



20

Ensuring  
Ecological  
Integrity, Clean  
and Healthy  
Environment



# Ensuring Ecological Integrity, Clean and Healthy Environment

The region strives to ensure that the environment and natural resources are preserved, conserved and rehabilitated. Programs were implemented to manage and protect the forestland and forest resources, protected area and wildlife, coastal and marine resources, wetlands, ecotourism sites, and air and water quality. Climate change mitigation and adaptation were also among the major concerns of the region.

The environment and natural resources (ENR) sector is crucial to regional development. It provides the following ecosystem services: (a) provisioning (e.g., food, raw materials, freshwater); (b) regulating (e.g., local climate and air quality, carbon sequestration and storage, erosion prevention); (c) supporting (e.g., habitats for species, maintenance of genetic diversity); and (d) cultural (e.g., recreation, tourism). These ecosystem services support the growth and performance of other sectors, including agriculture, fisheries, industry and services, and provide livelihood, especially to resource dependent communities.

Provision of these indispensable services, including the maintenance of a healthy and good quality environment, has been increasingly compromised due to mismanagement, misuse, and overexploitation of the country's ENR. It is critical that environmental health is improved and integrity ensured to support the accelerated economic growth that the administration aims to achieve, strengthen resilience against the impact of climate change (CC) and disasters (natural and human induced), and improve the welfare of the poor and marginalized members of society.

The Regional Development Plan (PDP) 2017-2022 shall pursue more aggressive strategies to rehabilitate and restore degraded natural resources, and protect the fragile ecosystems while improving the welfare of resource-dependent communities.

## Assessment

To support the conservation and rehabilitation of the region's natural resources, the following programs were implemented for the period 2011-2015: agro-forestry development, national greening program (NGP) or the upland development program, watershed management, ecotourism development, forest protection, management of protected areas and coastal management. Specifically, about 480 hectares agro-forestry farms were developed in 2012, 350 hectares in 2013, 250

hectares in 2014 and 350 hectares in 2015. The development of agroforestry farms was aimed at addressing food supply while supporting sustainable development. The NGP was able to reforest 5,333 hectares in 2011 after its launching and 11,637 hectares in 2012. In 2013, the NGP reforested 21,840 hectares, 15,934 hectares in 2014 and another 18,657 hectares reforested in 2015. Watershed areas and river banks were planted with trees for their rehabilitation.

About 3 ecotourism sites were developed by the end of 2015 while protection of natural resources remained enforced. The 30,547 hectares of untenured forestlands were steadily patrolled and maintained. The five identified protected areas of the region were managed by its corresponding Protected Area Management Board (PAMB). The protected areas are as follows: Allah Valley Protected Landscape, Mt. Matutum Protected Landscape, Sarangani Bay Protected Seascape, Mt. Apo Natural Park, and the Libungan-Alamada Natural Biotic Area. The 2,444 hectares untenured forestland along the coast are still protected and patrolled in coordination with the organized Municipal Coastal Law Enforcement Teams (MCLETs).

The region also implemented environmental laws relative to the preservation of the ecological integrity, such as the Environmental Education and Awareness Act of 2008 (RA 9512), Philippine Environmental Impact Statement System (PD 1586), Philippine Clean Air Act (RA 8749), Clean Water Act (RA 9275), Toxic Chemicals and Hazardous Waste and Nuclear Control Act (RA 6969), and the Ecological Solid Waste Management Act (RA 9003).

The region maintained three (3) sampling stations to monitor the air pollution status and identify critical areas needing appropriate preventive measure. The sampling stations are located in Koronadal City, Tupi in South Cotabato, and General Santos City. The 2014 ambient air concentration monitoring

in 3 stations resulted to “fair” condition for the particulate matter less than 10 microns in diameter (PM10), “good” condition for sulphur dioxide (SO<sub>2</sub>), and “good condition for the nitrogen oxide (NO<sub>2</sub>) based on the standards set by the DENR-National Ambient Air Quality Standards (NAAQS).

SOCCKSARGEN Region has 39 water bodies with 2 bays, 1 lake, 21 principal rivers, and 15 minor rivers that support the domestic and industrial water requirement in its service area. Monitoring results showed that these water bodies were able to maintain their status per their classification. Water quality monitoring was also conducted for the following parameters: hydrogen ion concentration (pH); dissolved oxygen (DO); biochemical oxygen demand (BOD); total suspended solids (TSS) and the total and faecal coliform. Generally, the region’s water quality is within the standard for the mentioned parameters, except for the TSS and BOD in some sampling points. The Taplan and Sefali Rivers in South Cotabato, recorded TSS levels higher than the standard of 95 mg/L for Class C category. Likewise, the Sarangani Bay was only 84 to 87 percent TSS compliant and Silway River exceeded the TSS standard particularly in the General Santos City area, which can be attributed to heavy siltation and solid waste accumulation. Silway River was only 87.5 percent BOD compliant as Class C water body. For other parameters (pH, DO, total and faecal coliform), Sarangani Bay and Silway River are 100 percent compliant for their given classifications.

## Challenges

While efforts on conservation of natural resources were applied in the past years, still the region is faced with the following challenges:

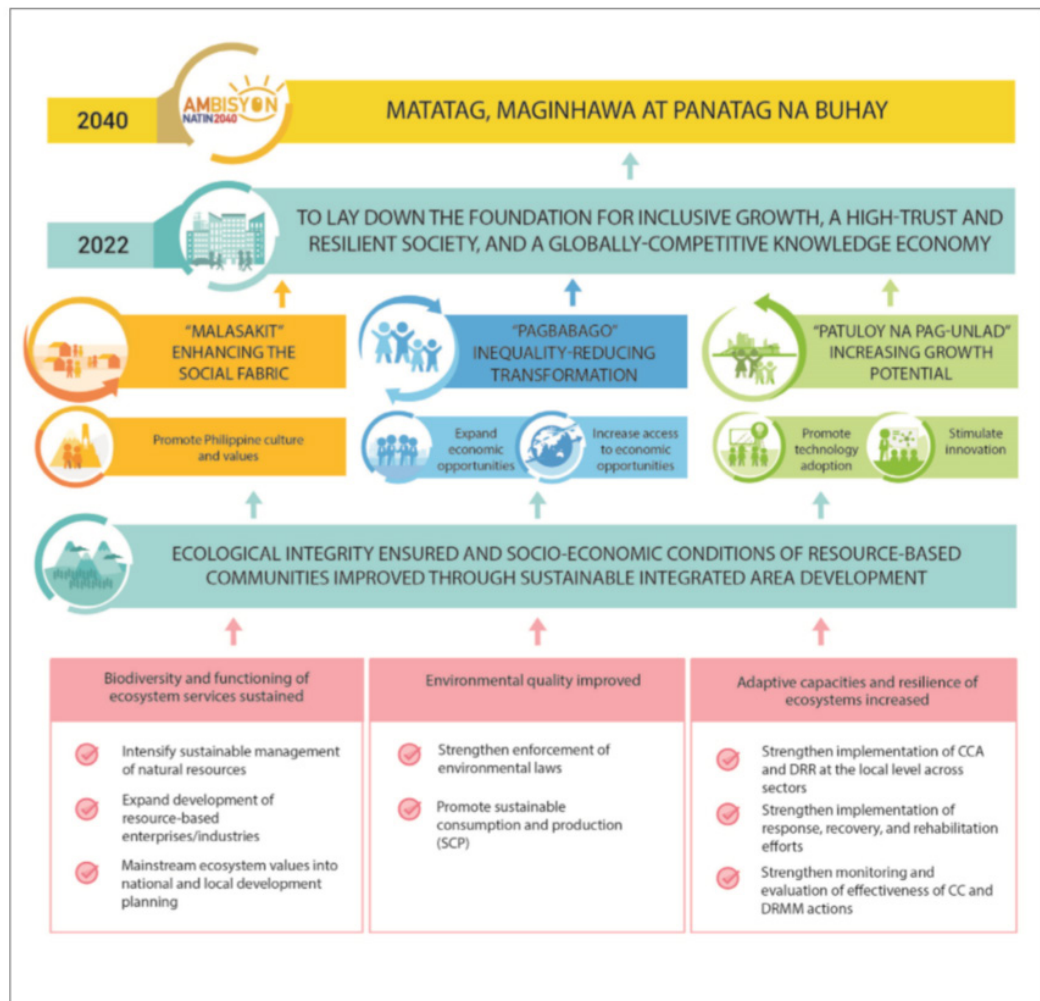
- Protection and rehabilitation of

watersheds to ensure adequate supply of water for irrigation, domestic use and power generation.

- Ensuring protection of existing forests including mangroves.

- Preventing conversion of forestlands to other unsustainable uses.
- Meeting the increasing demand for round wood and fuel wood.
- Reducing the impacts of climate change hazards (flooding, landslide, storm surge).
- Strengthening stakeholders' collaboration in the management of forest resources.
- Management and protection of shared resources, e. g., Mt Apo and Liguasan Marsh.
- Unsustainable small scale mining and mining in protected areas.
- Disposal of solid waste in water bodies.

**Figure 34: Strategic Framework to Ensure Ecological Integrity, Clean and Healthy Environment, 2017 – 2022**



## Priority Strategy

- Harmonize land uses from ridge to reef by integrating forest land use plans, watershed management plans, protected areas management plans, and other related forestry plans into the Comprehensive Land Use Plans (CLUPs) of the local government units.
- Intensify coastal management through the National Coastal Greenbelt Program or the establishment of mangroves and

beach forests to effectively mitigate the damaging impacts of waves and storm surges.

- Integrate soil and water conservation measures in upland farming systems.
- Identify areas vulnerable to climate change hazards and corresponding adaptation measures in collaboration with LGUs and other stakeholders.
- Diversify livelihood sources of upland farmers through multi-storey agroforestry and partnership with private investors and forest products processors.
- Coordinate with the neighboring region and LGUs for the protection of shared resources, e. g., Mt Apo and Liguasan

Marsh.

- Forge partnership between private investors and forest dependent communities in developing forest plantations.
- Intensity information campaign and education on climate change and its impacts on forest ecosystems and communities.
- Establish mining safeguards to prevent environmental hazard.
- Strengthen implementation of RA 9512 (Environmental Education and Awareness Act of 2008) and RA 9003 (Ecological Solid Waste Management Act).

## Legislative Agenda

- Resolution of land conflicts brought about by overlapping tenurial instruments issued by DENR, DAR and NCIP
- Implementation of the National Coastal Greenbelt Program

## Target

- Protect 492,852.75 hectares existing forests including mangroves
- Develop agroforestry (8,503 hectares of bamboo plantation)
- Formulate five (5) integrated watershed management plans
- Formulate Forest Land Use Plan for 19 local government units
- Establish 211,201 hectares as vegetative soil and water conservation measures
- Conduct of vulnerability assessment in priority watersheds and 7 protected areas
- Management of five (5) protected areas in the region

## Results Matrix

To sustain biodiversity and functioning of ecosystem services, the forest cover will be increased, forestland will be protected and the quality of coastal and marine habitats will be improved. Improved environmental quality will be assessed using quality standards for air, water and soil, among

others. For increased adaptive capacity and resilience of the ecosystem, vulnerability assessment of priority watersheds will be conducted. It is also expected that all local government units shall have their Comprehensive Land Use Plans (CLUPs) updated.

*Table 69: Results Matrix to Ensure Ecological Integrity, Clean and Healthy Environment, 2017-2022*

INDICATOR	BASELINE		END OF PLAN RESULT
	YEAR	VALUE	
<b>Societal Goal: To Lay Down the Foundation for Inclusive Growth, A High-Trust and Resilient Society, and a Globally-Competitive Knowledge Economy</b>			
<b>Sector Outcome: Ecological integrity ensured and socioeconomic condition of resource-based communities improved</b>			
<b>Subsector Outcome: Sustained biodiversity and functioning of ecosystem services</b>			
Forest cover (%)	2014	37	Increasing
Area planted under NGP (ha.)	2016	31,154	Increasing
Untenured forestland patrolled/ protected (ha.)	2016	30,547	maintained
Existing forests (including mangroves) protected (ha.)	2016	492,852.75	Increasing
Adaptation planning conducted (no.)	2016	To be determined	14 watersheds and Protected Areas (PAs)
Integrated Watershed Management Plan (IWMP) prepared	2016	1 IWMP	5 IWMP/PA plans
Forest Land Use Plans (FLUPs) formulated	2016	To be determined	19 FLUPs
Ecotourism Management Plans (EMPs) prepared	2016	1 EMP	100% of ecotourism sites with EMP
Livelihood projects for Community-Based Forest Management (CBFM) People's Organizations implemented	2016	7 CBFM 350 hectares	Increasing
Agroforestry (bamboo plantation) developed (ha.)	2016	8,503	Increasing
Riverbank maintained/rehabilitated	2016	To be determined	Increasing
Coastal habitat and resources mapped and assessed (ha.)	2016	2,174 (in Sarangani Bay Protected Seascape)	increasing

Source of data: DENR XII/EMB XII

**Table 69: Results Matrix to Ensure Ecological Integrity, Clean and Healthy Environment, 2017-2022 (Continuation)**

INDICATOR	BASELINE		END OF PLAN RESULT
	YEAR	VALUE	
<b>Societal Goal: To Lay Down the Foundation for Inclusive Growth, A High-Trust and Resilient Society, and a Globally-Competitive Knowledge Economy</b>			
<b>Sector Outcome: Ecological integrity ensured and socioeconomic condition of resource-based communities improved</b>			
<b>Subsector Outcome 2: Improved environmental quality</b>			
<b>Number of ambient air sampling stations operated and maintained (No.)</b>	2016	3	maintained
<b>Particulate matter less than 10 microns in diameter (PM<sub>10</sub>) assessed (µg/Ncm)</b>	2016	"good"	0-54 µg/Ncm ('good' quality standard)
• Station 1 (Tupi, So. Cot)		25.4	Improving
• Station 2 (Koronadal City)		39.1	Improving
• Station 3 (General Santos City)		37.6	Improving
<b>Private Emission Testing Centers (PETCs) monitored</b>	2016	50	increasing
<b>Climate Change support activity – GHG inventory</b>	2016	1	increasing
<b>Waterbodies monitored (no.)</b>	2016	35	100% of priority waterbodies monitored
<b>Percentage of priority water bodies within water quality guidelines</b>	2016		
• pH		Compliant with the standard	All waterbodies are 100% compliant with the water quality standard for pH, DO, BOD, TSS and faecal coliform
• DO (mg/L)		Compliant	
• BOD (mg/L)		Compliant	
• TSS (mg/L)		Some with minimal exceedance	
• Faecal Coliform (MPN/100ml)		Some exceeded the standard	
<b>WQMA operationalized (No.)</b>	2016	2	3
<b>Number of compliant LGU (with SWM Plans, MRF, SLF/Environment Friendly waste disposal)</b>	2016	13	100% of LGUs are compliant with (RA 9003)
<b>Subsector Outcome: Increased adaptive capacity and resilience of ecosystems</b>			
<b>Vulnerability assessment (VA) completed</b>	2016	1 VA conducted – 23,585 hectares	7 priority watersheds and PAs
<b>Number of reviewed CC/DRRM-enhanced plans</b>	2016	<ul style="list-style-type: none"> <li>• CLUPs – to be determined</li> <li>• LDRRMPs – to be determined</li> <li>• LCCAPs – to be determined</li> </ul>	100 % of LGUs with updated CLUPs, LDRRMPs and LCCAPs

Source of data: DENR XII/EMB XII