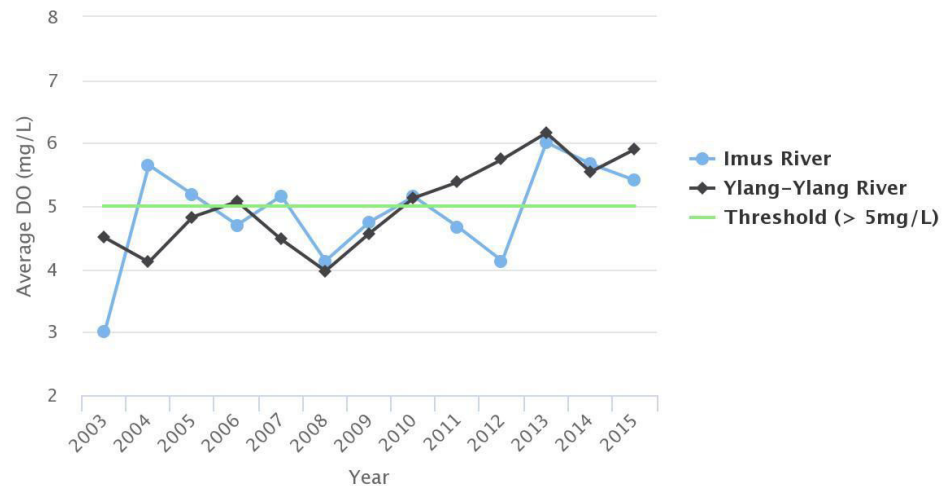
Number of Water Permits Issued and Volume of Water Allocated

Permits & Licenses Issued

Priority Watersheds in the Philippines Assessed for their Vulnerability

Annual Average Dissolved Oxygen Concentrations of Waterbodies

Source: Environmental Management Bureau



Highcharts.com

Data Explorer



REGION 4A

Water



Goal

Good and Effective Governance in Environmental Protection

Water Quality Monitoring Stations



Water quality monitoring station



Viewing Access

Office	Viewing Capability
CENRO	Data/accomplishments of other CENROs under the same PENRO, Regional Summary and National Summary
PENRO	Data/accomplishments of CENROs under within PENRO, PENROs under the same Regional Office, Regional Office (RO) Summary (RO where PENRO is under) and National Summary
Regional Office	Data/accomplishments of CENROs and PENROs under the RO, Regional Offices (ROs) Summary, National Summary
Bureau	Data/accomplishments of all offices involved in the program headed by/ supervised by the bureau, National Summary
Central	Data/accomplishments of all offices (CENROs, PENROs, Regional Offices and Bureaus), National Summary

Initial Elements

- Programs and Projects
- Accomplishment reports from PAPIIS
- Data from existing Information Systems

Way Forward

Activity

Focal

Timeline

- | | | |
|--|--------------------------|--------------------|
| • Development of the system | DENR Team of Programmers | December 2017 |
| • Identification of initial elements (from existing Information Systems) | DENR Team of Programmers | July – August 2017 |
| • Proposed guidelines and standards | SDRMD | November 2017 |
| • Procedural Manual | KISS | November 2017 |
| • Adoption/Launching | KISS | December 2017 |

A stylized tree logo with a vertical trunk and horizontal branches, set against a background of horizontal wavy lines. The logo is enclosed within a circular frame with a dashed border.

Thank You!