

State of the Philippine ENVIRONMENT



First Philippine Environment Summit
February 9-11, 2016
SMX Convention Center
Mall of Asia, Pasay City

MANDATE

Protecting/Conserving our
Natural Resources

Improving the Quality of the
Environment

Enhancing the Resiliency
of Communities



PROGRAMS

- Forest Protection / Total Logging Ban
- National Greening Program
- Protected Areas and Biodiversity Management
- Clean Air, Clean Water and Solid Waste Management
- Cadastral Survey and Land Management
- Mining Regulation
- Geo-hazard Assessment and Mapping
- Ecosystems Research
- Good Governance

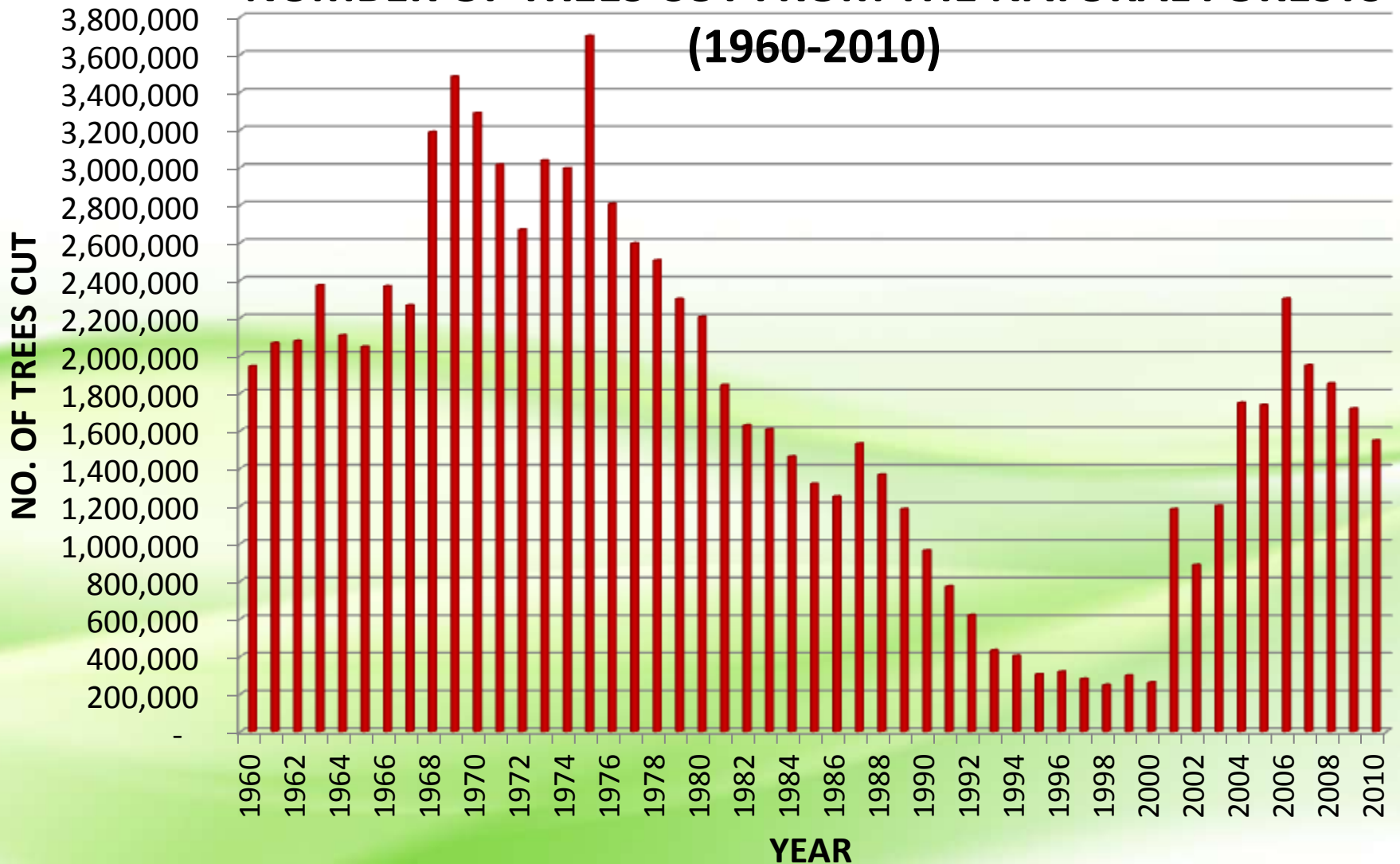


Where were we (2010) ?

Where are we now (2015) ?

Forest Protection and Anti-Illegal Logging

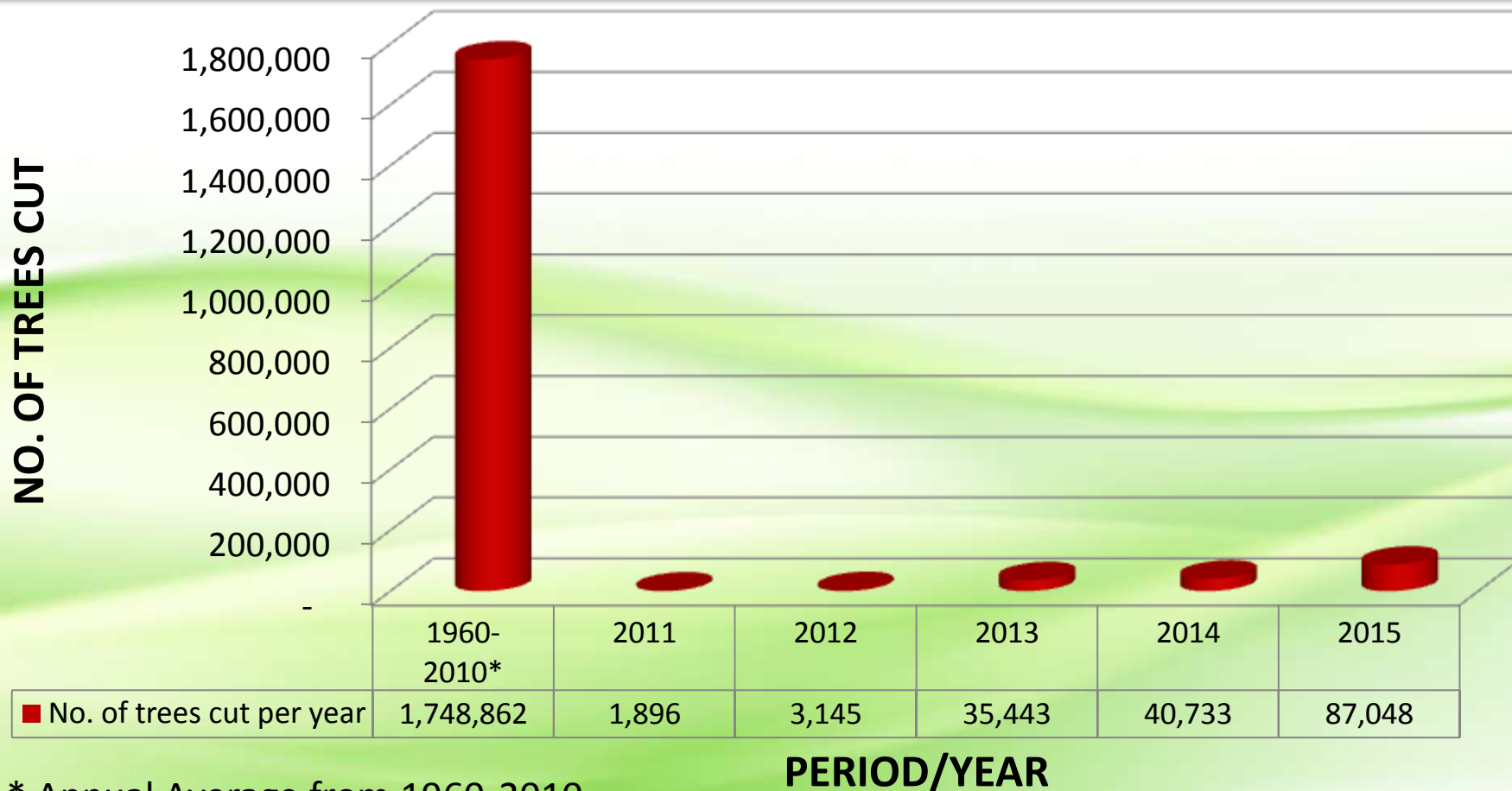
NUMBER OF TREES CUT FROM THE NATURAL FORESTS (1960-2010)



Total number of trees cut from natural forests (1960-2010) – 89,191,971 trees

Average number of trees harvested from natural forests per year (1960-2010) = 1,748,682 trees

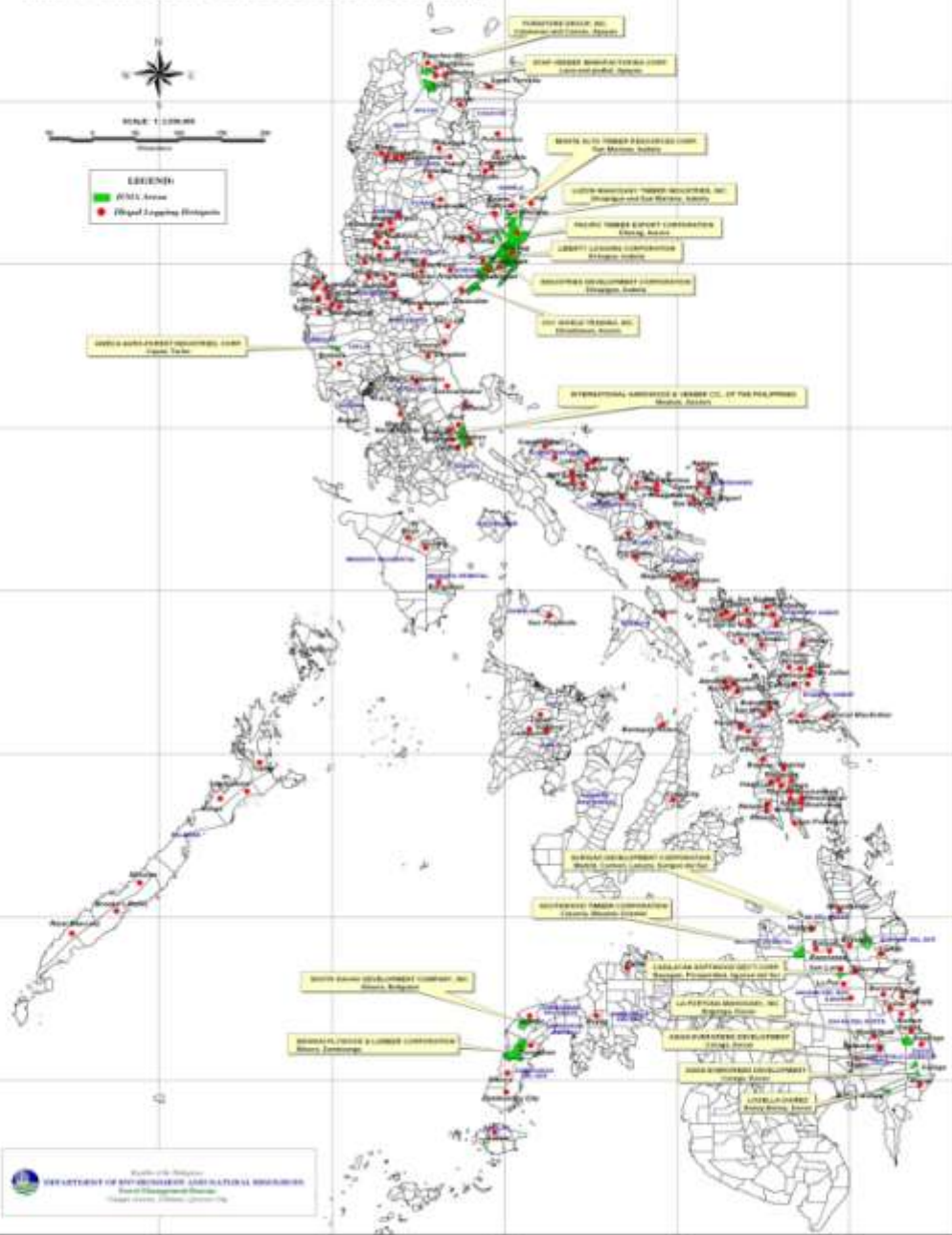
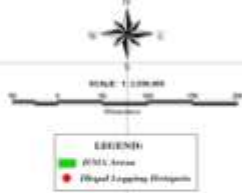
AVERAGE NUMBER OF TREES CUT FROM THE NATURAL FORESTS (1960-2015)



* Annual Average from 1960-2010

Total number of trees cut from natural forests (1960-2010) – 89,191,971 trees
 Average number of trees harvested from natural forests per year (1960-2010) = 1,748,682 trees

OPERATING INTEGRATED FOREST MANAGEMENT AGREEMENT (IFMA) IN THE NATURAL FORESTS AND ILLEGAL LOGGING HOTSPOTS PRIOR TO E.O. 23



About
1,595,826
naturally
growing trees
were saved
annually upon
closure of the
19 logging
concessions
nationwide in
2011.



ANTI-ILLEGAL LOGGING TASK FORCE

RESOLUTION No. 2011-001

- Consistent with the “moratorium on the cutting and harvesting of timber in the natural and residual forests of the entire country,” all logging equipment, including but not limited to chainsaws, bulldozers, tractors, graders, trucks and other logging tools/implement, are hereby prohibited inside natural and residual forests. All logging equipment found inside natural and residual forests, after the period earlier prescribed by the DENR, shall be seized/confiscated by the Anti-Illegal Logging Task Force;

Hon. JESSE M. ROBREDO
Secretary, DILG

Hon. VOLTAIRE T. GAZMIN
Secretary, DND

Atty. RAUL M. BACALZO, PhD
Chief, PNP

Gen. RICARDO A. DAVID, JR.
Chief of Staff, AFP

Hon. RAMON J. P. PAJE
Secretary, DENR
Chairman

Anti-Illegal Logging (E.O. 23)



2010

197

Illegal Logging
Hotspots

2015

23

Illegal Logging
Hotspots

Reduced **88%** Illegal
Logging Hotspots

Anti-Illegal Logging (E.O. 23)



Confiscated **33,406,439 bd.ft** of forest products



Intensified Bantay Gubat



Anti-Illegal Logging (E.O. 23)

Intensified Bantay Gubat



Northern Sierra Madre

Anti-Illegal Logging (E.O. 23)

Intensified Bantay Gubat



Northern Sierra Madre

Anti-Illegal Logging (E.O. 23)

Intensified Bantay Gubat



Montane forest Mantalingahan, Palawan

An aerial photograph of a vast, dense tropical forest covering a hillside. The trees are a rich, vibrant green, with some darker patches indicating shadows or different tree species. The forest extends to the top of the frame, creating a textured, undulating surface.

National Greening Program

The Philippines Verdant Land

National Greening Program

EXECUTIVE ORDER NO. 26

- Plant 1.5 billion seedlings in 1.5 million hectares of lands for a period of six years (2011 to 2016)

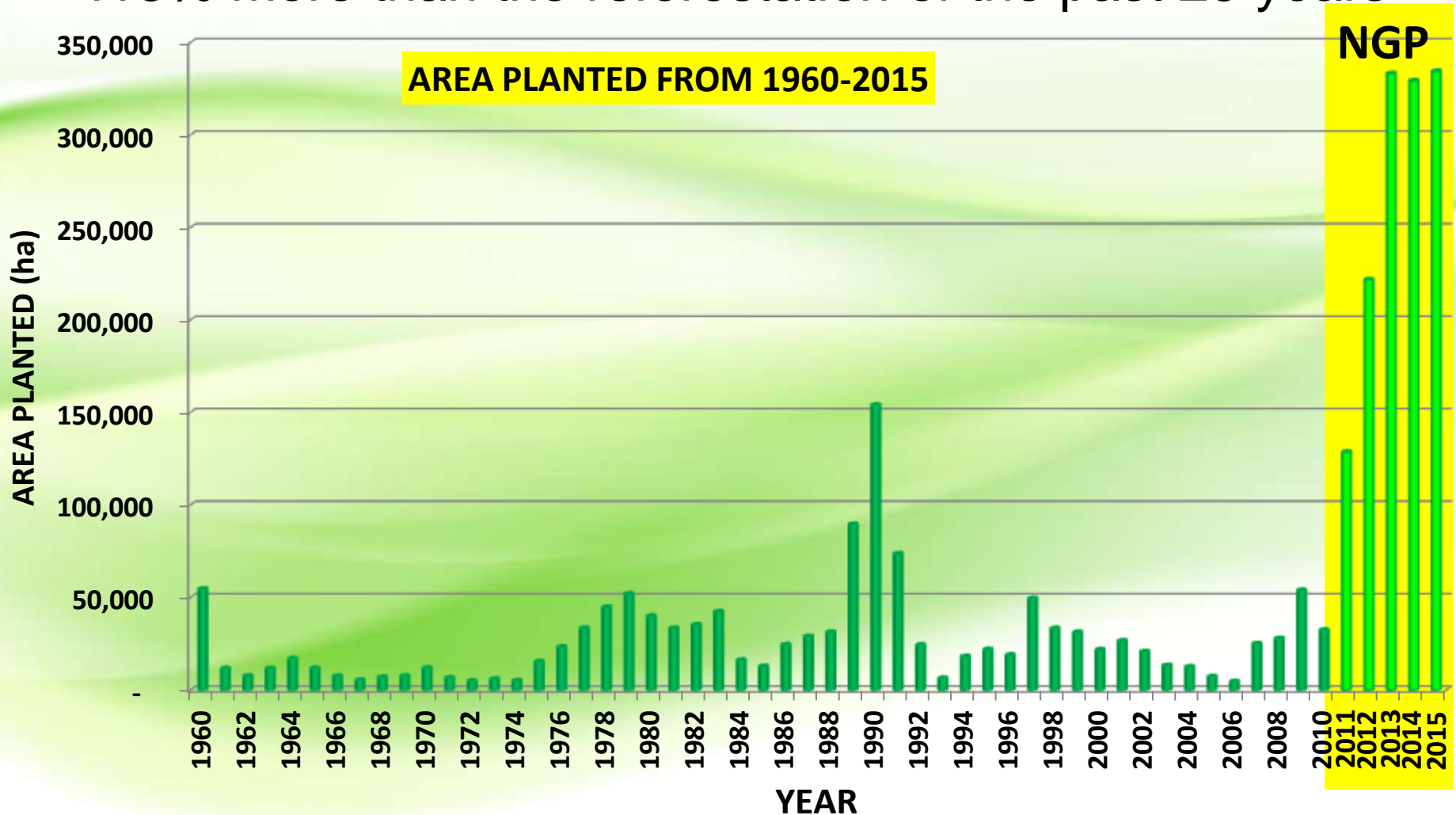


Brgy. Banban, Ayungon, Negros Oriental
(Mangium Plantation)

National Greening Program

ANNUAL REFORESTATION DATA (1960-2015)

- 113% more than the reforestation of the past 25 years

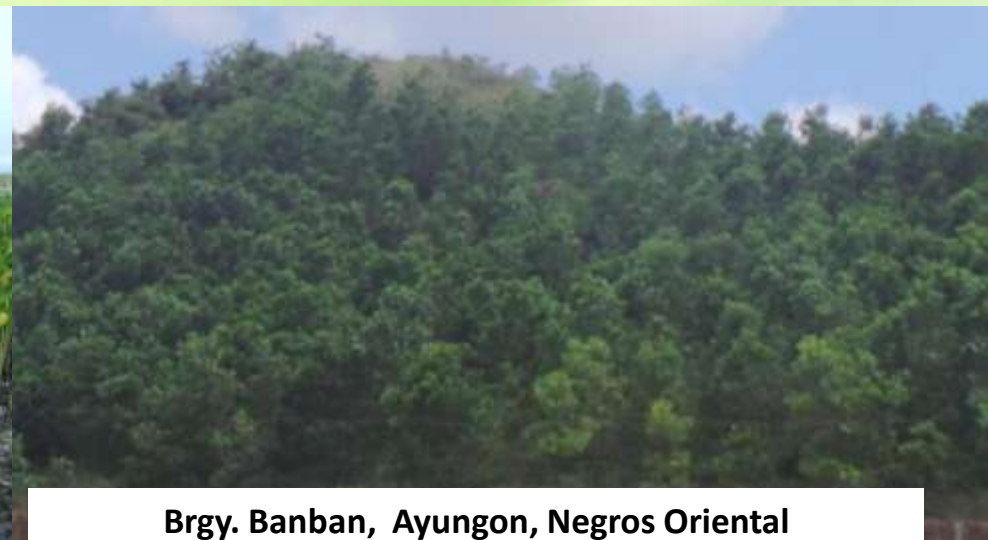


National Greening Program

Performance Indicator	2011		2012		2013		2014		2015		Total	
	Target	Accom	Target	Accom	Target	Accom	Target	Accom	Target	Accom	Target	Accom
area planted (ha)	100,000	128,558	200,000	221,763	300,000	333,160	300,000	321,532	300,000	334,020	1,200,0000	1,351,803



Brgy. Banacon, Getafe, Bohol
(Mangrove Plantation)



Brgy. Banban, Ayungon, Negros Oriental
(Mangium Plantation)

National Greening Program

Major Program/ Project	Performance Indicator	2011	2012	2013	2014	2015	Total
National Greening Program	Jobs generated (no.)	335,078	380,696	466,990	1,079,792	795,628	3,058,184
	Persons employed	47,868	55,146	65,198	152,008	112,288	432,508



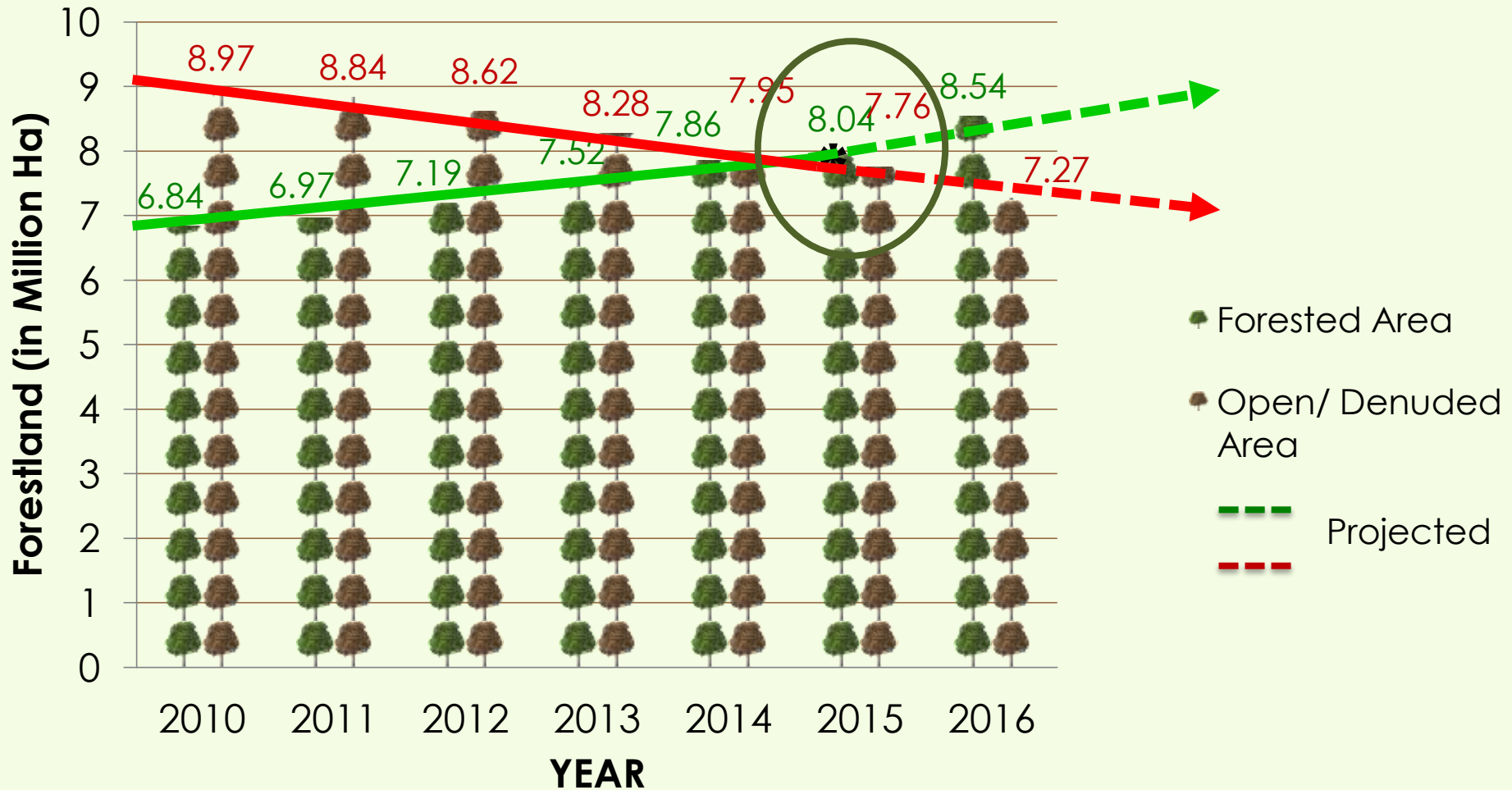
Bagging soil in Mt. Malindang, Misamis Occidental



Nursery operations in Banban Ayungon, Negros Oriental

National Greening Program

VEGETATED AREA VS DENUDED AREA



REVERSION OF FOREST COVER: MORE FORESTED AREAS THAN DENUDED FORESTLANDS

Forest Management



Global Forest Resources Assessment 2015

How are the world's forests changing?

Countries reporting the greatest annual forest area gain (2010-2015)

No.	COUNTRY	ANNUAL FOREST AREA GAIN	
		AREA ('000 has)	% of 2010 forest area
1	China	1,542	0.8
2	Australia	308	0.2
3	Chile	301	1.9
4	USA	275	0.1
5	Philippines	240	3.5
6	Gabon	200	0.9
7	Lao PDR	189	1.1
8	India	178	0.3
9	Viet Nam	129	0.9
10	France	113	0.7

8°2'17"N, 122°49'4"E
accuracy: 5m

2012 Rubber Plantation
Mauswagon, Godod, ZN

2/7/2015
10:37

52 P 186168 1016061
accuracy: 10m

2011 Timber Plantation
MWMPC, Mabahin, Cortes, SDS



12/10/2014
11:05 AM

51 N 818585 814113

accuracy: 8m

2011 Falcata Plantation
Brgy. Mapaang, Maco CY 2011

30

60

09/30/2014

9:56 AM

Cacao plantation



Cacao plantation





Cacao farming



Mangrove Plantation Sites



2012 Mangrove Plantation
Banacon, Getafe, Bohol, R7

51 P 569077 955431

accuracy: 6m



2012 Mangrove Plantation
Baliangao Protected Landscape & Seascape ,
Misamis Occidental



09/24/2014
10:57 AM

10°13'52"N, 124°13'20"E

accuracy: 48m



Altitude
67 m

04/08/2015

8:50 AM

2012 Mangrove Plantation
Banacon, Getafe, Bohol, R7

51 P 651051 1131027

accuracy: 16ft

2013 Mangrove Plantation
Cataban, Talibon, Bohol

02/25/2014

09:15



Protected Areas and Biodiversity



Photo by: For. KHCDimaranan

Protected Areas declared as ASEAN Heritage Park

To date, out of **8** declared ASEAN Heritage Parks in the country, 5 PAs were designated as AHP from 2010 - 2015

1984-2009

3

Mt. Apo
Mts. Iglit Baco National Park
Mt. Kitanglad Range Natural Park

2010-2015

5

Mt. Malindang Natural Park
Mt. Makiling Forest Reserve
Tubbataha Reefs Natural Park
Mt. Hamiguitan Range Natural Park
Mt. Timpong Hibok-Hibok



Caves Management Program



2001-2009

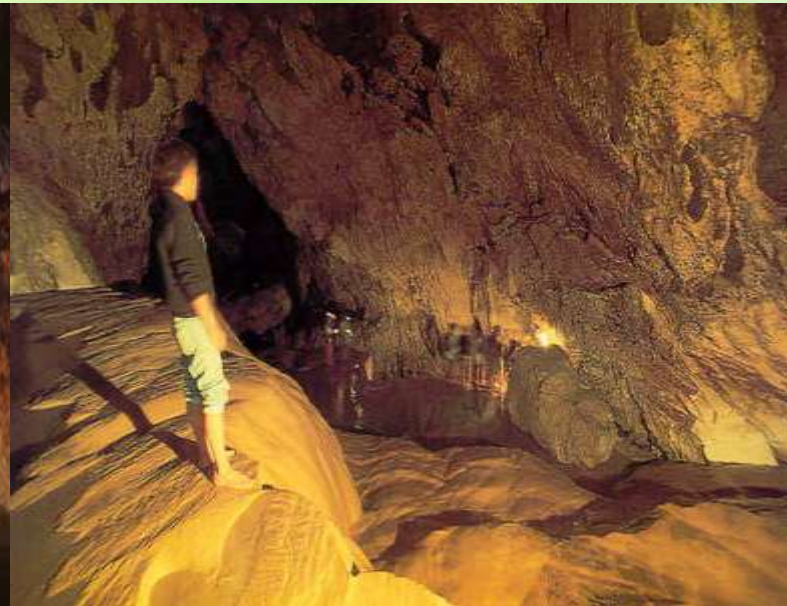
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caves classified

2010-2015

415

caves classified



Designation and Management of Critical Habitats

6 out of 7 Critical Habitats (CH) of threatened species were designated as CH from 2010-2015

2004-2009

1

LPPCHEA
(Ramsar Site)

2010-2015

6

Rafflesia Schadenbergiana
Cabusao Wetland CH
Malasi Tree Park and
Wildlife Sanctuary CH
Carmen Critical Habitat
Adams Wildlife Critical
Habitat
Magsaysay Critical Habitat



Wildlife Conservation Program

- Increase in Tamaraw count

2006-2009

1353

Tamaraw Sightings

2010-2015

1733

Tamaraw Sightings



Wildlife Conservation Program

- Increase in Philippine Eagle sightings

2005-2009

147

Phil. Eagle
sightings

2010-2015

162

Phil. Eagle
sightings



Wildlife Conservation Program

Wildlife Species Discoveries

Flora

2005-2009

5

Rafflesia Species

4

Nepenthes Species

2010-2015

14

Rafflesia Species

7

Nepenthes Species



Wildlife Conservation Program

Wildlife Species Discoveries

Fauna

2005-2009

7

Muridae (rodents)

1

Sincidae (reptiles)

2010-2015

11

Muridae (rodents)

14

Sincidae (reptiles)

Batomys uragon (Muridae)



Brachymeles kadwa
(Sincidae)

CLEAN AIR

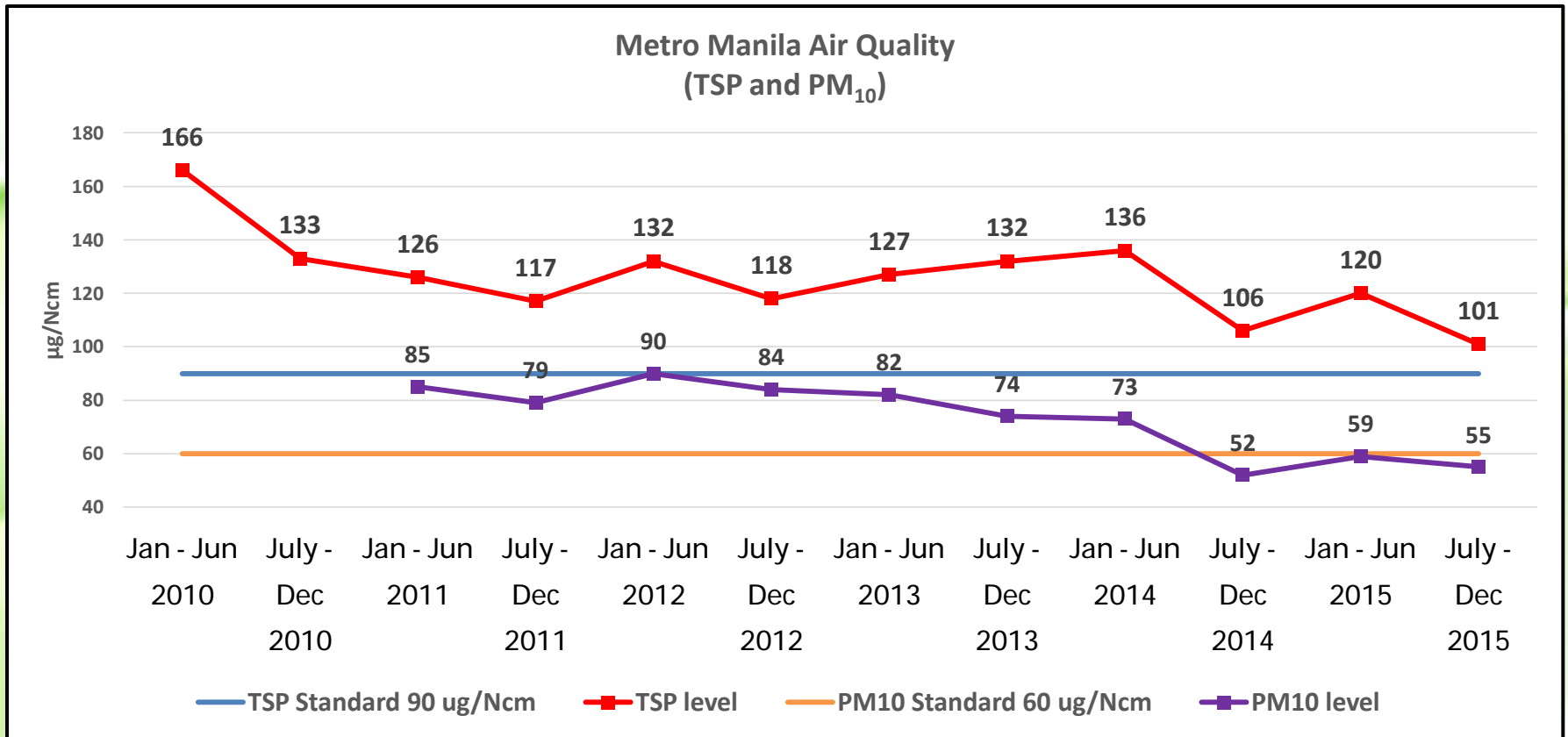
CLEAN WATER

AND

SOLID WASTE MANAGEMENT



Clean Air



Reduced **TSP** level by **39%** from 2010 level

Reduced **PM₁₀** level by **35%** from 2011 level

Clean Air

- Mandating, through DAO 2015-04, the shift from Euro 2 to Euro 4 emission and fuel standard (i.e., sulfur content of fuel reduced from 500 ppm to 50 ppm)



Republic of the Philippines
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Visayas Avenue, Diliman, Quezon City
Tels No. 929-6626 to 29; 929-6633 to 35
Website: <https://www.denr.gov.ph/> E-mail: web@denr.gov.ph

MAR 24 2015

DENR ADMINISTRATIVE ORDER

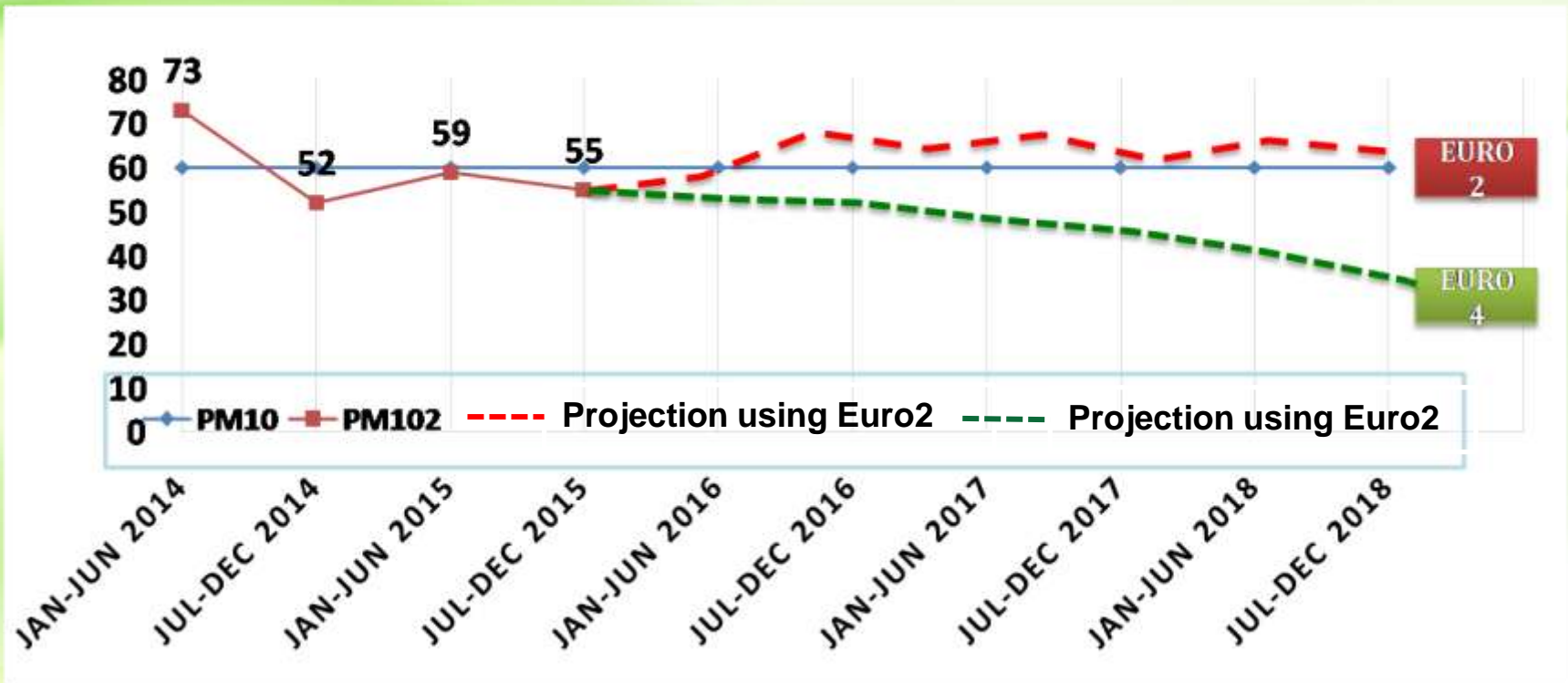
No. 2015- 04

Subject: **Implementation of Vehicle Emission Limits for Euro 4/IV, and In-Use Vehicle Emission Standards**

Fuel type	Euro IV fuel	Euro II fuel
1. Diesel - Sulfur	50 ppm	500 ppm
2. Gasoline -Sulfur - Benzene (% by volume, max.) - Aromatics (% by volume, max.)	50 ppm 1 35	500ppm 5 No limit

Clean Air

Metro Manila (PM₁₀)



Clean Water

Adopt-an-Estero/Waterbody Program



- **569** Memorandum of Agreements (MOAs) signed with donor-partners (LGU, Private Sector, Academe, etc.)
- **346** adopted esteros/waterbodies nationwide

Clean Water

Adopt-an-Estero/Waterbody Program



**TIPOLO CREEK (Cebu City)
Clean-up Activity (2015)**

Clean Water

Adopt-an-Estero/Waterbody Program



VIENTE REALES CREEK (Valenzuela City)
Clean-up Activity (2015)

Clean Water

Adopt-an-Estero/Waterbody Program



BUTUANON RIVER - MANDAUE CITY (2015)

Clean Water

Adopt-an-Estero/Waterbody Program



SAGOP CREEK, NAGA CITY (2015)

Clean Water

Adopt-an-Estero/Waterbody Program



Kauswagan, Cagayan de Oro City (2015)

Clean Water

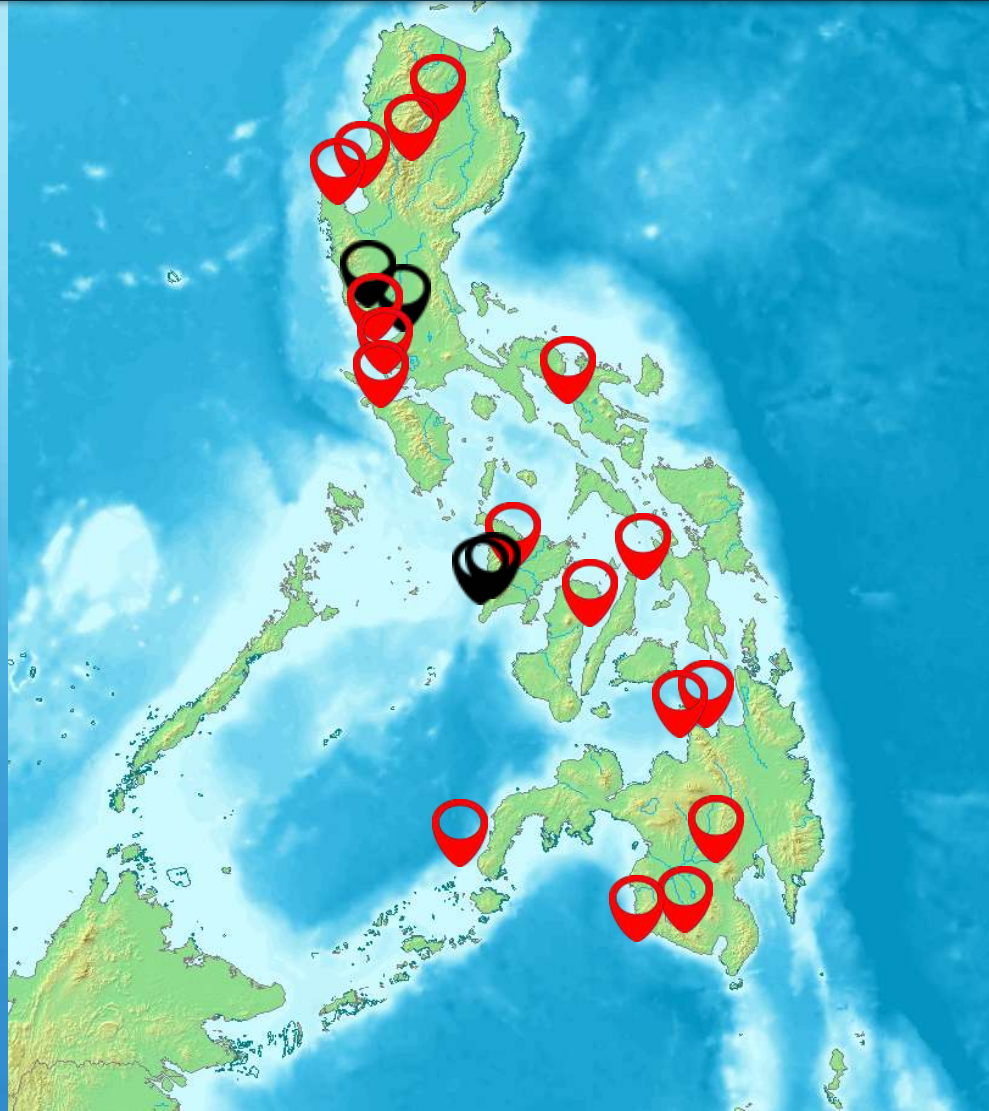
Adopt-an-Estero/Waterbody Program



**Hayanggabon River (Surigao Del Norte)
(2011-2013)**

Clean Water

Water Quality Management Areas (WQMAs)



2004-2010

4

WQMAs

2011-2015

17

WQMAs

Clean Water

Water Quality Management Areas (WQMAs)

Lake Buhi in Camarines Sur



Cagayan de Oro River Basin



Calao-Delinquente-Diadi River System, Isabela



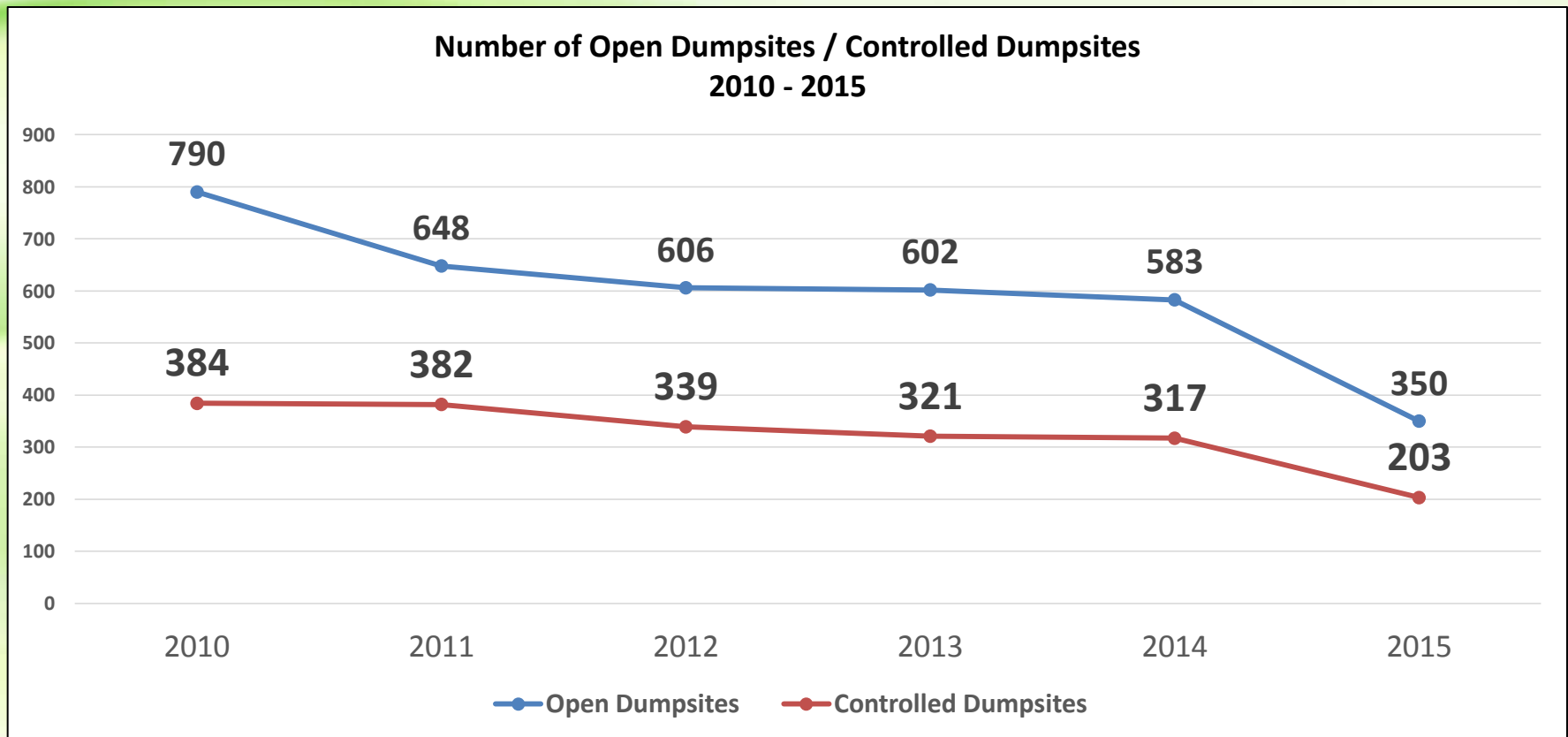
Butuanon River in Cebu



Solid Waste Management



Closure of **440 open** dumpsites and **181 controlled** dumpsites



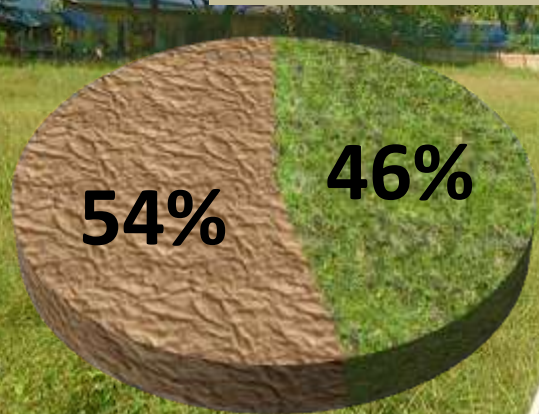
Cadastral Survey and Land Management



Cadastral Survey and Land Management

- Completed all **1,634 cities/municipalities** nationwide

1913-2009



■ COMPLETED- 753 mun./cities

■ REMAINING- 881 mun./cities

2010-2015



■ COMPLETED from year 1913 to June 2015 - 1,634 mun./cities

Computerization of Land and Survey Records

Prior to 2010

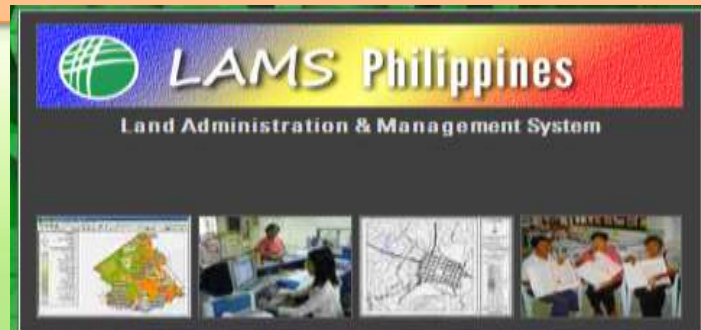
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NOT A PRIORITY

2010-June 2015

27.082 Million

Land and survey Records computerized
Representing **15.76%** of 171,801,000 records



State of Land Records in the Philippines

2010



2015



A topographic map of a region, likely in the Philippines, showing a network of rivers and roads. The map is color-coded to indicate elevation, with green representing lower elevations and red/orange representing higher elevations. Several areas are highlighted in red, indicating mining zones. The text 'Mining Regulations' is overlaid in large, bold, black letters across the center of the map. Three specific locations are labeled: BAO, IRIGA, and NABUA. Other smaller locations like Sagrada Familia, San Isidro, and San Francisco are also visible.

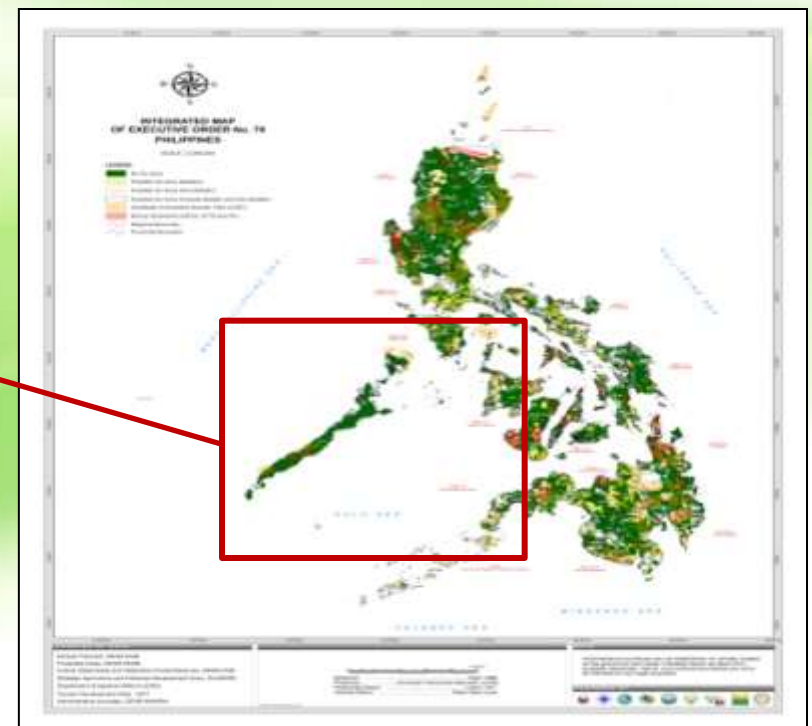
Mining Regulations

BEFORE

There are critical areas that are threatened by mining, such as the SAFDZs and TDAs.

AFTER

Establishment of “**No-Go**” Zones
➤ Placing 84% of the country’s land area closed to mining activities

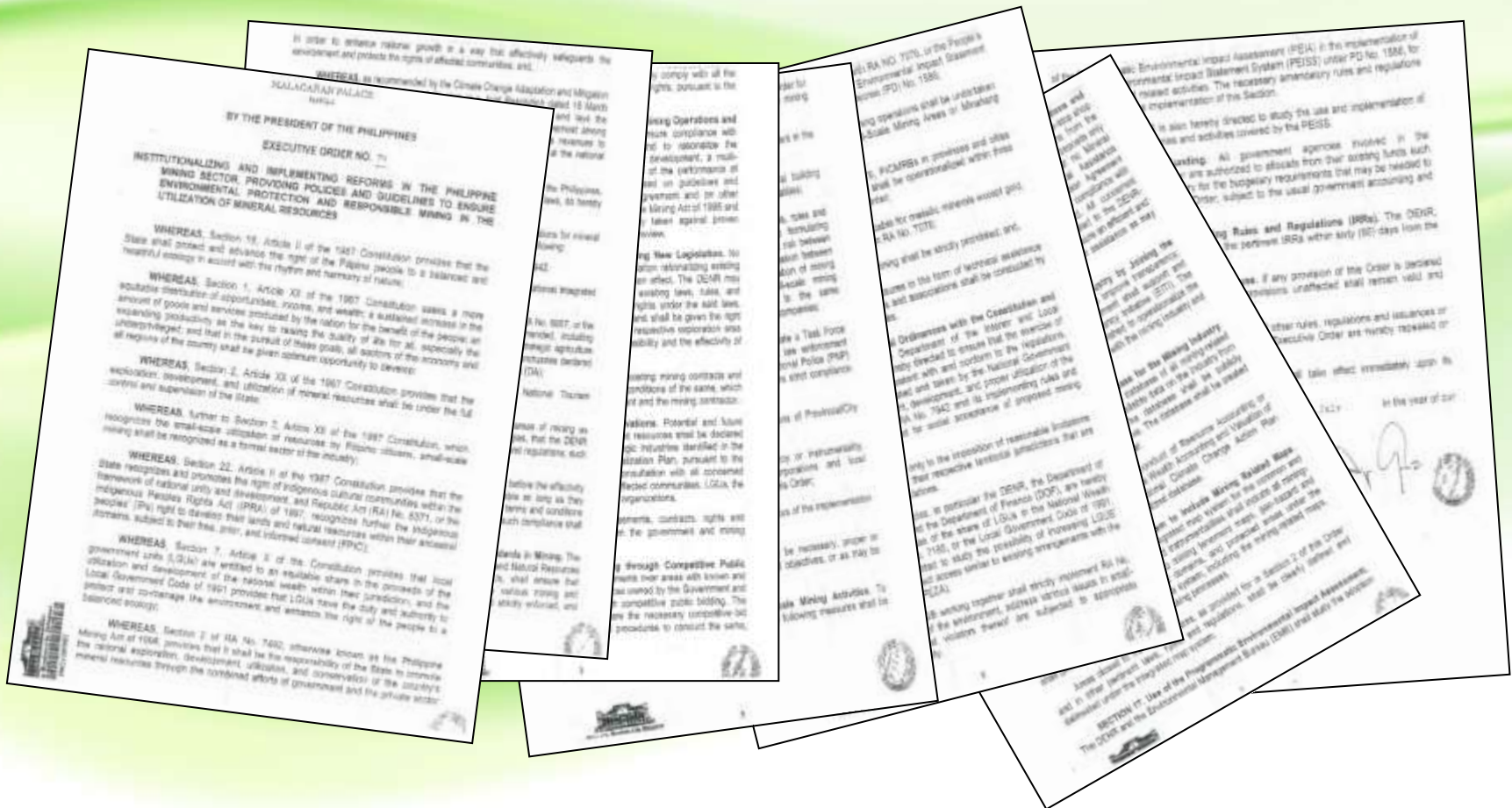


BEFORE

A total of 339 MPSAs have been Approved, with only 2% of gross sale as Government Share

AFTER

Maintained a moratorium since 2010 in the issuance of Mineral Agreement.



BEFORE

Small-scale mining operations are undertaken indiscriminately in various locations, increasing their footprints and environmental impacts.



Small-scale gold mining in Compostela Valley.

AFTER

Provided policy reforms in small-scale mining by confining operations in *Minahang Bayan*, banning the use of mercury and providing for a centralized processing system, among others.

BEFORE

Environmental protection measures are confined to the local regulatory regime.

AFTER

Required all operating metallic mines in 2015 to secure ISO Certification for Environmental Management System (ISO 14001) within a year.



Open pit rehabilitation

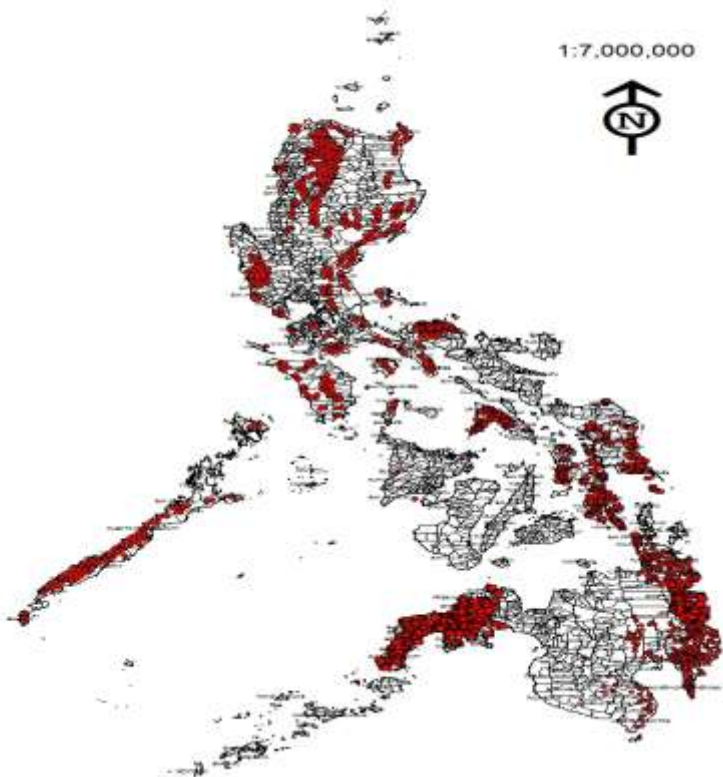


Mine monitoring



BEFORE

About **2,180** mining applications have covered the entire county, preventing other viable land uses in about 7 Million hectares of land.



AFTER

Implemented the cleansing of mining applications by maintaining the denial of 1,606 mining applications, and Reducing the total number of mining applications to 530 as of June 30, 2011 and maintaining the moratorium on these applications.

MAP SHOWING THE MAJOR CLUSTERS (in red dots) COVERED BY MINING APPLICATIONS (2010)

Geohazard Assessment and Mapping

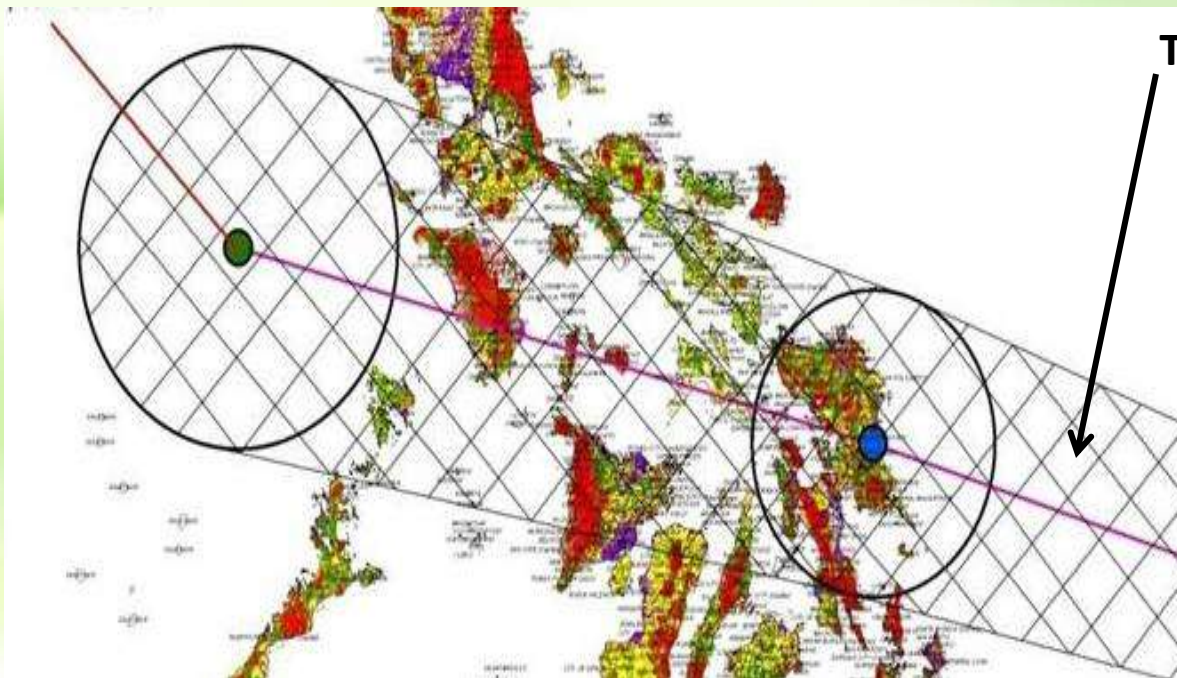
Completed in 2014 the 1:10K Geohazard Map

BEFORE

A 1:50K scale geohazard map was available but does not go down to the barangay level.

AFTER

The 1:10K geohazard map provides details of landslide and flood hazards down to the barangay level.



Typhoon Yolanda Track

LEGEND:

Flood Susceptibility Map

- High Susceptibility to Flooding
- Low to Moderate Susceptibility to Flooding

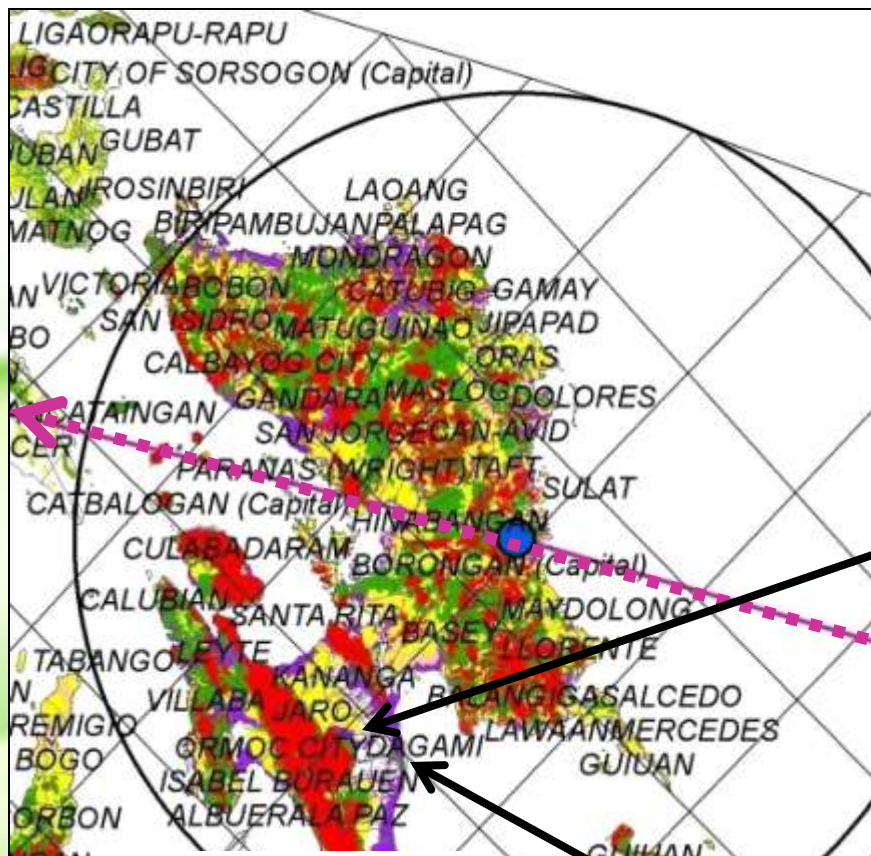
Landslide Susceptibility Map

- Possible Debris Accumulation Zone
- Low
- Moderate
- High
- None

Typhoon Track

- 72-Hour Position
- 48-Hour Position
- 24-Hour Position

Enhanced Community Preparedness- accurately mapping flood- and landslide-prone areas.



LEGEND:

Flood Susceptibility Map

- High Susceptibility to Flooding
- Low to Moderate Susceptibility to Flooding

Landslide Susceptibility Map

- Possible Debris Accumulation Zone
- Low
- Moderate
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- None

Typhoon Track

- 72-Hour Position
- 48-Hour Position
- 24-Hour Position



Tacloban City Flooded Area

Typhoon Yolanda Track



Dulag, Leyte Danger Zone

Sinkhole Assessment- Alerting communities to avoid possible areas of subsidence and collapse



SUBSIDENCE SUSCEPTIBILITY MAP OF BOHOL



INDEX MAP :



LEGEND :

- High Susceptibility to Land Subsidence**
Area with collapsed sinkholes, karst caverns, karst windows and subterranean rivers which are affected by 7.2 magnitude earthquakes. Subsidence is indicated by heaving and spalling of hillocks, rockfall / rockside, progressing tension cracks, drying - up of wells, water filled sinkhole and lowering water table. The subsidence may be very fast or slow but continuous.
- Main road**
- Secondary road**
- Tension cracks**
- Direction of Cave**
- Municipal boundary**
- Sinkhole**
- Identified sinkholes based on 1991 NAMRIA Topo Map**
- Caves**
- River**
- Active landslide**



SCALE 1:180,000

Screened Prepared Date: _____ Class 1980 Transverse Mercator Datum: _____

Extended Continental Shelf (ECS)

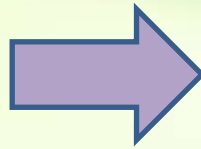


- On April 12, 2012, the UN officially approved on the Philippines' claim over **Benham Rise**, a 13-million hectare continental shelf (undersea landmass) east of Luzon.

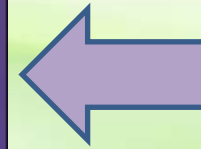
Use of Precise Mapping Technology



Coastline derived from IfSAR overlaid to Orthoimage



Coastline derived from IfSAR and Topographic maps overlaid to Orthoimage



Coastline derived from Topographic maps 1:50,000 scale overlaid to Orthoimage

Ecosystems Research and Development





BEFORE

Forest nurseries of all DENR Offices are dependent on commercial fertilizers to enhance growth of forest tree seedlings

AFTER

Development of a plant growth booster from Mycorrhiza called Hi Q-VAM, a kind of fungus associated with plant roots

- Hi Q-VAM increases the nutrient absorbing capacity and makes the plant resistant to stress, thereby increasing its survival capacity even when planted in mined-out and denuded areas.



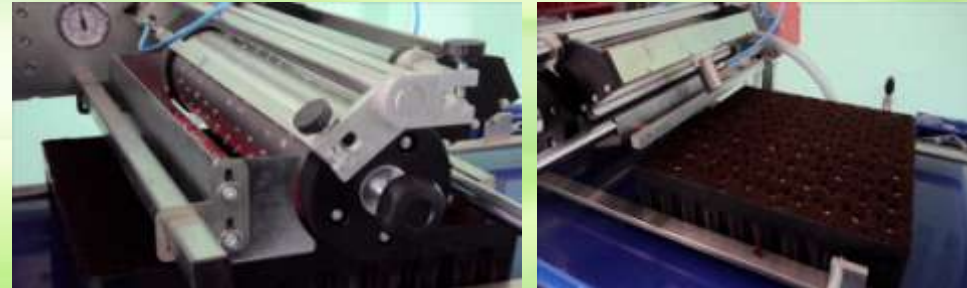
BEFORE

Traditional way of seedling production which takes time and increases the price of seedlings



AFTER

ERDB utilized **Mechanized and Modernized Forest Nurseries** to produce 1M seedlings per day and reduce its price from 12 to 5 pesos each



- Establishment and operationalization of 5 Mechanized Nurseries (NCR, R2, R5, R7 & R13)



Good Governance

Good Governance

Anti-Illegal Logging

Filed **1,638 cases**
Convicted **202 violators**

Disposition of Confiscated Forest Products to DepED

- **146, 471** School desks and furniture
- **389** Repaired school buildings



Good Governance

Anti-Illegal Mining Activities

Filed 78 cases (2011-2015)
Convicted 2 violators (2013)

In 2013, 2 chinese nationals were convicted for illegal mining activities in Region X.

Good Governance

- **E-filing and Monitoring System** for Illegal Logging and Wildlife Cases
- **1,322 CCTV** operationalized in DENR offices nationwide
- DENR **online permitting and monitoring** (e.g. ECC, CNC, COC PCL, etc.)



CCTV Screen shot

Good Governance

Anti-Corruption

Administrative Sanctions	Number of Personnel
Dismissed from Service	32
Suspended	58
Fined equivalent to 1-3 month/s salary	12
Under Fact Finding Investigation	418
No. of Personnel Formally Charged	55
No. of Personnel given Show Cause Order	598

Good Governance

SWS Survey on Satisfaction with the National Administration (On Specific issues, June 2014)

	Satisfied	Undecided	Dissatisfied	Net *	Net Sat Rating
Protecting the Environment	65	16	18	+46	Good
Resolving Maguindanao massacre case with justice	20	16	64	-44	
Protecting the Environment	65	16	18	+46	Good
Promoting welfare of overseas workers	63	16	21	+42	Moderate
Foreign relations	60	20	19	+41	
Helping the poor	64	9	26	+39	
Reconciliation with Muslim rebels	50	21	28	+22	
Fighting terrorism	50	19	30	+21	
Providing jobs	53	13	33	+20	
Reconciliation with Communist rebels	48	19	31	+17	
Fighting crimes	48	16	35	+13	
Tax collection	47	17	34	+13	
Eradicating graft and corruption	48	15	36	+12	
Ensuring that no family will be hungry	37	17	46	-9	Neutral
Fight inflation	34	13	52	-18	Poor
Ensuring oil firms don't take advantage of oil prices	30	20	49	-19	Bad
Resolving Maguindanao massacre case with justice	20	16	64	-44	

Source: SWS Second Quarter 2014 Social Weather Report

Good Governance

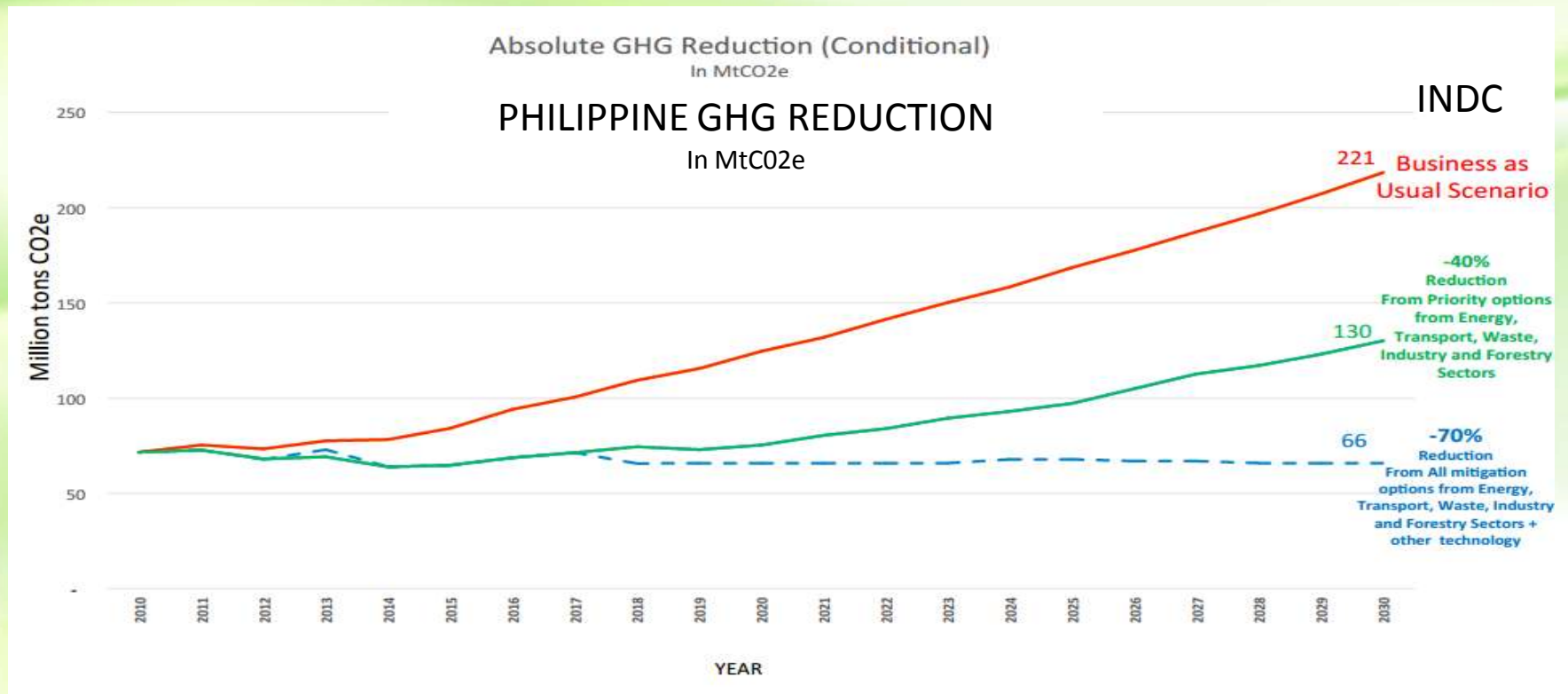
PULSE ASIA SURVEY

Selected National Issues and the National Administration's Performance Ratings (MARCH 2015)

National issues	% citing as One of Three Most Urgent Issues	Approve	Undecided	Disapprove	NAR*
Responding to the needs of those affected by calamities	—	49	33	18	+31
Stopping the destruction and abuse of our environment	13	48	29	22	+26
Defending the integrity of Philippine territory against foreigners	5	43	33	20	+20
Fighting criminality	22	45	30	25	+20
Enforcing the law on all, whether influential or ordinary people	19	41	30	29	+12
Increasing peace in the country	22	40	31	29	+11
Fighting graft and corruption in government	40	42	26	33	+ 9
Creating more jobs	34	37	33	30	+ 7
Controlling fast population growth	9	37	33	30	+ 7
Improving/increasing the pay of workers	44	33	35	33	0
Reducing the poverty of many Filipinos	37	28	32	40	-12
Controlling inflation	46	29	30	41	-12

Way Forward

- To help us define the Philippine Nationally Determined Contribution (NDC)



Way Forward

- To help us prevent backsliding
 - Heighten vigilance
 - Pursue legislation of important environmental policies (i.e. Total Logging Ban, “No-Go” zone, E.O. 79)



Thank You!

