



**MEMORANDUM**

**FOR :** **THE DIRECTORS**  
FMB, LMB, ERDB, BMB, MGB, EMB  
Financial and Management Service  
Foreign Assisted and Special Project Service  
Climate Change Service  
Knowledge and Information Systems Service  
Human Resource Development Service  
Strategic and Communication and Initiative Service  
Administrative Service

**THE ADMINISTRATOR**  
NAMRIA

**THE EXECUTIVE DIRECTOR**  
NWRB, PCSDS, MBCO, PRCMO, RBCO

**FROM :** **THE OIC, DIRECTOR**  
Policy and Planning Service

**SUBJECT :** **REQUEST FOR INPUTS ON THE DRAFT FY 2023  
DESCRIPTION AND PROFILE OF PROGRAMS / PROJECTS /  
ACTIVITIES FOR IMPLEMENTATION OF THE  
DEPARTMENT OF ENVIRONMENT AND NATURAL  
RESOURCES**

**DATE :** **31 MAY 2022**

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This pertains to the draft FY 2023 description and profile of Programs / Projects and Activities (PPAs) of the Department of Environment and Natural resources or otherwise known as the DENR Folio. It is one of the requirements that is being submitted by the DENR to both houses of Congress during budget defense and hearing.

In this regard, we would like to request for inputs or updates on the attached draft FY 2023 description and profile of the PPAs. For easy reference, the following are the page numbers of each PPA that need updating:

<b>PPA</b>	<b>Responsible Office</b>	<b>Page number</b>
General Management and Supervision	Administrative Service	10
Human Resource Development	HRDS	10
Administration of Personnel Benefits	HRDS	10

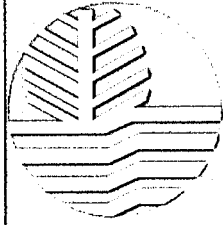
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We would like to receive your inputs on or before June 3, 2022. Please note that if there are no inputs/comments transmitted and communicated to this Office after the deadline, the provisions in the draft Folio shall be deemed final. Should you have any questions/clarifications, kindly direct them to our Policy and Planning Service, through the Planning and Programming Division, at telephone number 8928-7327 or email [jcbautista@denr.gov.ph](mailto:jcbautista@denr.gov.ph) and look for Mr. Joseph C. Bautista.

For consideration, please.

  
GLENN MARCELO C. NOBLE



Republic of the Philippines  
Department of Environment and Natural Resources

# **FY 2023 PROGRAMS/ACTIVITIES/ PROJECTS FOR IMPLEMENTATION**

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## **Description and Profile**



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## LEGAL BASIS

**Executive Order No. 192** dated **June 10, 1987** – “Providing for the Reorganization of the Department of Environment, Energy and Natural Resources, Renaming it as the Department of Environment and Natural Resources, and for other Purposes”

## MANDATE (Section 4, E.O. 192)

The Department shall be the primary government agency responsible for the conservation, management, development, and proper use of the country's environment and natural resources, specifically forest and grazing lands, mineral resources, including those in reservation and watershed areas, and lands of the public domain, as well as the licensing and regulation of all natural resources as may be provided for by law in order to ensure equitable sharing of the benefits derived therefrom for the welfare of the present and future generations of Filipinos.

To accomplish this mandate, the Department shall be guided by the following objectives:

1. Assure the availability and sustainability of the country's natural resources through judicious use and systematic restoration or replacement, whenever possible;
2. Increase the productivity of natural resources in order to meet the demands for forest, mineral, and land resources of a growing population;
3. Enhance the contribution of natural resources for achieving national economic and social development;
4. Promote equitable access to natural resources by the different sectors of the population; and
5. Conserve specific terrestrial and marine areas representative of the Philippine natural and cultural heritage for present and future generations.

## MISSION

The DENR's mission: **“To mobilize our citizenry in protecting, conserving, and managing the environment and natural resources for the present and future generations”**

## VISION

The DENR's vision: **“A nation enjoying and sustaining its natural resources and a clean and healthy environment.”**



**POWERS AND FUNCTIONS (Section 5, E.O. 192)**

1. Advise the President on the enactment of laws relative to the development, use, regulation, and conservation of the country's natural resources and the control of pollution;
2. Formulate, implement, and supervise the government's policies, plans and programs pertaining to the management, conservation, development, use and replenishment of the country's natural resources;
3. Promulgate rules and regulations in accordance with law governing the exploration, development, conservation, extraction, disposition, use and such other commercial activities tending to cause the depletion and degradation of our natural resources;
4. Exercise supervision and control over forest lands, alienable and disposable lands, and mineral resources and in the process of exercising such control the Department shall impose appropriate payments, fees, charges, rentals and any such form of levy and collect such revenues for the exploration, development, utilization or gathering of such resources;
5. Undertake exploration, assessment, classification and inventory of the country's natural resources using ground surveys, remote sensing and complementary technologies;
6. Promote proper and mutual consultation with the private sector involving natural resources development, use, and conservation;
7. Undertake geological surveys of the whole country including its territorial waters;
8. Establish policies and implement programs for the:
  - (a) Accelerated inventory, survey and classification of lands, forest and mineral resources using appropriate technology, to be able to come up with a more accurate assessment of resource quality and quantity;
  - (b) Equitable distribution of natural resources through the judicious administration, regulation, utilization, development, and conservation of public lands, forest, and mineral resources (including mineral reservation areas), that would benefit a greater number of Filipinos;
  - (c) Promotion, development, and expansion of natural resource-based industries;
  - (d) Preservation of cultural and natural heritage through wildlife



- conservation and establishment of national parks and other protected areas;
- (e) Maintenance of a wholesome natural environment by enforcing environmental protection laws; and
  - (f) Encouragement of greater people participation and private initiative in natural resource management.
9. Promulgate rules and regulations necessary to:
- (a) Accelerate cadastral and emancipation patent surveys, land-use planning, and public land titling;
  - (b) Harness forest resources in a sustainable manner, to assist rural development, support forest-based industries, and provide raw materials to meet increasing demands, and at the same time keeping adequate reserves for environmental stability; and
  - (c) Expedite mineral resources surveys promote the production of metallic and non-metallic minerals and encourage mineral marketing.
10. Regulate the development, disposition, extraction, exploration, and use of the country's forest, land and mineral resources;
11. Assume responsibility for the assessment, development, protection, conservation, licensing and regulation as provided for by law, where applicable, of all natural resources; the regulation and monitoring of service contractors, licensees, lessees, and permit fees for the extraction, exploration, development, and utilization of natural resource products; the implementation of programs and measures with the end in view of promoting close collaboration between the government and the private sector; the effective and efficient classification and sub-classification of lands of the public domain; and the enforcement of natural resources laws, rules and regulations;
12. Promulgate rules, regulations and guidelines on the issuance of co-production, joint venture or production sharing agreements, licenses, permits, concessions, leases and such other privileges and arrangements concerning the development, exploration, and utilization of the country's natural resources and shall continue to oversee, supervise and police our natural resources; to cancel or cause to cancel such privileges and arrangements upon failure, non-compliance or violations of any regulations, orders, and for all other causes which are in furtherance of the conservation of natural resources, and supportive of the national interest;
13. Exercise exclusive jurisdiction on the management and disposition of all lands of the public domain and shall continue to be the sole agency responsible for classification, sub-classification, surveying and titling of





lands in consultation with appropriate agencies;

14. Implement measures for the regulation and supervision of the processing of forest products, grading and inspection of lumber and other forest products and monitoring of the movement of timber and other forest products;
15. Promulgate rules and regulations for the control of water, air and land pollution;
16. Promulgate ambient and effluent standards for water and air quality including the allowable levels of other pollutants and radiations;
17. Promulgate policies, rules and regulations for the conservation of the country's genetic resources and biological diversity, and endangered habitats;
18. Formulate an integrated, multi-sectoral, and multi-disciplinary National Conservation Strategy, which will be presented to the Cabinet for the President's approval; and
19. Exercise other powers and functions and perform such other acts as may be necessary, proper or incidental to the attainment of its mandates and objectives.

#### **DENR CORE FUNCTIONS**

1. Formulate and implement policies, guidelines, rules and regulations relating to environmental management, pollution prevention and control;
2. Formulate, implement and supervise the government's policies, plans and programs pertaining to the management, conservation, development, use and replenishment of the country's natural resources and biological diversity; and
3. Promulgate and implement rules and regulations governing the exploration, development, extraction, disposition, and use of the forests, lands, minerals, wildlife, and other natural resources.

#### **DENR THRUSTS/PRIORITIES AND MAJOR PROGRAMS/ACTIVITIES**

The DENR thrusts and priorities will be aligned with and responsive to the priorities and strategies espoused in the incoming 2023-2028 Philippine Development Plan (PDP) of the new administration. The PDP identifies the direction, priorities, major strategies and targets of the environment and natural resources.

In addition, the DENR programs are also aligned with the recently approved 2021-2040 Environment and Natural Resource Framework Plan. It is the country's



environmental blueprint that will provide a 40-year road map in pursuing sustainable development given the existing and anticipated problems, policy, and institutional issues and constraints.

In line with that Plan, the DENR, in the performance of its mandate under a regime of good environmental governance, will continuously implement in FY 2023 the following major programs that would ably create high impact and provide longer-term solutions to more pressing environmental issues and concerns:

### DENR FY 2023 Major Programs

1. **Intensified Environmental Protection: Clean Air** which covers the motor vehicle emissions management program, industrial emission management program and roadside ambient and general ambient air quality monitoring.
2. **Intensified Environmental Protection: Clean Water** aims to improve water quality of Priority Rivers and other critical water bodies including lakes, bays through continuous massive clean-up. It will also prioritize the conduct of classification of waterbodies to help water managers and planners to develop proper water quality management programs.
3. **Intensified Environmental Protection: Solid Waste Management** which ensures the compliance of the Local Government Units to Ecological Solid Waste Management Act
4. **Enhanced National Greening** is the rehabilitation of denuded forest cover
5. **Intensified Forest Protection and Anti-Illegal Logging** to protect 8.7 million hectares forests against forest fires, poaching and pest and diseases
6. **Enhanced Biodiversity Conservation** to sustainably manage the protected areas and preserve the biodiversity of the ecosystems
7. **Scaling up of Coastal and Marine** to protect marine resources.
8. **Improved Land Administration and Management** to ensure security of land tenure
9. **Geo-hazard, Groundwater Assessment and Responsible Mining** which conducts vulnerability and risk assessments
10. **Manila Bay Clean Up** aims to restore the water quality of Manila Bay in accordance with the Writ of Continuing Mandamus of the Supreme Court.
11. **Build Back Better Task Force** aims to initiate activities related to post disaster rehabilitation and recovery of the typhoon hit areas specifically Regions NCR, 2, 4A and 5.
12. **Green Economy Model Sites Rehabilitation** aims to replicate the success of rehabilitation activities done in Boracay, the Department has identified 5 more ecotourism sites to restore and protect the beauty of its physique. The sites selected to be part of rehabilitation and restoration activities are Coron, El Nido, Panglao, Puerto Galera, and Siargao.

In the preparation of DENR FY 2023 plans and budget, the Department is



guided by the following concepts/approaches:

*Annual Cash-Based Appropriations*

Annual cash-based budgeting, as opposed to multi-year obligations-based budgeting, "limits incurring obligations and disbursing payments for goods delivered and services rendered, inspected, and accepted within the fiscal year" - meaning, the extent of budget implementation is just one year, with an "Extended Payment Period" of three months after the fiscal year.

The shift to annual cash-based budgeting is a major component of the Budget Reform Bill being pushed by DBM, together with Department of Finance (DOF), Bureau of the Treasury (BTr), National Economic and Development Authority (NEDA), and Commission on Audit (COA). The bill aims to modernize the national government's budget process, eliminate underspending, and institutionalize many of the reforms introduced and currently being implemented by the Executive branch.

The Department ensures that the proposed budget for FY2022 will be disbursed within the year.

*Program Expenditure Classification (PREXC)*

The PREXC is restructuring an agency's budget by grouping all recurring activities as well as projects under the different programs or key strategies being pursued by the agency to meet its objectives and mandates. The general rule for this approach is that all expenditure items of an Agency are classified under Programs. This requires putting Performance Information for each Program.

Please refer to Annex B for the DBM approved DENR PREXC structure.

*Constructive Engagement with Civil Society Organizations (CSOs)*

The involvement of the Civil Society Organizations (CSOs) will be deeply encouraged to promote greater participative planning and budgeting and wider discussions and assessments of existing and proposed programs and projects of the Department. The wide participation of the CSOs will provide feedback on how national programs are affecting the localities and communities, thus, will enable the Department to become more effective and efficient in program implementation and strengthen the convergence of the delivery of national services in the community. Aside from the CSOs, the involvement of the private sector, the Regional Development Councils, and other stakeholders is being encouraged.

*Program Budgeting Approach (Program Convergence Approach)*

The Program Budgeting Approach was introduced in the 2013 budget preparation in pursuit to the issuance of the National Budget Memorandum No. 118 dated April 25, 2013. The PBA focuses on coordination and convergence among National Government Agencies



(NGAs) in the planning, budgeting, implementation and monitoring of priority programs. It aims to center the budget on identified key programs and ensure that all agencies participating and contributing to the programs are properly coordinated for easy implementation.

#### *Risk Resiliency Program*

RRP is a convergence program to strengthen and scale-up coordinated planning and budgeting of climate resilience investments across all national government agencies (NGAs) – initially DENR, DPWH, DA, DILG – and focusing but not limited to the following 22 most vulnerable provinces: Ilocos Sur, La Union, Pampanga, Cavite, Batangas, Camarines Sur, Camarines Norte, Albay, Sorsogon, Masbate, Romblon, Northern Samar, Samar, Eastern Samar, Cebu, Negros Oriental, Lanao del Sur, Maguindanao, Sultan Kudarat, Basilan, Sulu, and Surigao del Norte. These provinces are identified based on susceptibility to climate hazards, high poverty incidence and areas of focus of the government.

#### *Anticipatory and Forward Planning*

In transition to the “new normal” and mitigation to the impact of COVID-19 to the environment sector, the DENR has conducted Anticipatory and Forward Planning in anticipation of potential higher demand for (a) indigenous plants and animals for pharmaceutical use; (b) water supply for disinfection/sanitation purposes; and (c) wood and non-wood products for the construction of quarantine and shelter facilities.

For 2022, the following strategies shall be continued to curb the heightened environmental, climate, and health risks posed by COVID-19:

- Streamline the management of health care and infectious wastes, especially at the community and household levels.
- Prioritize the protection and conservation of natural resources, especially in degradation hotspots and critical ecosystems.
- Ensure water security, especially in COVID-19 pandemic affected areas.

#### *Mandanas Ruling*

The Mandanas Ruling pertains to the Supreme Court decision in *Mandanas et.al. vs. Ochoa* that clarified the “just share” in the national taxes of Local Government Units (LGUs). The Supreme Court declared that the basis of computation of LGUs’ just share must be from “all collections of the National Taxes except those that are accruing to special purpose funds and special allotments for the utilization and development of the national wealth.” One of the measures to mitigate the fiscal impact of the SC ruling is the full devolution of certain functions of the Executive Branch to the LGUs.



**FY 2022 DENR PROGRAMS/ACTIVITIES/PROJECTS (PAPs)**

**A. OFFICE OF THE SECRETARY**

**A. PROGRAMS**

**I. GENERAL ADMINISTRATION AND SUPPORT**

**General Administration and Support Services**

**General Management and Supervision**

This program provides the overall management and administrative support to the entire agency operations, including its regional operations. This also covers the operational cost in execution of instructions of the management, construction/rehabilitation of buildings, and procurement/maintenance of vehicles.

**Human Resource Development**

This program provides assistance and services on the promulgation of office orders, rules and regulations relative to human resources development, plans and programs. The program also involves the conduct of training needs assessment for the development of client/service-oriented human resources while promoting sustainable development and coordinates all other training programs of the Department.

In consideration of the proliferation of COVID-19 pandemic, the Department will be implementing alternative work arrangement which will allow personnel to work remotely in their respective homes. The alternative method shall ensure the continuance of essential services offered by the Department. In addition, those who will be reporting to work shall be required to observe safety protocol prescribed by the Inter-Agency Task Force on Emerging Infectious Diseases.

**Administration of Personnel Benefits**

The administration of personnel benefits is anchored on the following legal regulations such as DBM National Budget Circular No. 568 series of

Implementing Executive Order 201; CSC DBM Joint Circular 1, S. 2012 and the CSC Memorandum Circular No. 41 S. 1998, Omnibus Rules on Leave.

Administration of personnel benefits involves the following



activities:

1. Development and management of effective and integrated systems on attendance, compensation and welfare services;
2. Formulation and implementation of internal policies standards and guidance for the grant of allowances, benefits and incentives;
3. Processing of applications for personal travel authority and practice of profession;
4. Liaison work to GSIS, Pag-ibig Fund and other partner organizations.

## **II. SUPPORT TO OPERATIONS**

### **Data Management Including Systems Development and Maintenance**

This program entails the processing, analysis and dissemination of statistical data and information on ENR. Data generation is done through the conduct of census, surveys, inventories, resource profiling and research studies that may have impact on the environment and resource-bases. Dissemination of information is made through publications, reports and information campaigns. Human resources development and organizational strengthening in relation to statistical activities, through the conduct of training and workshops, are also undertaken. In addition, the activity also includes the maintenance and updating of all applicable information systems such as DENR Personnel Information System, Records Management Information System and Document Action Tracking Systems of Central and DENR field offices and bureaus.

Essential in effective data management is the continuing development, updating, and maintenance of new and/or existing databases and information systems for the DENR to ensure that valuable/relevant information are made available to various stakeholders. These improvements will establish greater transparency and access to information by DENR's stakeholders.

### **Production and Dissemination of Technical and Popular Materials in the Conservation and Development of Natural Resources Including Environmental Education**

Environmental awareness is vital to DENR's mandate of environmental management and protection. In this connection, the Department produces audio-visual, print and broadcast materials including TV ads and plugs to inform/educate the general public and the DENR clientele in particular on the importance of environmental protection and the sustainable use of the country's natural resources.



The program also includes the publication and dissemination of research findings to provide scientific basis for the development of policies and programs on Philippine ecosystems. For FY 2023, IEC program will be continuously enhanced with focus on DENR's advocacy campaign on climate change targeting our clientele such as the mining industries, schools, and the local government units. It will also focus on raising awareness of local communities in connection with the

### **Legal Services, Including Operations Against Unlawful Titling of Public Lands**

The DENR is responsible for reviewing and evaluating evidences, conducting formal investigations and ocular inspections and drafting of orders/decisions on cases involving the exploration, development and utilization of the natural resources and the environment.

The DENR will continuously strengthen under this program the provision of legal services to include activities such as the review of draft issuances, laws and regulations on matters affecting the Environment and Natural Resources sector; and the provision of legal opinions. Administrative cases of erring personnel are also being handled under this program, as well as the provision of legal assistance to those charged with cases arising from the lawful discharge of their/or their office's official functions.

### **Conduct of Special Studies, Design and Development in Support of Forestry, Mining, Protected Areas and Environmental Management Operations**

This program deals with the identification and implementation of projects/activities which address current issues, or priority concerns of the ENR sector involving more than one region.

Special projects are short-term projects which respond to urgent needs or issues of the sector concerned. Proposal for Special Projects conducts research studies to develop appropriate policies, programs, management strategies, or technologies to address such issues/concerns. Special projects are strategic or high impact projects that provide immediate or interim solutions. They support augment and complements the current programs implemented by the Department.

### **Formulation and Monitoring of ENR Sector Policies, Plans, Programs and Projects**

This program involves the formulation/updating of policies



for the development, conservation, regulation and use of the country's forests, lands, minerals, national parks and other natural resources as well as the protection of the environment. The program also involves the preparation of annual, medium-term and long-term plans and programs for the different sub-sectors of the Department and their integration into an Environment and Natural Resources sector plans and programs as guide to DENR operations and as required by the various government agencies, e.g., NEDA, DBM and Congress. The integration of the varied concerns of the Department is necessary to eliminate inconsistencies in plans and policies and duplication of efforts resulting to waste of resources.

This also involves coordination, monitoring and assessment of ENR programs/projects including locally-funded and foreign-assisted projects and those devolved to LGUs as well as the formulation and development of evaluation guidelines to determine socio-economic and environmental impacts of these programs/projects.

In addition, to continuously strengthen the planning and monitoring tool of the Department, the formulation of a Medium Term ENR Plan shall be instituted at all operating offices (units) of the DENR utilizing the spatial planning as a platform.

Results of program accomplishments provides as tool for decision-making and policy formulation which in effect are essential in monitoring, assessment, and reporting of actual operations on the ground. Database development and maintenance is included under this Program/Activity/Project (PAP).

### **CLIMATE CHANGE AND RESILIENCY PROGRAM**

Based on the Administrative Order No. 2009-04, The Climate Change Service shall serve as the coordinating mechanism internally among DENR offices as well as externally, with other national government agencies, non-government organizations and local government units. Also, CCS provides secretarial support to the DENR Secretary as the Chairman of the Cabinet Cluster on Climate Change Adaptation and Mitigation – Disaster Risk Reduction (CCAM-DRR). Its responsibilities are to ensure focus of the DENR on the following:

1. Climate change issues/areas of concern
2. Climate proofing of DENR policies, programs, and projects
3. Monitoring of DENR climate change-related programs, the CCAM-DRR Roadmap, and the Program Convergence Budget for the member-agencies of the Cabinet Cluster on CCAM-DRR





4. Oversight function in DENR's various climate change-related concerns
5. Establishment and maintenance of the information management system on climate change risks, activities, and investments in collaboration with other concerned national government agencies (NGAs), institutions, and local government units (LGUs)
6. Handle Gender and Development (GAD) concerns

## **ECOSYSTEMS RESEARCH DEVELOPMENT AND EXTENSION PROGRAM**

### **ERDB MAIN OFFICE (MO) TECHNICAL DIVISIONS**

The Technical Divisions or TDs, namely, Forest Ecosystems Research Division (FERD), Coastal Zone and Freshwater Ecosystems Research Division (CZFERD) and Urban Ecosystem Research Division (UERD) formulates, coordinates, and monitors Research, Development, and Extension (RDE) Programs on ecosystems under their respective concerns in line with the national and regional development thrusts and goals. The TDs shall also conduct policy research and serve as clearinghouse for all research outputs by ERDB's six (6) Research, Development, and Extension Centers (RDECs) for possible translation into technology innovation or policy recommendation for consideration by the Secretary.

### **ERDB RESEARCH, DEVELOPMENT, AND EXTENSION CENTERS**

#### **Core Functions of the Six (6) RDE Centers**

- a) Formulates, implements, and coordinates RDE programs/projects/ activities on environment and natural resources (ENR) as "areas of excellence" such as but not limited to, sustainable management, development and protection of mining areas, protected areas, uplands, forests/forestlands, and coastal and marine ecosystems;
- b) Perform basic researches and ensure the continuation and sustainability of research operations and management of existing experimental forests, demonstration areas, field laboratories and pilot areas within their area of responsibilities in accordance with the national ENR R, D & E agenda; and
- c) Provides technical assistance, information and extension and other technology promotion and transfer services on ENR technologies in their area of responsibilities.



### **1. Watershed and Water Resources Research, Development, and Extension Center (WWRRDEC) - CAR, R-1, R-2 & R-3**

The Watershed and Water Resources Research, Development, and Extension Center's (WWRRDEC) covers watershed and water resources. Seventy percent (70%) of the Philippines's total land area at 30 million hectares are considered as watersheds. This is composed of 421 principal river basins with 19 critical watersheds that supply the major water needs of the country's irrigation, hydroelectric dams, and industrial and domestic water system. Therefore, the protection, development and management of the watershed is of utmost priority for sustained provision of such services.

The problems of each watershed/sub watershed and their water resources are the subject of the watershed development strategy consisting of needed Research, Development Extension (RDEs) towards a well-managed watersheds and sustainable water resources for improved quality of life.

### **2. Urban and Biodiversity Research, Development, and Extension Center (UBRDEC) - R-4A, R-4B & R-5**

As one of ERDB's six areas of excellence on ecosystems research and development, UBRDEC shall promote in support to operation, a strengthened research and development program to address issues on biodiversity and urban ecosystems. Biodiversity encompasses various ecosystems, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part which includes diversity within species, between species, and of ecosystems. Meanwhile, urban ecosystems cover a hybrid of natural and man-made elements whose interactions are affected not only by the natural environment, but also by culture, personal behavior and socio-economic factors.

The RDE projects/activities of the center aim to address environmental issues and problems in urban ecosystems and biodiversity areas through generation and transfer of appropriate technologies, development of models on carrying capacity for protected areas, watersheds an ecotourism destinations; formulation of valuation standards for biodiversity conservation/protection of protected areas; establishment of partnerships with LGUs, NGAs, POs, communities and other stakeholders implementing institutionalized management schemes for solid waste management, green park restoration, increase in green space/belts in target urban areas; and establishment of demo areas for extension services.



**3. Coastal Resources and Ecotourism Research, Development, and Extension Center (CRERDEC) - R-6, R-7 & R-8**

The Philippines is bestowed with abundant and diverse coastal and upland resources and home to a number of endemic flora and fauna which make the country one of the mega-diverse countries in the world. As such, opportunities for coastal resources conservation and ecotourism destination development to realize and optimize the benefits are enormous. But while the country is recognized as one of the mega-diverse countries in the world, it is also beset with a number of ecosystem management issues, gaps, and challenges worth addressing through research, development, and extension.

The CRERDEC's core functions are geared towards enhancing resilience of coastal areas to support sustainable management of the coastal ecosystems and ecotourism developments in the country. The thematic areas are as follows: a) climate change adaptation and mitigation and b) climate change risk reduction. Climate change is the alteration of the Earth's atmospheric attributed by human activities directly or indirectly, that changes the level of greenhouse gases thus promoting global warming and depleting the ozone layer. The human-induced change seriously threatens the productivity of the natural and managed ecosystems of the globe.

**4. Forest and Wetland Research, Development, and Extension Center (FWRDEC) - R-9, R-10 & R-13**

To address the concerns on scarcity of timber supply experienced by timber processing plants and uplift the socio-economic status of tree farmers, FWRDEC implements RDE programs/projects/activities including generation and transfer of technologies related to conservation and management of forest and timber resources in accordance with the national RDE agenda and framework. It shall provide technical assistance to clientele on forest and timber resources management and other ENR technologies and perform other functions that may be assigned by higher authority.

FWRDEC recognize the need for establishment of in-situ and ex-situ conservation areas to preserve critically-endangered species. Continued identification of seed sources (plus trees) and collection of seeds thereat has to be intensified. Progeny trials establishment of these identified mother trees must be pursued to improve the genetic material of targeted species leading to increase quality raw materials availability.

**5. Agroforestry Research, Development, and Extension Center (ARDEC) - R-11 & R-12**



Through the years, agroforestry has been recognized as the sustainable management systems capable of improving productivity in the upland, reducing poverty, increasing farmer's income, and enhancing environmental stability. Thus various government agencies and non-government organizations are working together in partnership with the local people for a sustainable resources development and effective management of natural resources.

The challenges for agroforestry are still enormous but these can be streamline into manageable proportions to be addressed properly. These include the challenges or resource degradation (i.e. land, soil, water, and biodiversity) and its relation to environment and people. Agroforestry has to respond by providing sustainable management systems capable of improving resource productivity in the upland, reducing poverty, increasing farmer's income, and enhancing environmental stability.

To address these challenges, the Agroforestry Research, Development, and Extension Center (ARDEC) shall implement Research, Development, and Extension (RDE) projects/activities related to rehabilitation and management of degraded areas. It also provides technical assistance to clientele on degraded areas rehabilitation and other ENR technologies.

#### **6. Toxic and Hazardous Wastes Research, Development, and Extension Center (THWRDEC) - NCR**

The THWRDEC envisions to generate scientific/baseline information to minimize pollution, and proper management of toxic substances (TS) and hazardous wastes (HW). Such information is essential inputs to policies that would balance economic growth and environmental protection in overseeing development and other industrial projects of the country. Science-based indicators for monitoring that are defined as early as the planning stage would not only ensure better compliance and ease in regulation but also anticipate adverse effects to human and the environment.

The RDE center will prioritize concerns on clean water, PD 984 (Pollution Control Law), RA 8749 (Clean Air Act), PD 1586 (Environmental Impact Assessment System Law), and assistance to LGUs in implementation of RA 9003 (Ecological Solid Wastes Management Act 2000) and their implementing rules and regulations. Based on research results, the THWRDEC will provide relevant technologies and information for DENR and other concerned agencies' decision making, policy formulation and application of appropriate ENR management strategies to address current and emerging issues/concern on toxic and hazardous wastes management.



## **Programs and Projects**

For 2022, the ERDB, thru its RDECs will be implementing research programs and projects for science-based policy formulation. The technical and service Divisions of the ERDB Main Office (MO) shall provide research directions, review and updating of the Bureau's RDE agenda/Framework that shall be embodied in Programs, Activities and projects (PAPs).

### **A. RDE Program on Forest Resiliency and Sustainability**

This program is geared towards establishing sustainable development, management and conservation of production and protection forests to include upland farms, grasslands and degraded areas to ensure the country's resilience towards negative impacts of climate change and disasters.

The program has three (3) component projects that will cover RDE projects and studies of the RDECs. The projects are as follows:

#### ***Project 1. Generation of Conservation Standards and Protocols for Forest Biological Systems***

This project aims to address issues concerning the interactions and changes in forest biological systems; ensure a sustained supply of genetically improved planting stocks of priority forest tree species to meet the greater goal of meeting the country's need for wood, pulp, resin, fuelwood, planting stocks for the immediate rehabilitation of degraded forest lands including mined-out areas. It also covers species-site matching; landscape and forest ecology; wildlife biology; forest taxonomy; and biodiversity conservation.

#### ***Project 2. Development of Technologies for Resource Management of Forest Ecosystems***

This project covers the generation of science-bases information and development of technologies and indicators, combined with verification of available potential technologies/tool for the assessment and rehabilitation of degraded areas as well as to enhance ENR risk assessment process. Other priority concerns are: (1) criteria/ indicators in assessing degraded areas; (2) vulnerability assessments; (3) application of GIS and remote sensing as tools for forest management; (4) rehabilitation strategies for degraded grasslands, large-scale mined out areas and small-scale mining areas; (5) production and management of non-timber wood products; and (6) current monitoring and evaluation system for environmentally critical projects; The research outputs can be adopted for successful management of forest ecosystem and rehabilitation of various zones of damaged watersheds.



***Project 3. Application of Sociocultural and economic tools in improving forest governance***

Included in this sub-program are biological analysis, with an assessment and mapping of physical flows of upland ecosystem services; economic analysis, where economic valuation of the services will be performed; and policy analysis where results of the biophysical and economic analysis will be synthesized and discussed. It also deals with analysis of indigenous peoples cultural practices in forest management; community based management; forest ecotourism and carrying capacity.

**B. RDE Program on Ecosystems Dynamics and Sustainable Management of Coastal and Freshwater Ecosystems**

The general objective of the program is to develop conservation and management strategies and draw policy recommendations for the rational utilization and protection of coastal and freshwater ecosystems in response to debilitating effects of human-induced pressures and climate change. Specific projects deal on the generation of information, technology and policy recommendations on three important sub-ecosystems to make up the coastal and freshwater ecosystem such as mangroves and estuaries, marine areas, and freshwater ecosystems.

The program has four (4) projects that will cover RDE projects and studies of the RDECs. The projects are as follows:

***Project 1: Climate change mitigation and adaptation in coastal and marine ecosystems***

The project is aimed at determining the vulnerability of the coastal and marine areas and adaptation strategies of the coastal communities to the impacts and hazards of climate change such as storm surge, coastal erosion, pollution, over-exploitation and other similar stress factors. Research outputs are essential inputs to enhance the awareness of planners, policy makers, leaders, and communities to climate change impacts and increase the resiliency of coastal communities in the mainland and island environments to climate change. The project also highlights the importance of coastal ecosystems as refuge and natural buffer, and the inter-related functions of coral reef, seagrasses, and mangroves to the resilience of small island resources to climate change impacts such as coral bleaching, eutrophication, and harmful algal blooms.

***Project 2. Mangrove and Beach Forest Development in relation to climate change***



The project aims to generate information on mangrove and beach forest resources and the interactions that take place within these areas and adjacent ecosystems. Following a holistic approach in assessing mangroves in response to pressures associated with surrounding land-uses, the sub-program likewise intends to generate rehabilitation strategies as basis for sustainable mangrove conservation and management. Studies on the biological components such invertebrates, fishes, including pest and diseases form part of the sub-program in order to identify biological indicators that can be useful in monitoring and evaluating successes and failures various mangrove rehabilitation projects in the country.

### ***Project 3. Improving Sustainability of Freshwater Ecosystem***

The project aims to characterize the water condition of freshwater ecosystems such as rivers and lakes with given classifications using benthic macro invertebrates as bio-indicators in combination with physico-chemical analysis to come up with a comprehensive picture of water quality as an index of freshwater productivity and classification. Consequently, the sub-program intends to develop predictive tools that would serve as an early warning system in the advent of fish kills in freshwater ecosystems using information on plankton community structure and dynamics. Much has been done on biodiversity assessment in freshwater ecosystems but none has been undertaken on microbes.

The project also highlights the generation of technologies in pursuit of bank rehabilitation and improvement of water quality. The study on the ecological characterization peatlands in terms of biodiversity, GHGs, carbon content and water resources is also given importance in the sub-program in support to ASEAN peatland management Initiatives (APMI) with the end view of preserving the existing ones and whenever possible, restoring degraded ones. Pollution abatement from biological, toxic and hazardous wastes in coastal and freshwater ecosystems (eg. resorts development, mining, livestock farming)

### ***Project 4. Blue Carbon Mapping***

The IUCN defines blue carbon as the carbon stored in coastal and marine ecosystems specifically mangroves, tidal marshes, seagrass meadows which sequester and store more carbon per unit area than terrestrial forests and are now being recognized for their role in mitigating climate change. The assessment of these carbon storage capacities can be a very tedious process but advances in mapping using satellite images has paved the way for measuring them and assessing their capacity to mitigate the impacts of climate change. Conservation and restoration of these coastal ecosystems has been increasingly addressed in international and national climate change mitigation policy and



finance mechanisms. However, to date, the country has not incorporated coastal blue carbon into its portfolio of climate change mitigation or coastal management policies and actions, largely because the mechanisms for assessing blue carbon are not well defined or standardized. This sub-program intends to address the gap.

### **C. RDE Program on Promoting Ecosystem Health and Sustainability of Urban Areas through Research and Development**

The program aims to address environmental issues and problems in urban ecosystem like pollution, solid waste management, pilot testing of technologies and protocols on deteriorated waterways, ecosystem approach for zoning/land-use in highly commercial and industrial areas, and green technology adoption. Likewise, action researches on toxic substance and hazardous waste management from selected sources and disposal sites will also be undertaken. Extension activities to promote and enhance high level of participation of various stakeholders on pollution abatement strategies, application of green technologies, toxic substances (TS) and hazardous wastes (HW) management will be pursued.

The component projects under this program were conceptualized to include the following:

#### ***Project 1: Management and improvement of commercial and industrial zones at highly urbanized areas***

The project aims to assess the ecosystems perspective in zoning and land use planning in highly urbanized areas and come up with good clean-up strategies to address pollution of industrial and commercial waterways and wastewater reservoir by coming up with bioremediation schemes. It also aims to address ecological solid waste management issues in commercial and industrial area and develop an incentive mechanism for the management of solid wastes. Results of the projects/studies under this sub-program will be used to come up with necessary policy recommendations which are much need for the urban environment as well as the policy amendments on existing policy instruments and develop a harmonized guideline incorporating environmental protection and land use management of dense urban environment.

#### ***Project 2: R&D for Improving and Enhancing Healthy Ecosystem for Communities and Settlement Areas***

The Philippines is a highly urbanized country with 48.9% of its populace dwelling in urban areas. Filipinos aspire for a better quality of life through migration with rural folks from the provinces seeking employment opportunities in urban areas. The presence





of migrants with their distinct culture and practices coupled with the continuing urbanization caused a number of changes on the physical and social environments. Changes in physical and social environments include pollution, improper disposal of solid wastes, and conversion of green spaces into commercial zones, high population growth, and informal settlement among others. With the onset of climate change phenomenon, urban communities are at risks and exposed various threats. With such conditions, strategies to provide a healthy ecosystem for the urban populace are essential. In doing so, communities in settlement areas will be conscientious of the importance of the environment even become catalysts in the protection and conservation of the urban environment.

### ***Project 3: Improving Green Parks and Recreational Spaces in Urbanized Areas in the Philippines***

The project aims to improve green parks and spaces in urban areas thru science-based research. RDE projects/activities under this sub-program will include but limited to assessment of tree health, identifying and quantifying pollution elements, measurement of ill effects of pollution elements and application of tree rehabilitation strategies. The appropriate strategies and recommendation which are the outputs of this sub-program will be presented to the LGU officials for the maintenance of their green spaces.

#### **D. RDE Program on Emerging Issues**

The program aims to address pressing environment and natural resources issues and problems that needed immediate actions. Projects/activities are based on the priorities and instructions of the Secretary. For 2022, the projects included in this program are: 1) Integrated Pest Management, 2) Assessment of Carrying Capacity of Ecotourism Sites and 3) identified R&D programs for DENR by the Inter-Agency Task Force Technical Working Group (IATF-TWG)

#### **Laboratory and Experimental Services**

The program of the Laboratory and Experimental Services Division (LESD) on "Sustainability of Laboratory and Experimental/Demonstration Services in Support to RDE Programs, Activities and Projects of ERDB Proper and Research Centers" includes the following projects:

Project 1: Quality Development and Management Project for Laboratory Services in Support to RDE Programs, Activities and Projects of ERDB Main Office and Research Centers



This project aims to develop and manage quality laboratory services in support to RDE programs, activities, and projects being implemented by ERDB technical divisions and the Research Centers. Specifically, the project aims to improve the existing R&D laboratories in support to the research and development needs of PAPs of ERDB proper and Research Centers; improve the accuracy of laboratory results for proper development activities and for utilization of clients outside DENR; formulate/develop manual/guidelines on the improvement, maintenance, and management of laboratory facilities; and to conduct basic researches in support to the technical divisions to come up with standards for implementation by the research centers in the field.

The project is expected to come up with the upgraded and state-of-the-art laboratory facilities with ISO classification; and development of manuals/guidelines on the proper use and management of laboratory facilities. At present, ERDB is maintaining eight (8) service laboratories that include the following:

1. Seed Laboratory
2. Botany Laboratory cum Herbarium
3. Zoology Laboratory
4. Analytical/Chemistry Laboratory
5. Soils Laboratory
6. Pathology/Microbiology Laboratory
7. Biotechnology Laboratory
8. Molecular Laboratory
9. Tissue Culture Laboratory
10. Entomology Laboratory

**Project 2: Science-Based Management of Experimental Sites and Demonstration Areas in Support to RDE Programs, Activities and Projects of ERDB Main Office and Research Centers**

This project intends to sustainably manage science-based experimental sites and demonstration areas developed and established by ERDB technical divisions and the Research Centers. It specifically aims to develop up-to-date science-based demonstration areas representing the center of excellence as show windows for the PAPs of ERDB main office and Research Centers; and to formulate/develop manual/guidelines on the establishment, maintenance, and management of demonstration areas.

The expected outputs of this project include the establishment and management of science-based and state-of-the-art demonstration areas; and to come up with policies/guidelines on the establishment, maintenance, and management of experimental sites and demonstration areas. ERDB is maintaining the following demonstration areas:



1. Bambusetum
2. Rattan Plantation
3. Agroforestry
4. Palmetum
5. Medicinal Genebank
6. Nursery Area
7. Ornamental Area
8. Special Project Area (SPA)
9. Jamboree Site
10. New Facilities at the LBES
  - a. tree house
  - b. multipurpose hall
  - c. office building
  - d. view deck

### **Technology Transfer and Extension Services**

A vital component of research and development program is the promotion, transfer, and utilization of research, information or technologies to all possible clientele/stakeholders concerning the aforementioned ecosystem types, and provisions of technical assistance to other DENR bureaus and offices and regional units.

For 2023, ERDB is implementing the Client-Based Technology Transfer and Extension Services for Sustainable Environment and Natural Resources (ENR) Management Program that aims to contribute to inclusive development in the Philippines. This will be done through effective and efficient dissemination of ERDB's technologies and information that can be appropriately adopted and utilized by stakeholders. There are four projects under the program namely:

Project 1. Technology Assessment, Classification, and Packaging of ENR Technologies.

This extension service aims to assess generated technologies from RDE programs to determine the degree of maturity and ensure sustainable application of these technologies. The assessment uses parameters on social acceptability, technical, economic, environmental and political (STEEP) aspects. Likewise, this assessment is needed in order to recommend actions on a particular technology to promote for adoption, disseminate the information, use as inputs to draft policy or package into IEC materials.

The procedures involved in this project are: 1) technology identification and classification; 2) technology characterization; 3) application of test criteria; 4) technology verification; and 5) packaging for dissemination.



**Project 2. Extension Services on Viable Technologies through Demonstration Strategies/Areas.**

Extension by its nature is a service that relies heavily on networks and linkages. Because there are several “players” in the extension systems, the convergence of efforts, complementation of roles and resources sharing of knowledge and expertise, and coordinative work are highly imperative. Furthermore, technology transfer requires a proactive approach that combines engaging researchers, promoting the technology and encouraging potential and interested stakeholders or partners to use the technology.

As such this service aims to engage stakeholders to be partners in pursuing solutions that would address pressing environmental issues like climate change, biodiversity conservation, and sustainable urban development. Likewise, this service aims to identify, prioritize, and diffuse environmentally sound technologies for promotion, monitoring, evaluation, and extension services to different stakeholders

**Project 3. IEC Campaign on Research based Information for Sustainable Ecosystems Management.**

This component intends to strengthen client’s appropriate utilization of ERDB technologies for sustainable ENR management. Specifically, this aims to enhance client’s knowledge and skills for the sustainable application of ERDB technologies and accelerate and sustain ERDB’s technical assistance for clients/users of ERDB technologies.

There are five activities under this, namely: 1) production of printed knowledge products and IEC materials; 2) mass media campaign of ecosystem technologies; 3) visual communication of ecosystem technologies; 4) technical assistance for ERDB clients, and 5) database management for production of IEC materials.

**Project 4. Evaluation of Transferred ENR Technologies cum Documentation of Success Stories of Adoption.**

The ERDB faces a renewed challenge with the new DENR Logical Framework. The satisfaction of the clients is given emphasis in the indicators of the Organizational Outcomes (OOs) of the Department One of the possible angles of client satisfaction is how the ENR technologies that were transferred to the clientele became useful or acceptable to them.

The post monitoring and evaluation of generated technologies closes the loop of RDE project continuum. Feedbacks from this M&E will bring in the appropriate signal for the refinement of extension strategies for the identified technologies (retrospect) and to the Technology Generation Phase (prospect) to address



ENR issues and concerns based on the lessons and success stories.

The purpose of this component is to determine the status, outcomes and impacts of ENR technology transfer and adoption of clients. This is towards identification of applicable strategies for the enhancement of technology generation and extension service including the assessment and packaging of ENR technologies. Specifically, this intends to determine the baseline status of adoption of ENR technologies by clients, determine the feasibility of transferred technologies based on outcomes and impacts; and draw recommendations for enhancement of extension services for ENR Technologies.

### **III. OPERATIONS**

#### **Organizational Outcome 1: Natural Resources Sustainably Managed**

##### **A. Natural Resources Enforcement and Regulatory Program**

The Program has three (3) major activities, namely: 1) natural resource management arrangement/agreement and permit issuance; 2) forest protection; and 3) operation against illegal ENR activities.

##### **A.1 Natural Resource Management Arrangement/Agreement and Permit Issuance**

This activity refers to all NR arrangements/agreements issued by the Department such as Certificate of Stewardship Contracts (CSCs), Community-Based Forest Management Agreement (CBFMA), Integrated Forest Management Agreement (IFMA), Protected Areas Community-Based Management Agreement (PACBRMA), Foreshore Lease Agreement (FLA), etc. These arrangements/agreements are entered into by and between the government and individuals/families actually occupying or tilling portion of the forestlands. supported by GIS-generated maps. Also included in this activity is the appraisal/re-appraisal of foreshore leases, friar lands, patrimonial lands and other government assets and properties. Permits are issued for a short term privilege or authority by the State to a person/institution to utilize and regulate the use of natural resources.

Compliance to the conditions of these management arrangements/agreements, lease/deeds and permits are monitored, assessed and evaluated. Results of the evaluation are used as basis for the renewal, cancellation and recommendation for appropriate tenurial instrument.



Monitoring is done thru field visits and regular reporting by field offices to the Department. MOOE is the major expenditure of the program.

## **A.2 Operations Against Illegal ENR Activities**

During the 19th Century, the country's forest cover was a verdant 21 million hectares. Decades of unbridled exploitation of the forests through large scale indiscriminate logging, kaingin or slash and burn land cultivation, and other destructive activities have decimated our forest cover over the years.

Different efforts from the DENR were developed to address this illegal activities. One of which is the issuance of Executive Order No. 23 declaring a logging moratorium in natural and residual forests nationwide and the creation of Anti-Illegal Logging Task Force. To implement the moratorium and lead the anti-illegal logging campaign, an Anti-Illegal Logging Task Force was created. The task force creation is region-wide down to CENRO level.

Also, the Department Administrative Order No. 2018-18 was issued to establish a centralized coordinative mechanism at the regional offices of the DENR, MGB and EMB to ensure effective coordination at the Regional level in the supervision of the regional offices and in the enforcement of environmental laws, rules and regulations.

Monitoring is done thru field visits and regular reporting by field offices to the Department.

Strategies undertaken to implement the operations against illegal ENR activities are as follows:

- a. Periodic field visit by CENRO personnel are being conducted to ensure the compliance on the conditions of the management agreements and deter illegal occupation of government lands and properties.
- b. Deputation of enforcement officers such as Wildlife Enforcement Officers, Forest Protection Officers/Bantay-Gubat, etc.
- c. Law enforcement and cooperation between and among enforcement agencies and assistance of the whole citizenry on illegal ENR activities.
- d. Creation of a citizens platforms such as Task Force Tayo ang Kalikasan, Task Force Boracay and Manila Bay Task Force for the DENR Program for Restoration, Rehabilitation, and Development (PRRD) advocacy for optimal, responsible, and sustainable use of our country's resources – natural, human, and social.



## B. Natural Resources Conservation and Development Program

### B.1. Protected Areas Development and Management

This Program covers the main in-situ measures to conserve biodiversity within and adjacent to protected areas. It will ensure that the current NIPAS and e-NIPAS coverage are rationalized by retaining and prioritizing those with high biodiversity values while providing appropriate governance regime for the protection of Key Biodiversity Areas (KBAs) such as through Local Conservation Areas (LCAs) with the LGU concerned and through Indigenous Community Conserved Areas (ICCAs).

To ensure continuity of the full stream of goods and ecological services from the aforementioned conservation areas, sustain habitat interconnectivity and wildlife corridors and improve resiliency of ecosystems in the face of climate change, the program will put premium on protection of natural habitats. Degraded areas shall also be restored/rehabilitated with due regard to their ecological requirements.

The Program also prescribes a comprehensive set of activities designed to ensure sustainable management of prioritized protected areas, to wit: competent Protected Area Superintendent (PASu) and PASu Staff are hired; Protected Area Management Board (PAMB) is operational; climate proofed PA Management Plan, buffer zone and other site-based plans are prepared/updated, mainstreamed and implemented; PAs boundaries are delineated or demarcated; management zones are established; basic PA facilities and structures are in place and maintained; PA occupants are surveyed and appropriate tenure instruments are issued, and/or when necessary, resettlement undertaken; Biodiversity assessment undertaken and monitoring system installed; and, innovative funding sources/mechanisms are in place, e.g. ecotourism, Special Use Agreement within PAs (SAPA), Integrated Protected Area Fund (IPAF), payment for ecosystem services (PES), etc.

The Protected Area Community Resource Management Agreement (PACBRMA) holders will be strengthened and assisted in updating their Community Resource Management Plans (CRMP) to make them climate smart and to ensure implementation of Biodiversity (BD) friendly agricultural practices/livelihoods/ enterprises. They shall likewise be prioritized in the implementation of PA Ecotourism initiatives. Buffer zone communities shall act as social fence able to negate threats to PAs.



The management and protection of other ecosystems including wetlands, caves, critical habitats and other conservation areas will also form part of this section for a holistic and effective in-situ management scheme.

For associated ecosystems such as urban biodiversity and agro-ecosystems, the following will be undertaken for its management and conservation: 1) experimental application and nationwide implementation of procedural guidelines or urban biodiversity-inventory and assessment; and 2) baselining and documentation of biodiversity-friendly practices in wider agricultural landscapes and local community-produced biodiversity-based products.

### **B.1.1 Protected Areas, Caves and Wetlands Development and Management Sub-Program**

1. Ensure effective and efficient planning and management of protected areas under the National Integrated Protected Areas System (NIPAS)
2. Promote and scale up the establishment and protection of other habitats/biodiversity conservation areas (e.g. caves, wetlands, Indigenous Community Conserved Areas, Local Conservation Areas, and identified urban areas)
3. Promote and implement biodiversity-related livelihood programs in protected areas and other conservation areas
4. Provide incentives to the ENR stewards or communities that protect and conserve biodiversity
5. Create and maintain sustainable economic opportunities in protected areas through Ecotourism Development Program (e.g. tour guiding, homestay, cultural activities, construction of ecotourism infrastructures, etc.)
6. Put in place value of biodiversity (i.e. ecological goods and services) and include in the national income accounts
7. Develop and maintain the Ninoy Aquino Parks and Wildlife Center into a premier ecological destination and people's center in Metro Manila
8. Encourage and sustain participation of biodiversity stakeholders and other partners from the national and local offices to strengthen partnership in the implementation of biodiversity laws, policies and rules and regulations
9. Ensure compliance to various biodiversity related Multilateral Environmental Agreements (MEAs) such as the Convention of Biodiversity, and Ramsar Convention

### **B.2 Wildlife Resources Conservation Sub-Program**

1. Strengthen implementation of the Wildlife Resources





- Conservation and Protection Act and its IRR
2. Pursue the Philippine commitments to international conventions such as the Convention on Biodiversity, Convention on Migratory Species, CITES, CMS, etc)
  3. Ensure protection and conservation of wildlife species and their habitats to promote ecological balance and enhance biological diversity
  4. Ensure the welfare and well being of wildlife species thru establishment and maintenance of National and Regional Wildlife Rescue Centers nationwide
  5. Undertake and support scientific studies on the conservation of biological diversity
  6. Strengthen partnership with other agencies/institutions, academe and CSOs on wildlife conservation and management

### **B.2.1 Protection and Conservation of Wildlife**

This programs deals with the preservation, conservation, and protection of wildlife, and/or maintenance, restoration, and enhancement of their habitats. Priority activities under this program are the following: 1) sustainable wildlife resource use; 2) enforcement of wildlife laws, rules and regulations which include the operations/mobilization of Wildlife Traffic Monitoring Units (WTMUs) as well as the Philippine Operations Group on Ivory and Illegal Wildlife Trade (POGI) and deputation and mobilization of Wildlife Enforcement Officers (WEOs); 3) operations and maintenance of Wildlife Rescue Centers (WRCs); 4) establishment and management of critical habitats; and 5) conservation of threatened wildlife species such as the marine turtle, dugong, tamaraw, Philippine Eagle and other raptors, crocodile, tarsier, cockatoo, and spotted deer.

### **B.3. Management of Coastal and Marine Resources**

The Coastal and Marine Ecosystems Management Program (CMEMP) aims to achieve the effective management of the country's coastal and marine ecosystems thereby increasing their ability to provide ecological goods and services to improve the quality of life of the coastal population particularly ensuring food security, climate change resiliency and disaster risk reduction. Through Biodiversity Friendly Enterprises (BDFE), marine biological resources and their habitats will be conserved and this will encourage the sustainable use of these resources for the present and future generations with maximized returns as economic benefits for the community. CMEMP also contributes to the achievement of the PDP and PBSAP targets including international commitments such as the Aichi Targets and the UN Sustainable Development Goals (Goal 14-Life below water).

- a. To establish a well-connected network of MPAs to ensure



- the effective and sustainable management of coastal resources;
- b. To implement sustainable management of coastal and marine resources to contribute to food security and improve human well-being of the coastal communities;
  - c. To effectively reduce threats and factors of degradation on coastal and marine ecosystems;
  - d. To enhance the formation of positive values among all stakeholders including the youth through shared responsibilities in sustainable management of coastal and marine resources and habitats; and
  - e. To develop and/or enhance the skill and expertise of DENR concerned staff as well as other stakeholders on coastal and marine management.

Communities in all coastal and marine areas of NIPAS Marine Protected Areas (MPAs) of the Philippines.

### **B.3.1 Coastal and Marine Ecosystems Rehabilitation Sub-Program**

1. Strengthen the capacity of LGUs to plan and implement the Integrated Coastal Management
2. Promote and undertake research and development on coastal and marine resources
3. Undertake rehabilitation measures for degraded coastal and marine ecosystems
4. Strengthen partnership and networking with LGUs and key stakeholders on integrated coastal management
5. Develop and maintain national coastal and marine resource information management system to support research, policy formulation and implementation and public education and communication on coastal resources and the environment
6. Facilitate integration of ICM plans into the development plans of local government units
7. Sustain community-based enterprise and livelihood opportunities with coastal area communities / stakeholders
8. Ensure compliance to international commitments such as the Convention on Biodiversity and UNCLOS

### **B.3.2 Development, Updating and Implementation of the Operational Plan for the Manila Bay Coastal Management Strategy pursuant to SC GR No. 171947-48**

The current thrust of the Manila Bay Coordinating Office (MBCO) is to fast-track the rehabilitation of Manila Bay pursuant to the Administrative Order No. 16, s. 2019. This will



be done in coordination with key agencies under the Manila Bay Task Force with strict monitoring of their compliance with the Writ of Continuing Mandamus and AO 16.

Aside from the activities on water quality monitoring and solid waste reduction, it will be focusing on geo-engineering interventions for the Manila Bay Rehabilitation. The key projects of MBCO are:

1) Clearing, Grubbing, and Desilting to remove and haul all submerged garbage in priority rivers and esteros.

2) Establishment of Sewage Treatment Plants and Wastewater Interceptors This project aims to address the problem with the domestic wastewater due to the low percentage of sewerage system coverage in Metro Manila. Domestic wastewater discharge is defined as used water from households consisting both toilet waste and gray water. This will be done by installing Wastewater Interceptors on different drainage outfalls that leads to Manila Bay to receive and control the untreated wastewater from households within the community. The Sewage Treatment Plant will then process and treat the domestic wastewater coming from the interceptors before releasing the treated water into Manila Bay.

3) Easement Development with Pilot In-Situ Resettlement Facilities One of the target outcomes of OPMBCS under Informal Settler Families and Illegal Structures Management is the permanent removal of houses, structures, construction and other encroachments along easement areas in rivers, waterways, esteros, lake and bay coastlines within Manila Bay Region. Easement development is to be conducted after the clearing of areas. This will include establishment of pilot in-situ resettlement facilities in the priority areas which are still to be determined. The redevelopment of cleared areas to a pilot in-situ resettlement facility allows the Informal Settler Families to retain their locational advantage. This aims to provide a solution to the lack of affordable and adequate in-city housing and land availability for resettlement facilities.

4) Project: Kubeta Ko The "Project: Kubeta Ko" is expected to adopt a portable, container-based toilet solution to provide dignified facilities for Informal Settler Families (ISFs) along Bacoor and Meycauayan Rivers. This project is one of the responses of the DENR as a temporary solution that will help



change the culture of ISFs to stop and minimize open defecation. The container-based toilet technology was developed by Loowatt Ltd., which is regarded to be practical and feasible for use of ISFs.

### **B.3.3 Pasig River Rehabilitation**

Pasig River Ferry Convergence Program PRFCP is a convergence program to provide for a multisectoral approach in the development of a Pasig River Ferry System for commuter transportation and disaster response to contribute to a more sustainable Metropolitan Manila. The interagency committee for the convergence program is composed of the following NGAs: DBM, MMDA, DOTr, DPWH, DOT, DILG, NEDA, LLDA and is led by the DENR. The convergence program involves five (5) interlinked and integrated program components namely:

1. Fleet Acquisition and Network Development, which involves procurement of new vessels and equipment to upgrade the ferry system to modern standards and ensure adherence to passenger safety requirements and improved monitoring and enforcement system;
2. Infrastructure, which consists of repairs and construction of relevant structures, roadways, and pathways require to ensure wide accessibility and intermodal connectivity of the ferry system;
3. Environmental Management, to the extent of the reduction of solid wastes and water hyacinth, and the dredging of waterways to ensure passable roadways, navigable waterways and pathways for the ferry system;
4. Communications, which involves information dissemination and ferry promotion to commuters and tourists and the engaging of local communities in project areas;
5. Easement Recovery, which involves the enforcement of Article 51 of Presidential Decree (P.D.) No. 1067 such as, but not limited to, the recovery from encroachments of the legal easements of waterways, the resettlement of informal settler families and the dismantling of informal settlements and privately-owned structures affected by the easement development program.



#### B.4 Land Management Sub-Program

The Land Management Sub-Program is an integration of the following: 1) land surveys; 2) land disposition and management, and 3) land records management; whereas the process of determining, recording and disseminating information about tenure, value and use of land when implementing land management policies is called land administration. This involves all activities related to surveys and disposition of A & D lands of the public domain and all other government properties and the enhancement of the integrity of titles.

The implementation of the Land Administration and Management System (LAMS) resulted to the improved access to land records and information at reduced costs to the government, private and public clients, faster delivery of land-related services and subsequently increased land-related transactions.

To minimize, if not eliminate the risk of issuing patents to spurious individual other than the qualified beneficiary a systematic adjudication process is adopted. Under the systematic adjudication process which was developed under the Land Administration and Management Program<sup>2</sup> (LAMP<sup>2</sup>), the involvement of the community was adopted in the determination of land rights, identification of beneficiaries and defining parcel boundaries of the land. Likewise, the assistance by the LGUs as partner in the titling process will result to clear understanding among the people the land disposition service of the DENR and the same time compliment the manpower of the Land Management Sector.

Rapid Land Tenure Appraisal is also institutionalized. It is an activity which focuses on the untitled lots to determine the potential lots before titling operations are entered into. The result of this activity shall be used to prioritize barangays based on the number of workable lots.

##### B.4.1 Land Survey, Disposition and Records Management

The program is an integration of three major activities of the Land Sector that is land surveys, land disposition and management and land records management (approved by DBM for 2014). The above-mentioned **major activities are interdependent, complementary and cyclical**. To illustrate, no public land can be disposed through any modes of disposition without an approved survey. In turn, the need for surveys depends on the demand for and magnitude of land for disposition



and management. Land claims and conflicts invariably require that the disputed property be surveyed before they can be properly adjudicated. Land records generated from these activities must be secured, preserved and properly stored. Efficient records management highly facilitates land surveys and mapping as well as land disposition and management.

*Land surveys & mapping* refers to all activities related to the identification, delineation and mapping of agricultural lands of the public domain and all other government lands and properties under the jurisdiction of DENR. It embraces cadastral survey, field network survey and all other types of survey undertaken by the sector. *Land disposition and management* involves all activities related to the processing, approval and issuance of concessions (homestead for agricultural lands and free patent for agricultural & residential lands) involving public lands in favor of qualified individuals; investigation and resolution of land cases; titling of untitled government properties as well. Covers issuance of patents in public residential and agricultural lands, under RA 10023 (otherwise known as "An act authorizing the issuance of Free Patents to Residential Lands") and RA 6657 (otherwise known as the Comprehensive Agrarian Reform Law of 1988), respectively.

*Land Records management* pertains to all activities related to receiving, releasing, classifying, filing or retrieval of land records. These include survey records, public land records, and legal records. The Land Administration and Management System (LAMS) developed to effectively manage the DENR Land Records and related services, it will cover completing the data build up and conversion to Digital format.

#### **B.4.2 For the Requirements of the Comprehensive Agrarian Reform Program**

The DENR is mandated by RA 6657 (CARL) as amended by R.A. 9700, CA 141 (Public Land Act), EO 192, PD 705, EO 263 and R.A. 9176 (Free Patent Law), to undertake the following:

##### **Land disposition**

Patent Processing and Issuance – (completed): Through the issuance of Free and Homestead Patents over Public Agricultural A & D lands.

##### **Support to Land Tenure Improvement**

- a. Public Land Survey – (completed): Through the conduct of land survey over Public Agricultural A & D lands.



- b. Inspection, Verification and Approval of DAR survey projects: Through the conduct of IVAS of Survey Returns (SRs) submitted by DAR, DENR Regional Offices conducts survey projects.

## **PROGRAM BENEFICIARIES DEVELOPMENT (PBD)**

### **CBFM-CARP**

Provision of Support services to Community-Based Forest Management (CBFM) areas thru Agro-Forestry Development and livelihood projects in support to Hunger Mitigation and National Greening Program (NGP).

### **B.5 Forest and Watershed Management Sub-Program**

The current forest cover of the Philippines is at 6.4 M hectares based on the 2015 forest land cover data of NAMRIA compared to the 16.9 M hectares cover in 1934. DENR is addressing the further decline of forest cover by rehabilitating open and denuded forestlands. In 2017-2022 Philippine Development Plan, the Department targeted to rehabilitate a total of 1.2 million hectares of denuded forest cover by the end of 2022. Moreover, to meet the demand for round wood and at the same time reducing threats in the remaining natural forests, DENR support the development of commercial forest plantations within IFMA, CBFMAs, and other applicable areas.

To be able to produce good quality trees, seed production areas, clonal nurseries, and mechanized nurseries will be developed and maintained to supply seedling requirements for commercial plantations including those needed by various forest and landscape restoration activities.

Moreover, these efforts will be able to contribute to the reduction of greenhouse gases in the atmosphere through carbon sequestration. Increasing forest cover also means higher potential of our forests to serve as sinks for atmospheric carbon dioxide.

#### **B.5.1 Forest Development, Rehabilitation and Protection**

This program deals with the efficient and effective development, management, and conservation of forestlands and watersheds through reforestation especially of the critically denuded/degraded forestlands. Reforestation and rehabilitation activities in order to restore the forestlands involves establishment of plantation areas as safeguard against soil erosion, landslides, floods and other ecological devastation.

The National Greening Program or the NGP as the DENR



banner program is a convergence initiative of DA-DAR-DENR where the DENR stands as the lead agency. As a government priority pursuant to EO Nos. 23 and 26, both series of 2011, the NGP aims to: 1) contribute in reducing poverty among upland and lowland poor households, indigenous peoples, and in coastal and urban areas; 2) implement sustainable management of natural resources through resource conservation, protection, and productivity enhancement; 3) provide food, goods and services such as timber, fiber, non-timber forest products, aesthetic values, air enhancement values, water regulation values, and mitigate climate change by expanding forest cover that serve as carbon sink; 4) promote public awareness as well as instill social and environmental consciousness on the value of forests and watersheds; 5) enhance the formation of positive values among the youth and other partners through shared responsibilities in sustainable management of tree plantations and forest resources, and 6) consolidate and harmonize all greening efforts of the government, civil society, and the private sector.

Executive Order No. 193 was signed on November 12, 2015, the Expanded NGP will rehabilitate all the remaining unproductive, denuded and degraded forestlands estimated at 7.1 million hectares from 2016 to 2028.

#### **Clonal Nursery and Production of Quality Planting Materials (QPM) of Premium and Indigenous Forest Species for National Greening Program**

To fully achieve the goals and objectives of the National Greening Program, clonal nurseries were established/maintained to ensure the continuous supply of good quality planting materials up to year 2016. Maintenance of existing clonal nurseries will be pursued vigorously toward this end.

Moreover, DAO No. 2010-11 shall be institutionalized and operationalized to ensure success of NGP undertaking. This issuance provides for the revised regulations governing forest tree seed and seedling production, collection and disposition which promotes the use of high quality planting materials in the establishment of tree plantations, tree farms, agroforestry and other forestation activities to promote biodiversity conservation and to ensure sustainable production and supply of wood and other forest products in the country. As such, all concerned sectors involved in the National Greening Program should be guided by the provisions stated herein.

Very crucial in the implementation of NGP is the establishment, expansion and/or rehabilitation of clonal and mechanized nurseries aimed at ensuring the production of high quality seedlings for planting in identified/selected areas/sites.





### **B.5.2 Soil Conservation and Watershed Management Including River Basin Management and Development**

This program refers to land-based management practices for minimizing, if not totally eliminating soil erosion and movements from higher to lower slopes to maintain fertility and productivity of the land. Soil conservation techniques may be in the form of vegetative, structural and combination of vegetative and structural approaches/measures.

#### **Build Back Better (BBB) Task Force**

The “Build Back Better Task Force” is a high-level institutional platform and a more permanent body that will streamline and expedite post-disaster efforts in a sustained and integrated manner, with a clear unity of command.

The Task Force will focus on the following 6 Key Result Areas:

KRA 1 – Better and Resilient Infrastructures
KRA 2 – Stronger Shelter and Resilient Settlement
KRA 3 – Improved Systems and Essential Service
KRA 4 – Restore Sustainable Livelihood
KRA 5 – Strengthened Governance thru Broad-based Citizen Input
KRA 6 – Intensified Watershed Management

The DENR is in charged of activities identified under KRA 6 or Intensified Watershed Management which include assessment of watershed and river basin and soil conservation and watershed management.

#### **Implementation of Executive Order Nos. 510, 816 and 50**

##### **a.1 Formulation of the Climate Responsive Integrated River Basin Management and Development Master Plan**

The River Basin Control Office under the supervision of the DENR was created by virtue of Presidential Instruction through Executive Order No. development of the country’s river basin. The formulation of the Climate 510 dated March 05, 2006 and further strengthened by Executive Order 816 and 50 dated July 6,



2009 and July 28, 2011 respectively, primarily to take lead in the integrated planning, management, rehabilitation and Responsive Integrated River Basin Management and Development Master Plan has been done prioritizing the 18 Major River Basins in the country using the Integrated River Basin Management and Development Framework (IRBMF). The said frameworks have four (4) essential component frameworks, namely: 1) Integrated Water Resources Management 2) Integrated Ecosystem/Watershed Management 3) Flood Mitigation and Disaster Risk Management 4) Wetland and Biodiversity Management. The IRBM framework is strengthened by two (2) supplemental frameworks a) Establishment of a Decision Support System and b) Institutional Development or the creation of Basin level River Basin Organizations.

The RBCO will continue to pursue the formulation of the Climate Responsive Integrated River Basin Management and Development Master Plans for the priority areas among the 421 Principal River Basins in the country. The completed River Basin Master Plans that have been endorsed/approved by respective Regional Development Council are programmed for rolling-out to pursue its implementation and the necessary funding support through continuous coordination with various stakeholders (i.e NGAs, RGAs, LGUs, NGOs, POs, IPs, Academe, Religious and Private Sectors, etc.) The list of eight (8) Principal River Basins is proposed for the formulation of a Climate Responsive River Basin Integrated Management and Development Master Plan. (See attached Table)

a.2 Creation, Operationalization and Sustainable Operation of the Basin Level River Basin Organizations (RBOs)

As part of the mandates of the RBCO, the creation of the RBO at the River Basin Level as embodied in the Integrated River Basin Management and Development Framework Plan shall be implemented through integrated governance and management approach and effective coordination and cooperation at all levels in the river basin. The creation of appropriate RBO in each major river basin is part of the major recommendations in the River Basin Master Plans to institutionalize basin level governance where its creation undergo stakeholder's consultation in coming up the desired organizational structure for the overall management of the basin.

RBCO provided technical assistance in the sustainable operation of the RBOs through continuous capacity development, data updating, management and monitoring & evaluation.



a.3 Development of the River Basin Monitoring and Evaluation (M & E)

The said project requires consulting services in the development of integrated river basin monitoring system (e.g. Report Card). This projects will develop appropriate indicators that would be used in determining the progress and impacts of all government interventions at the basin level.

a.4 Development of a Web-based-River Basin Integrated Information System (RB-IIMS)

The project is the propose upgrading from desktop-based to a web-based application that contains database of environmental data comprising of a program to facilitate storage, management and retrieval of data in an efficient manner for used by multi-users across disciplines and sectors for decision support for policy makers, researchers, and various user such us LGUs, NGAs CSOs and the general public. The proposed system will address the fragmented action in river basin planning. This will support the policy/decision makers to come up with more responsive actions for sustainable management of our natural resources. Develop database, standard format and guidelines for collection, compilation, processing and exchange of information using the web-based application that is easily accessible to all users and performed on line update of database on real-time and establish regional network linking other government agencies and LGUs for data sharing.

**B.5.3 Forestland Management Project (FMP) - JICA**

The project aims to strengthen forestland management through implementing community-based forest management in the 24 sub-watersheds within three river basins (i.e., Upper Magat and Cagayan River Basin, Upper Pampanga River Basin and Jalaur River Basin) in a sustainable manner, thereby improving forest conservation and socio-economic conditions of upland dwellers, and contributing to disaster-risk mitigation efforts of vulnerable areas.

**B.5.4 Integrated Natural Resources Environmental Management Project (INREMP) – ADB, IFAD, GEF & CCF**

INREMP aims to manage the upper river basins and component watersheds to support poverty reduction, watershed management, biodiversity conservation and climate change policy



objectives with emphasis on developing the capacities of the local governments, institutions and upland communities as development partners in regions VII, X, CAR and ARMM.

***\*The Organizational Outcome 2: Clean and Healthy Environment Sustained is lodged under Environmental Management Bureau***

**Organizational Outcome 3: Adaptive Capacities of Human Communities and Natural Systems Improved**

**Environmental and Natural Resources Resiliency Program**

**Natural Resource Assessment**

The Millennium Ecosystem Assessment defines ecosystems services as “the benefits people obtain from ecosystems which include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefit” (DEFRA, 1997).

Economists classify the values associated with ecosystems goods and services into use and non-use values. Use values includes values derived from the direct use of environmental goods and services, and in the indirect provision of goods and services through processes such as the ecosystems ability to maintain water quality, ability to provide habitat for wildlife and ability to store carbon and thus help control global temperature (Krieger, 2001).

In spite of the many programs being implemented, the problem on the decline on productivity of ecosystems still persists hence; this program will examine the use of economic valuation techniques for valuing the ecosystems services. Ecosystem valuation is a difficult and controversial task and economist/managers are often criticized for trying to put a "pricetag" on nature.

However, agencies like DENR who is in-charge of protecting and managing natural resources must often make difficult spending decisions that involve tradeoffs in allocating resources. These types of decisions are economic decisions, and thus are based, either explicitly or implicitly on society's values.

Therefore, this program on economic valuation can be useful by providing a way to justify and set priorities for programs, policies, and actions that protect or restore ecosystems and their services.



Strategies under this outcome plan to achieve the following:

- Focus on data, statistics to be translated into policies and specific interventions to assure ecosystems resiliency and adaptive capacity of human communities to natural hazards.
- It shall also serve as planning and budgeting tool based on accepted standards
- To include socio-economic sub-assessment to determine how communities benefit or become adaptive to the dynamic natural forces and conditions  
Serve as planning and budgeting tool based on accepted standards

### **Watershed Characterization cum Vulnerability Assessment**

Watershed Characterization is a process of describing the biophysical and socio-economic characteristics and features of a watershed and determination of issues, vulnerability and opportunities for development interventions. (DENR MC-2008-05) On the other hand, Vulnerability Assessment shall also be conducted to analyze the relationship between natural and anthropogenic hazards and recipient subject (watershed). The vulnerability assessment identifies the strength and weaknesses of the recipient subject in relation to the identified hazard. (DENR MC-2008-05)



## **B. ENVIRONMENTAL MANAGEMENT BUREAU**

The Environmental Management Bureau (EMB) is a Line Bureau of the DENR mandated to implement and enforce on a nationwide scale the following environmental laws:

1. PD 1586 - Environmental Impact Statement System 1978
2. RA 6969 - Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990
3. RA 8749 - Clean Air Act of 1999
4. RA 9003 - Ecological Solid Wastes Management Act of 2000
5. RA 9275 - Clean Water Act of 2004
6. RA 9512 - National Environmental Awareness and Education Act of 2008

Pursuant to Executive Order No. 192, EMB is also mandated to provide research and laboratory services, Secretariat to the Pollution Adjudication Board and the National Solid Waste Management Commission. In addition, the Executive Order 312 designates the DENR-EMB as Secretariat of the National Authority for CDM of the Kyoto Protocol.

The EMB as a line agency is guided by the vision of a nation empowered to protect its finite natural resources in pursuit of sustainable development, to ensure a healthy environment that enhances the Filipino quality of life for present and future generations. Its mission is to restore, protect and enhance environmental quality toward good public health, environmental integrity, and economic viability. It is the national authority responsible for prevention and control of pollution as well as management and enhancement of the environment.

### **OO 2: Clean and Healthy Environment Sustained**

#### **Environmental Assessment and Protection (EAP) Program**

An environmental assessment and protection program covers the environmental policy and the over-all goal of reducing environmental impacts to protect our environment and to ensure a better quality of life for the present and future generations through the environmental impact assessment process, environmental education and partnership building and environmental pollution research programs.

#### **Environmental Impact Assessment**



The program is focused on the rationalization of environmental standards and ECC coverage. It also involves the intensification of Environmental Compliance Monitoring which include the monitoring of projects that have been issued ECC for Environmentally Critical Projects (ECPs) and Environmentally Critical Areas (ECAs).

Consistent with the principles of sustainable development, it is the policy of the DENR to implement a systems-oriented and integrated approach to the EIS system to ensure a rational balance between socio-economic development and environmental protection for the benefit of present and future generations. The EIS System is concerned primarily with assessing the direct and indirect impacts of a project on the biophysical and human environment and ensuring that these impacts are addressed by appropriate environmental protection and enhancement measures. It aids proponents in incorporating environmental considerations in planning their projects as well as in determining the environment's impact on the project.

### **Environmental Pollution Research**

This program develops the standards, rules and regulations on existing and anticipated environmental issues and problems; conducts assessment on the capacity of private laboratories to provide environmental analytical services; embarks on inter-calibration exercises; recognition of environmental laboratories; conducts continuing researches and studies on the effective means for the control and abatement of pollution; ensures data quality for compliance monitoring and enforcement; and maintains, calibrates and upgrade various scientific equipment of the Bureau to sustain its day-to-day operation.

### **Environmental Education and Partnership Building**

The program conducts advocacy activities to increase public awareness, education and participation on environmental concerns through the use of print, broadcast, web-based, outdoor advertising, inter-personal and other media. It also includes the updating and implementation of the National Environmental Education Action Plan in support to the ASEAN Environmental Education Action Plan.

The Program also catalyzes the conduct of multi-stakeholder special events during the whole year-round nationally and internationally significant celebrations on the environment. It conducts education and capacity building programs on the different environmental laws and programs, with various stakeholders. It coordinates with the country's major education institutions and networks for the strengthened integration of environmental education concerns in the school curricula at all levels. It also promotes partnership and encourages adoption of Environmental Management Programs among strategic



stakeholders (schools, local government units, government offices, industries, etc.)

### **Environmental Regulations and Pollution Control Program (ERPC)**

The EMB is mandated to abate and control pollution of air, water and land for a more effective utilization of the resources of the country. This program determines the location, magnitude, causes, effects and other pertinent information regarding pollution of the air, water and land resources of the country. It recommends the application and the use of available methodologies and technologies to prevent or abate pollution. Under this program, the agency sets standards, rules and regulations, issues, renews or denies issuance of permits in accordance with the provisions of environmental laws such as Republic Act (RA) 8749, RA 9275, RA 6969 and RA 9003. This program intends to bring to compliance the regulated communities to environmental regulations and standards.

#### **a.) Implementation of Clean Air Regulations**

The program covers the full implementation of Clean Air Act. The objective of the Clean Air Program is to come up with a comprehensive national program to achieve and maintain air quality that meets the National Air Quality Guidelines for Criteria Pollutants throughout the Philippines, while minimizing the possible associated negative impacts on the country's economy. Thus, in order to effectively monitor and regulate all sources of air emissions, the Clean Air Program is divided into three sub programs: (1) Motor Vehicle Emission Management Program, (2) Industrial Emission Management Program, (3) Roadside ambient and general ambient air quality monitoring. This is to effectively manage the three sources of air pollution namely mobile, stationary, and area sources.

The monitoring of roadside and general ambient air quality is an essential activity by the agency. It enables agencies and local government officers to assess the air quality in their area of jurisdiction and formulate a comprehensive policy / regulation for the betterment of their locality. As the monitoring stations are established in Metro Manila and other highly urbanized cities, statuses of the air quality at different locations nationwide are produced through real time science based air quality monitoring data. The installation of Real Time Continuous Ambient Air Quality Monitoring Stations capable of monitoring complete criteria pollutants (SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, CO, BTX, and PM<sub>10/2.5</sub>) and meteorological parameters are being operated, making the results available to everyone by posting in the website and installation of LED Boards in public areas so that they will be informed of the status of air quality in their areas. The results are translated into layman description to appreciate the information and making them relevant to their everyday lives. This effort prompts local government units to provide necessary actions to mitigate pollution in their respective jurisdictions. All equipment undergoes regular calibration to keep the results reliable and accurate. The Bureau also encourages partnership with host institutions/agencies for the maintenance and security of the equipment. Full operationalization of airshed nationwide and implementation of its action plan will be undertaken.





### **b.) Implementation of Clean Water Regulations**

The program is implemented based on the established environmental laws specifically RA 9275, the Philippine Clean Water Act (CWA) that provides for a comprehensive strategy to address the degradation of our waterbodies. It mandates the Bureau to formulate and implement policies and strengthen partnerships with stakeholders to improve water quality in all parts of the country. It encourages pollution prevention and waste minimization at source and provides for the use of economic incentives and public disclosure to ensure compliance.

The program aims to improve water quality of Priority Rivers and other critical water bodies including lakes and bays through continuous massive clean-up. It conducts regular compliance monitoring of industries and initiates rehabilitation of highly polluted waterbodies through partnership agreements such as the Adopt-an-estero program. Water classification is a very important component of water quality management since the application of effluent standards are dependent on this classification. The classification of waterbodies helps water managers and planners to develop proper water quality management programs and enables the setting-up of standards to protect aquatic life and human use of specific water bodies. Operationalization of water quality management areas (WQMAs) will also be prioritized.

As part of the recreational waters program, the EMB together with DOH, LGUs and other partner agencies endeavors to strengthen the implementation of enforcement by adjudicating recalcitrant establishments operating near the beaches.

The rehabilitation works in Manila Bay and other priority tourist destinations namely: El Nido, Coron in Palawan; Panglao in Bohol; Siargao in Surigao Del Norte; and Puerto Galera in Oriental Mindoro will be intensified. These areas pose serious concerns because of their high fecal coliform level. Strengthened coordinative mechanism with other concerned government agencies and LGUs to clean, rehabilitate and restore its water quality to Class "SB" level that is fit for swimming, skin diving and other forms of contact recreation is being undertaken.

### **c.) Implementation of Ecological Solid Waste Management Regulations**

The Philippines has endeavored to improve its management of solid waste through the passage of RA 9003 or the Ecological Solid Waste Management Act that provides for a systematic, comprehensive and ecological waste management program to ensure the protection of public health and the environment. It mandates the bureau to provide secretariat support to the National Solid Waste Management Commission in the implementation of the



solid waste management plans and prescribes policies to achieve the objectives of the National Ecology Center that is in charge of information dissemination, consultation, education and training of various local government units on ecological waste management.

The ecological solid waste management program is expected to assist Local Government Units in implementing RA 9003 or the Ecological Solid Waste Management Act particularly in the development of their 10 yr. SWM Plan, closure and rehabilitation of dumpsites, establishment of Materials Recovery Facilities, and an environmentally sound disposal system.

The issuance of Guidelines and provisions of technical support in the establishment and operation of Waste To Energy facilities will enhance the sustainability of disposal system for municipal residual wastes to all provinces and highly urbanized areas. The significant contribution of this project is expected to enhance the economic development of the country through formalizing the waste collection and recycling, and promotion of job opportunities. It also helps the economy to reduce reliance on imported oils and increased in power generation.

#### **d.) Implementation of Toxic Substances and Hazardous Waste Management Regulations**

The Toxic Substances and Hazardous and Nuclear Waste Control Act of 1990 is concerned with the management of industrial chemicals in all aspects of its life cycle from importation, manufacture, distribution, use and disposal. It also covers the management of hazardous wastes from its generation, handling, transport, treatment and disposal. Complementary activities are regulation of priority chemicals; implementation of the Chemical Control Order; and complete inventory and formulation of the National Implementation Plan for 12 persistent organic pollutants (POPs).

Present initiatives on hazardous waste management include amending existing laws and regulations to update the classification of hazardous wastes to include, among others, waste electrical and electronic equipment (WEEE) or e-waste; prescribing the use of the Online Hazardous Waste Manifest System; as well as updating the Categories of Treatment, Storage, and Disposal (TSD) facilities to include Material Recovery Facilities (MRFs). Garage Testing successfully engaged the cooperation of Metro Manila bus operators and public utility jeepneys (PUJs). Assistance provided by this program includes free emission testing, information and education campaign (IEC) on fuel efficiency and management and regular vehicle maintenance. Out of 6,068 vehicles tested, 2,924 passed while 3,144 failed the vehicle emission standard.



## **C. MINES AND GEOSCIENCES BUREAU**

The Mines and Geosciences Bureau (MGB) is the agency that is directly in charge in the administration and disposition of the country's mineral lands and mineral resources.

MGB envisions a minerals industry that is not only prosperous but also socially, economically and environmentally sustainable, with broad community and political support while positively and progressively assisting in government's program on poverty alleviation and contributing to the general economic well being of the nation.

MGB also aims to be the leading geosciences and geo-resources Bureau serving the public and nation with scientific reliability.

### **I. OPERATIONS**

#### **Organizational Outcome 1: Natural Resources Sustainably Managed**

##### **Program 1: Mineral Resources Enforcement and Regulatory Program**

###### **Sub-Program: Mineral Regulation Services**

The Program executes the mandate of the Mines and Geosciences Bureau (MGB), consistent with the provisions of Republic Act No. 7942, the "Philippine Mining Act of 1995", an act instituting a new system of mineral resources exploration, development, utilization and conservation. The act provides for the authority of DENR through MGB on the direct administration and disposition of mineral lands and mineral resources that will promote the rational exploration, development, utilization and conservation of natural resources leading to the enhancement of economic growth and countryside development while effectively safeguarding the environment and protecting the rights of affected communities. This program is also in support to Executive Order No. 79 re: Institutionalizing and Implementing Reforms in the Philippine Mining Sector and Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources, issued in 2012. Expected beneficiaries include, mining industry, national government agencies, local government units, host and neighboring communities, civil society organizations and other stakeholders.

The program has the following strategies:

#### **1. Mineral Investment Promotion Program**

This involves the issuance of mining permits and contracts to qualified



persons pursuant to the Philippine Mining Act of 1995. These permits/contracts include Exploration Permits, Mineral Agreements, Financial or Technical Assistance Agreements, Mineral Processing Permits, Industrial Sand and Gravel Permits, and other mining related permits such as Ore Transport Permit, Mineral Ore Export Permit, Accreditation of Traders/Dealers, Declaration of Mining Project Feasibility, Certificate of Environmental Management and Community Relations Record, etc. The implementation of the National Small-Scale Mining Program pursuant to Republic Act No. 7076 is also another component which has the objective of rationalizing small-scale mining activities thru the declaration of Peoples Small-Scale Mining Areas, operationalization of Provincial/City Mining Regulatory Boards, and assistance to small-scale miners.

The President signed Executive Order (EO) 130 last 14 April 2021. Executive Order 130 amends the provisions in Section 4 (Grant of Mineral Agreements Pending New Legislation) of Executive Order No. 79 S. 2012, Institutionalizing and Implementing Reforms in the Philippine Mining Sector, Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources, enforced nine years ago, imposing a moratorium on the processing of new mining projects in the Philippines. The MGB prepared the Implementing Rules and Regulations of EO 130. The Stakeholders Forum on the draft IRR were held last 19-20 May 2021. The draft IRR is currently with the DENR OSEC for approval.

## **2. Mining Industry Development Program**

This ensures the implementation of responsible mining practices in the minerals industry. It involves the monitoring of mining permits/contracts to determine their compliance with the Safety and Health, Environment and Social (SHES) provisions of the Mining Act of 1995, as well as the approved exploration/development/construction/operating work programs. The audit of the SHES and work program monitoring system is also a component of this strategy. To further ensure the compliance of mining permits/contracts, the operationalization of Multipartite Monitoring Teams is also undertaken. Illegal mining activities are addressed thru the issuance of cease and desist orders, and the consequent filing of charges in the Provincial/City Prosecutor's Office. Lastly, complaints/cases/conflicts are likewise addressed.

## **3. Mine Rehabilitation Program**

This focuses on the remediation and rehabilitation of abandoned mines. This is accomplished through the implementation of Environmental Management Plans to reduce, if not eliminate, the negative environmental impacts brought about by abandoned mines, such as, acid mine drainage, erosion, siltation, pollution of rivers, etc.

### **Program 2: Mineral Resources and Geosciences Development Program**

#### **Sub-Program: Mineral Resources Development**

The objectives of the Program are attained thru the generation of geologic data vital in the development of mineral resources; land use



classification, planning and development; groundwater resource management; geohazard zonation; solid waste disposal sites; and environmental protection and regulation. It consists of two strategies, namely: Geologic Survey and Exploration, and Mineral Reservation.

## **1. Geologic Survey and Exploration**

### **A. Land**

The Geologic Survey and Exploration aims to generate geo-scientific information and consists of five (5) major components:

- Data compilation and collation;
- Data generation through air-photo interpretation and other remote sensing techniques;
- Field geological mapping and survey, which will involve geological sampling and analysis;
- Interpretation and analysis of data; and
- Generation of reports and production of the geological maps in the scale of 1:50,000.

### **B. Offshore**

The “Geological Studies and Marine Mineral Exploration of Philippine Seas” is a project that will conduct research and exploration in order to determine the economic potential of the marine areas in the Philippines. In particular, the fundamental purpose of the research is to assess the coastal and offshore mineral resources, with particular emphasis on placer deposits. With this exploration work, delineation of inferred resources within the country's coast and territorial waters are expected. The mineral resources that will be sought are gold and other base metals, as well as rare earth elements (REEs) and other non-metallic and aggregate deposits. In the process, mapping of the sea floor to identify the different geologic undersea topographic and tectonic features and to assess the sedimentary character of the sand and gravel resources and other associated minerals will be conducted. The project will be conducted in areas adjacent to the Philippine Rise, Celebes Sea and West Philippine Sea.

## **2. Mineral Reservation Program**

The Mineral Reservation Program (MRP) has the objective of management and promotion of existing mineral reservation areas and the declaration of new mineral reservation areas. Additional revenues to the government thru payment of royalties (Chapter II, Section 5 of Republic Act No. 7942, otherwise known as the Philippine Mining Act of 1995, and Chapter III, Section 9 of Department Administrative Order (DAO) No. 2010-21) that are imposed on mining operations within the mineral reservations will contribute.



to the economy of the country. This is equivalent to 5% of the gross revenues of the mining operations therein. The MRP has three (3) major activities, namely: (1) Management and Promotion of Existing Mineral Reservations; (2) Establishment of New Mineral Reservations; and (3) Research and Development/Special Projects.

### **OO3: Adaptive Capacities of Human Communities and Natural Systems Improved**

#### **Program 1: Geological Risk Reduction and Resiliency Program**

##### **Sub-Program: Geological Assessment for Risk Reduction and Resiliency**

This program intends to capacitate communities to their adaptation to geologic hazards, as well as provide them critical data on groundwater resources. The program has two (2) components, namely:

#### **1. Geohazard Assessment**

The Geohazard Assessment Program was implemented to generate information on susceptibility of areas to geologic hazards. The assessment is focused on rain-induced landslides, floods, flashfloods, ground subsidence or sinking in karst/limestone areas, and other forms of slope instabilities that are not directly induced by earthquakes or volcanic activities. Hand in hand with the intensified IEC effort, updating and re-assessment of the geohazard mapping is undertaken over municipalities/cities affected by recent or resurgent natural events. To further optimize the usefulness of the geohazards maps, Risk analysis and Vulnerability assessment was undertaken in 2015 onwards over highly critical and priority areas of the country. These shall integrate climate change impact and establishment of community-based early warning systems.

The sub-surface assessment was also initiated in 2015 to determine subsidence hazards and sinkhole in karst areas.

The coastal geohazard assessment project that started in 2015 focused on areas which are highly prone to erosion and accretion. From 2019 and onwards, coastal cities and municipalities that were identified critical to coastal erosion and accretion shall be monitored for coastal vulnerability as affected by sea level rise and coastline shift due to impact of climate change.

#### **2. Groundwater Resource Assessment**

The Groundwater Resource and Vulnerability Assessment Program of the Mines and Geosciences Bureau (MGB) is conducted to determine the availability of groundwater resource and the threats to depletion and contamination.



It covers two main aspects: the resource assessment component, and the vulnerability component. The program shall cover a regional assessment (per province for 2016-2018) of 82 provinces (including NCR) nationwide and a local assessment of 90 cities/municipalities in 2019; 44 cities/municipalities in 2020; and at least 50 cities/municipalities from 2021 onwards. As of 2018, 76 provinces were completed for groundwater resource assessment. In terms of the regional scale, the program shall generate a 1:250,000 scale hydrogeologic and groundwater availability maps and update the existing ones. The Program will integrate climate change impacts in some critical areas that will be identified during the assessment such as changes in sea level which might affect groundwater resource in the coastal areas and effect of the reduction in the recharge of the groundwater due to drought.



## **D. NATIONAL MAPPING AND RESOURCE INFORMATION AUTHORITY**

The National Mapping and Resource Information Authority (NAMRIA) serves as the country's central mapping and resource information agency. As such, NAMRIA provides geographic and resource information through its surveying, land classification, mapping, and geospatial information management and dissemination services to both government and private sectors.

### **I. OPERATIONS**

NAMRIA envisions itself as a center of excellence building a geospatially-empowered Philippines. A geospatially-enabled Philippines is a nation that fully integrates and leverages the use of geospatial information and technology in all socio-cultural, economic, and governance activities. NAMRIA's mission is to provide quality topographic maps, nautical charts, and other geospatial products and services in a timely and coordinated manner, which are effective reference tools in environmental management, development planning, and decision-making by the national government, LGUs, the private sector, and the academe for the conservation, preservation and sustainable development of our natural resources.

As provided for in the (DENR) Administrative Order No. 31, series of 1988, which prescribed the guidelines implementing Section 22 (a) of Executive Order No. 192, NAMRIA, as the central mapping agency of the Philippine government, is mandated to provide the public with mapmaking services and as depository and distribution facility for natural resources data in the form of maps, charts, texts, and statistics.

**NAMRIA's core functions are:**

#### **Hydrographic and Oceanographic Surveys and Nautical Charting**

Hydrographic surveys involve the measurement, description, and mapping of features of the country's waters, especially its maritime areas, primarily for the safety of navigation and in support to all other maritime activities, including economic development, security and defense, scientific research, and environmental protection. Oceanographic surveys involve the measurement of physical properties of the oceans and seas, including tides (sea level), tidal current, conductivity, salinity, and temperature. Tide level variations are continuously observed in the network of primary tide stations, and for a limited period at least one month at secondary stations. Tidal data also provide the reference levels for elevation in surveying and mapping. Marine geographic information is presented in the form of nautical charts, bathymetric maps, tide and current tables, and special maritime publications.

#### **Topographic Base Mapping and Geodetic Surveys**

This involves the production of large-, medium-, and small-scale topographic base maps using aerial photographs and satellite imageries as primary data sources. Activities include image processing, ground control point surveys, data compilation, cartographic enhancement, packaging, and warehousing. These maps are vital in





development planning, environmental management, and geohazard mapping, among other applications. This function also includes the upgrading of the Philippine Reference System 1992 into a global reference system, which is a network of control points accurately determined and established around the globe used as reference for all surveying and mapping activities in the country.

### **Resource Assessment and Mapping**

This involves the nationwide environment and natural resources assessment and mapping of various thematic geospatial information and the generation of related statistics, such as land classification, forest/land cover, coastal resources, and tenurial instruments. These fundamental datasets serve as essential inputs in policy formulation, physical and developmental planning, provision of social services, disaster risk reduction and management, and climate change mitigation and adaptation studies at various levels. Likewise, this program includes the provision of technical assistance to local government units on land use mapping vital in the preparation of comprehensive land use maps.

### **Geospatial Information Management and Services**

This involves information system strategic planning; geospatial databasing; information and web system development; information and communications technology resource and network management; geographic information system (GIS) project collaboration and technical assistance; GIS trainings; packaging of geospatial information knowledge products and services; stakeholder relations and partnership development; information, education, and communication; and client-focused activities.

NAMRIA leads in the implementation of a national geospatial data infrastructure (NGDI), which is designed to provide a mechanism for sharing of and access to geospatial information produced and maintained by the various stakeholders and custodians across the country. A major output of the NGDI is the Geoportal Philippines, an application system which serves as a platform for online and open sharing of geospatial information.

## **E. NATIONAL WATER RESOURCES BOARD**

The National Water Resources Board, formerly known as National Water Resources Council, is the government coordinating agency for all water resources management and development activities in the country by virtue of PD 424 creating NWRC which was subsequently renamed as NWRB pursuant to PD 424-A.

From an overall policy and coordinative body, the NWRB transformed into an agency saddled with line responsibilities as well as quasi-judicial functions. This change was brought about by several presidential proclamation/issuances such as PD 1067 known as the Water Code of the Philippine in 1976 which tasked the NWRB then NWRC to administer and enforce the provisions of the Code. The NWRB is also tasked to regulate private water utilities outside the jurisdiction of MWSS/Concessionaires and LWUA/Water Districts as provided by PD 1206 in 1977



directing the transfer of the jurisdiction, supervision and regulation of private water supply systems from the defunct Board of Power and Waterworks of the Department of Energy to NWRC now NWRB.

The jurisdictional powers, functions and duties of the Board as provided for in the NWRC charter (PD 424 of 1974), Water Code of the Philippines (PD 1067 of 1976) and PD 1206 of October 6, 1977 are as follows:

- a. Coordinate and integrate water resource development activities of the country;
- b. Formulate and adopt policies and guidelines on water resources development and management consistent with the national development plans;
- c. Undertake river basin surveys, inventories and appraisals, and develop comprehensive basin-wide plans of storage and control to maximize the conservation and multi-purpose use of water;
- d. Conduct and/or promote water assessment studies, special studies and researches with other government or agencies on related aspects of water resources development;
- e. Regulate and control the utilization, exploitation, development, conservation and protection of the country's water resources;
- f. Adjudicate and grant water permits and Certificate of Public Convenience/Certificate of Public Convenience and Necessity for the operation and maintenance of water utilities and services, impose penalties for administrative violations thereof and make all decisions and determinations provided thereof;
- g. Supervise and control all water utilities and their franchises, equipment and other properties and regulate and fix water rates to be charged by
- h. waterworks operators except those falling under the jurisdiction of the Metropolitan Waterworks and Sewerage System, and the Local Water Utilities Administration;
- i. Exercise original jurisdiction over all disputes relating to water appropriation and utilization and water rates of above mentioned water utilities; provided that decisions of the Metropolitan Waterworks and Sewerage System as well as the Local Water Utilities Administration on water rates cases involving water districts under its jurisdiction shall be appealable to the Board;
- j. Review and approve rules and regulations prescribed by any government agency that pertain to the utilization, exploitation, development, control, conservation or protection of the country's water resources;
- k. Impose and collect reasonable fees or charges from water appropriators



and public utility operators which shall be used for the purposes deemed by the Board to be necessary for achieving the purposes and objectives;

- I. Advise and appraise the National Economic Development Authority on matters pertaining to water resources development plans, programs and projects;

The NWRB main functions under the two organizational outcomes OO 1 and OO 2 with three approved programs are the following:

OO1 : Water Resources Management Program

### **Water Resources Policies and Plans Formulation, Program Coordination and Information and Communication**

One of the key functions of NWRB as provided under PD 424 is the formulation of policies and guidelines on water resources development and management consistent with the national development plans and within the ideals of Integrated Water Resources Management (IWRM) in consultation with its stakeholders. Policies formulated by NWRB are in relation to its 2 regulatory functions: (i) resource allocation through water permit system and (ii) regulation of water utilities that is within the jurisdiction of NWRB. Most of its policies are results of water assessment studies and as measures to address current issues in the water sector. Some of its important policies formulated includes: environmental flows in surface water allocation, moratoriums on granting permits in areas where groundwater has been fully allocated and water critical areas, revision of water standard for irrigating grasses in golf courses and the revision on granting water permit for hydropower projects.

The NWRB through this program also undertakes inter-sectoral coordination activities and IEC activities pertaining to water resources management especially in its advocacy on IWRM and climate change adaptation. The agency also conducts international cooperation and coordination activities as part of its coordination function and being the government coordinating body on water resources management and development activities. It participates in international conferences and meetings as representative of the country or as focal agency.

Encouraging people to adopt water conservation actions and espouse behavioral change is being pursued through IEC as one of the strategies on Water Demand Management.

Close monitoring of the Angat reservoir operation in coordination with the Technical Working Group for Angat Dam Operation and Management is a continuous activity to ascertain sustainable water level in the reservoir that could provide steady and sustainable water supply to its stakeholders

Collaboration with the national government agencies and the local government units (LGUs) in relation to intensive monitoring and enforcement of laws and policies are also being pursued.

### **PROGRAM 2: Water Resources Regulatory and Enforcement Program**



## **Processing, Adjudicating and Granting of Water Rights and Waterworks Franchises**

The water resource regulatory program of NWRB has two sub-components one of which is the water use regulation which pertains to the appropriation and utilization of water for various functional uses. Furthermore, NWRB has original jurisdiction over all disputes pertaining to appropriation, utilization, development, control, conservation and protection of waters within the context of the Water Code. Rational and orderly development of all water resources that considers current usage, beneficial use and environmental consideration provides opportunity to meet the nation's development objectives because water is in the heart of the whole economy and society.

The NWRB regulates the use of water through a water rights system as evidenced by a water permit issued to all water users except for domestic purpose having six family members. As part of its regulation function, the Board also resolves water use conflicts.

To provide water for all in an effective and sustainable manner and to cope with present technology, the processes of granting or issuance of water permits is being migrated from manual filing and screening to automated filing and processing through the development of NWRB Water Permit Management Information System (WPMIS). Continuous improvement of this new system is required.

Another regulatory program of NWRB is the economic regulation of private water utilities through the adjudication and issuance of Certificate of Public Convenience (CPC) and setting of standard and targets for water supply providers to ensure the balance between the protection of consumers' interest and the economic viability of water utilities. The Board also conducts validation of assets of existing CPC holders. The Board also conducts validation of assets of existing CPC holders. The Listahang Tubig which has the primary objective to facilitate improvement in water regulation and water service delivery through access to information of participating water service providers (WSPs) is being pursued by NWRB in partnership with other agencies.

As the Listahang Tubig administrator, the NWRB continuously populate, validate and update the data to support various stakeholders on their data requirements. Hence, all WSPs were enjoined to encode the necessary data in the Listahang Tubig website, [http://listahang\\_tubig.cloudapp.net](http://listahang_tubig.cloudapp.net). which is intended to be updated annually thereafter. Orientation Workshops on the Listahang Tubig are being conducted in different provinces for the updating/uploading of data/information to the Listahang Tubig website

To ensure efficient and beneficial use of water the NWRB conducts monitoring activities on the compliance of water permit holders and Certificate of Public Convenience (CPC) holders on the condition specified in their permits/certificates. The Board also enforces laws, orders, regulation and decisions issued by the Board such as closing of water source structure (e.g sealing of deepwells) for violators and



illegal appropriators as well as imposition of penalties. For non-operational water sources of permittees, the Board issued cancellation of permits.

### **Monitoring of Water Appropriation/Utilization and Enforcement of Laws and Orders**

To ensure efficient and beneficial use of water, the NWRB conducts monitoring activities on the compliance of water permit holders and Certificate of Public Convenience (CPC) holders on the condition specified in their permits/certificates. The Board also enforces laws, orders, regulation and decisions issued by the Board such as closing of water source structure (e.g. sealing of deepwells) for violators and illegal appropriators as well as imposition of penalties. For non-operational water sources of permittees, the Board issues cancellation of permits.

OO 2: Adaptive Capacities of Human Communities and Natural Systems Improved

### **PROGRAM 3: Water Resources Vulnerability and Sustainability Assessment**

#### **Water Resources Supply and Demand Assessment**

Water resource assessment is a basic requirement for all aspect of water resource management, planning and development. It provides better understanding of the state of the country's water resources in terms of potential or available resources for a more rational and optimum utilization of water resources. The conduct of water assessment studies of NWRB particularly in terms of supply and demand serves as basis for enhancing water policies on allocating and protecting water resources to meet present and future needs of water especially in the light of our current issues such as the impacts of climate change. This is conducted in coordination with other data generating agencies like MGB and DPWH-BRS which provides us relevant data/information for the NWRB to do its assessment in relation to its function.

The important activity of NWRB under this program and as provided by PD 424 is the undertaking of river basin survey, inventory and appraisal of water related resources including water resources supply and demand assessment as basis for a well-informed, systematic and science-based decision making on allocation and development of available resources for various functional uses. It also includes water availability assessment as per request and in relation to the issuance of PEZA Certificate.

Long term program of NWRB on water resources assessment includes the following:

- Comprehensive Water Resources Assessment for Major River Basins to formulate a scientific report of the available water considering the current changes and trends in the use of water resources such as climate change and increasing developments.



- Development of Groundwater Management Plan (GMP) which serves as guidance document for groundwater development and protection in the study area considering current situation as well as future water challenges.
- Establishment of groundwater monitoring wells in the groundwater constrained areas with GMP which will serve as a mechanism of monitoring the effectiveness of existing groundwater policy in the area as well as basis for appropriate protection and conservation interventions.

Recommended water policies and management strategies based on the project results are tools to enhance water resource allocation. LGUs can also adopt and use the study results in their water resource development and management initiatives.

As part of the agency's operational risk management strategy, the following will be pursued:

- Effective and efficient use of the agency's resources (financial and human resources)
- Creation of team leader and Technical Working Group for the smooth implementation of projects.
- Regular monitoring and evaluation of project implementation with reports by a created Monitoring and Evaluation Team
- Maintain fully operational and updated data management system and maximize the use of data and information
- Continue capacity building program to equip NWRB staff with new knowledge, skills and technology that would enhance its effectiveness in the performance of its mandated functions



## **F. PALAWAN COUNCIL FOR SUSTAINABLE DEVELOPMENT STAFF**

**Executive Order No. 734 issued on 18 June 2008 transferred the Palawan Council for Sustainable Development (PCSD) from the Office of the President to the Department of Environment and Natural Resources.**

Republic Act No. 7611, or the Strategic Environmental Plan (SEP) for Palawan Act, provided for the adoption of the SEP as a comprehensive framework and guide for the sustainable development of Palawan, compatible with protecting and enhancing the natural resources and endangered environment of the province. It created the PCSD, a multi-sectoral body responsible for the governance, implementation, and policy direction of the SEP.

The Palawan Council for Sustainable Development Staff (PCSDS) serves as the regular professional staff of the PCSD and provides the machinery to coordinate the policy and functions, implement programs, and organize services as required by the PCSD.

The PCSD is also vested with the following mandates by virtue of RA 7611:

- a. RA 9147 (Wildlife Resources Conservation and Protection Act)
- b. RA 9175 (Chain Saw Act of 2002)
- c. RA 9072 (National Caves and Cave Resources Management and Protection Act)
- d. Section 17 of RA 8550 (The Philippine Fisheries Code of 1998)
- e. RA 10067 (Tubbataha Reefs Natural Park (TRNP) Act of 2009)
- f. Sections 11 and 16 of RA 9003 (Ecological Solid Waste Management Act of 2000)
- g. RA 8993 (An Act Granting the Palawan Council for Sustainable Development a Franchise to Construct, Install, Establish, Operate and Maintain Radio and/or Television Broadcasting Stations in the Province of Palawan)
- h. other existing laws, rules and regulations similar to or complementary with RA 7611 as per Section 19(9) of RA 7611.

In pursuit of the above mandate, the PCSDS implements the following program:



## Palawan Environmentally Critical Areas Network Management Program

The ECAN zoning system is an integrated, ridge-to-reef strategy to safeguard the natural capital of Palawan and properly manage it as a fragile island ecosystem. Its use is legally prescribed in RA 7611. ECAN zoning is the process of delineating and marking the boundaries of the different zones on both land and sea, the identification of prescribed activities and resource use for each zone, and the enforcement of regulatory measures to prevent practices that are destructive of the environment.

The Palawan ECAN Management Program includes in its agenda the recovery from the COVID-19 pandemic, self-sufficiency, and resiliency. It also included the Philippine concerns on the Tubbataha Reefs Natural Marine Park in the Sulu Sea and the Kalayaan Group of Islands in the West Philippine Sea (WPS) on protecting our natural heritage and patrimony, and asserting our sovereignty. The program focused on initiatives that will ensure that (i) core zones are protected and buffer and multiple use zones are sustainably managed; (ii) the local ECAN Boards are effective and operationally sustainable; (iii) the genderized participation of local community in environmental planning and management is up-scaled, and (iv) the mechanisms of environmental research, monitoring and evaluation, and environmental education and extension are strengthened and sustained. Satisfying these objectives will ease pressures on Palawan's natural ecosystems and resources, ensure the sustainability of its development projects and increase its contribution to the country and the welfare of the Filipino people.

The general population of Palawan, projected to increase to 1.28 million by 2022, is expected to benefit from program implementation, particularly those who will be covered by ECAN programs and projects adopted and implemented by local government units and conservation groups. The expected improvement of the health of Palawan ecosystems will have positive benefits on community welfare. Filipinos in other parts of the country who also depend on the continuing flow of ecosystem services, goods and products sourced from the Palawan Archipelago (e.g., fish food, energy from natural gas) will also stand to benefit.

### ***Program strategy***

There are several activities of the program.

1. Environmentally Critical Areas Network (ECAN) Zoning – In order to increase benefits from natural resources (i.e., provisioning, supporting, regulating, and cultural services derived from ecosystems), the SEP framework and ECAN standards are mainstreamed and institutionalized into the planning and decision-making processes of local government units. The major activities under ECAN Zoning include the updating of ECAN maps, mainstreaming of ECAN into local land use planning system, formulation of policies and guidelines in support of ECAN, and capacity development of ECAN Boards and key stakeholders for ECAN management. The lead division for this activity is the ECAN Policy Research and Planning Division (EPRPD).





2. Operation of Strategic Environmental Plan Clearance System – The PCSD issues SEP Clearances to all development undertakings in Palawan. The SEP Clearance System enforces the ECAN system by using the approved ECAN zones maps as the bases for locating projects in appropriate areas. Thus, this activity regulates the entry of environmentally critical projects and developmental activities in Palawan. The lead divisions for this are the three District Management Divisions (DMDs), and the ECAN Zones Management and Enforcement Division (EZMED).
3. Wildlife and Cave Management – This covers the important aspects of holistic wildlife management: management of species, habitats (including caves), and ecosystems; and empowerment of stakeholders in the conservation and protection of wildlife resources of Palawan. The major strategies here are the protection and co-management of critical habitats and other high conservation value areas (HCVAs), species conservation and management, and regulation of wildlife collection and trade. The lead division for this activity is the ECAN Zones Management and Enforcement Division (EZMED).
4. Knowledge and Research Management – This activity operates the Palawan Knowledge Platform (PKP), an information clearing house mechanism designed to consolidate and distribute knowledge base on Palawan to a wide variety of users. The solid knowledge and information in PKP will be used to formulate more technically sound plans and policies, develop more robust methodologies for mainstreaming ECAN into local conservation and development plans, and conduct monitoring and evaluation more effectively. The lead division for this activity is the ECAN Monitoring and Evaluation Division (EMED), with the support of the other divisions.
5. Advocacy, Communications and Education – This activity is expected to enhance the biological sensitivity of the people, train them to become effective managers and stewards of the ECAN, and promote public awareness to enable local communities to become fully involved in the conservation and sustainable use of resources. It is being implemented by the ECAN Education and Extension Division (EEED) which also handles the operations of the Palawan Sustainable Development Training Complex in Puerto Princesa City. It serves as a regular venue for environmental trainings, conferences, and seminars to develop the skills and competency standards of ECAN managers and local stakeholders on sustainability science, human ecology, and climate change.
6. ECAN Monitoring and Evaluation System – The Environmental Monitoring and Evaluation System (EMES) is established to generate scientific knowledge for the SEP, track progress of its implementation, monitor changes in the environment, and develop scenarios to address critical concerns on land use for the future. It deals with environmental assessment, mapping, and modeling. The system is implemented by the ECAN Monitoring and Evaluation Division (EMED).



7. Resource Mobilization and Partnership Development – This activity involves stakeholder partnership and engagement and development of sustainable financing mechanisms to support ECAN management and implementation. The lead in program development is the ECAN Policy Research and Planning Division (EPRPD).