



# ANNUAL REPORT

CY 2021





## About the Cover

On our cover is an artistic rendition of a family appreciating the striking beauty of nature undisturbed by humans, where plants, trees and wildlife flourish together in total harmony.



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# ACRONYMS AND ABBREVIATIONS

<b>AA</b>	<b>Attainment Area</b>	<b>BOD</b>	<b>Biochemical Oxygen Demand</b>
<b>ACE</b>	<b>Association of Career Executives</b>	<b>BRAIN</b>	<b>Biodiversity Resource Access Information Network</b>
<b>ADR</b>	<b>Alternative Dispute Resolution</b>	<b>BSP</b>	<b>Boy Scouts of the Philippines</b>
<b>ADR-MRS</b>	<b>Alternative Dispute Resolution Monitoring and Results System</b>	<b>BTSI</b>	<b>Boracay Tube System Inc.</b>
<b>AEPEPS</b>	<b>Annual Environmental Protection and Enhancement Programs</b>	<b>BU</b>	<b>Bicol University</b>
<b>AFOCO-VIP</b>	<b>Asian Forest Cooperation Organization - Vertical Intergration Project</b>	<b>CADP</b>	<b>Convergence Area Development Plan Cavite, Laguna, Batangas, Rizal, Quezon</b>
<b>AFP</b>	<b>Agricultural Free Patents</b>	<b>CALABARZON</b>	<b>Cordillera Administrative Region</b>
<b>AHC</b>	<b>Angat Hydropower Corporation</b>	<b>CAR</b>	<b>Comprehensive Agrarian Reform Program</b>
<b>AHP</b>	<b>Analytical Hierarchy Process</b>	<b>CARP</b>	<b>Carbon Accounting, Verification and Certification System</b>
<b>AILTC</b>	<b>Anti-Illegal Land Titling Committee</b>	<b>CAVCS</b>	<b>Community-Based Forest Management</b>
<b>APSI</b>	<b>Air Pollution Source Installations</b>	<b>CBFM</b>	<b>Community-Based Forest Management Agreement</b>
<b>AQMS</b>	<b>Air Quality Monitoring System</b>	<b>CBFMA</b>	<b>Climate Change Adaptation and Mitigation Disaster Risk Reduction</b>
<b>ARDEC</b>	<b>Agroforestry Research, Development, and Extension Center</b>	<b>CCAM-DRR</b>	<b>Chemical Control Order</b>
<b>AWLS</b>	<b>Automated Water Level Stations</b>	<b>CCO</b>	<b>Cooperative Development Authority</b>
<b>AWQMF</b>	<b>Area Water Quality Management Fund</b>	<b>CDA</b>	<b>Climate and Disaster Resilient Programs</b>
<b>A&amp;D</b>	<b>Alienable and Disposable</b>	<b>CDDP</b>	<b>Cease and Desist Order</b>
<b>BAP</b>	<b>Boracay Action Plan</b>	<b>CDO</b>	<b>Climate and Disaster Resilient Plan</b>
<b>BASECO</b>	<b>Bataan Shipyard and Engineering Company</b>	<b>CDRP</b>	<b>Community Environment and Natural Resources Office</b>
<b>BAT</b>	<b>Best Available Technology</b>	<b>CENRO</b>	<b>Communication, Education and Public Awareness</b>
<b>BBBTF</b>	<b>Build Back Better Task Force</b>	<b>CEPA</b>	<b>Convention on International Trade in Endangered Species</b>
<b>BDFE</b>	<b>Biodiversity-Friendly Enterprises</b>	<b>CITES</b>	<b>Comprehensive Land Use Plans</b>
<b>BEP</b>	<b>Best Environmental Practices</b>	<b>CLUP</b>	<b>Citnickel Mines and Development Corporation</b>
<b>BFAR</b>	<b>Bureau of Fisheries and Aquatic Resources</b>	<b>CMDC</b>	<b>Coastal and Marine Ecosystems Management Program</b>
<b>BFP</b>	<b>Bureau of Fire Protection</b>	<b>CMEMP</b>	<b>Care and Maintenance Program</b>
<b>BIATF</b>	<b>Boracay Inter-Agency Task Force</b>	<b>CMP</b>	<b>Cave Management, Protection and Conservation Program</b>
<b>BIDA</b>	<b>Boracay Island Development Authority</b>	<b>CMPCP</b>	<b>Clean Mineral Recovery Technologies, Inc.</b>
<b>BIOFIN</b>	<b>Biodiversity Finance Initiative</b>	<b>CMRT</b>	<b>Central Office</b>
<b>BIWC</b>	<b>Boracay Island Water Company</b>	<b>CO</b>	<b>Committee on Office Decorum and Investigation</b>
<b>BMB</b>	<b>Biodiversity Management Bureau</b>	<b>CODI</b>	<b>Crowns of Thorns Starfish</b>
<b>BMS</b>	<b>Biodiversity Monitoring System</b>	<b>COTS</b>	<b>Certificates of Public Governance</b>
<b>BNC</b>	<b>Berong Nickel Corporation</b>	<b>CPC</b>	

# ACRONYMS AND ABBREVIATIONS

<b>CRA</b>	<b>Coastal Resources Assessment</b>	<b>ECC</b>	<b>Environmental Compliance Certificate</b>
<b>CRERDEC</b>	<b>Coastal Resources and Ecotourism Research, Development, and Extension Center</b>	<b>ECQ</b>	<b>Enhanced Community Quarantine</b>
<b>CRM</b>	<b>Coastal Resource Management</b>	<b>EDATS</b>	<b>Enhanced Document Action Tracking System</b>
<b>CRMF</b>	<b>Coastal Resource Management Framework</b>	<b>EDC</b>	<b>Energy Development Corporation</b>
<b>CSO</b>	<b>Civil Society Organization</b>	<b>EDWP</b>	<b>External DENR Web Portal</b>
<b>cu m</b>	<b>cubic meter</b>	<b>EED</b>	<b>Environmental Enforcement Division</b>
<b>CVAT</b>	<b>Coastal Vulnerability Assessment</b>	<b>EHAP</b>	<b>Emergency Housing Assistance Program</b>
<b>CVI</b>	<b>Coastal Vulnerability Index</b>	<b>ELEPS</b>	<b>Environmental Law Enforcement and Protection Service</b>
<b>CWR</b>	<b>Certificate of Wildlife Registration</b>	<b>EMB</b>	<b>Environmental Management Bureau</b>
<b>CWRA</b>	<b>Comprehensive Water Resources Assessment</b>	<b>EMU</b>	<b>Easement Monitoring Unit</b>
<b>CY</b>	<b>Calendar Year</b>	<b>ENC</b>	<b>Electronic Navigational Charts</b>
<b>CZFERD</b>	<b>Coastal Zone and Freshwater Ecosystems Research Division</b>	<b>EnMO</b>	<b>Environmental Monitoring Officer</b>
<b>DA</b>	<b>Department of Agriculture</b>	<b>ENGP</b>	<b>Enhanced National Greening Program</b>
<b>DAA</b>	<b>Disaster-Affected Areas</b>	<b>EO</b>	<b>Executive Order</b>
<b>DAO</b>	<b>DENR Administrative Order</b>	<b>EPEB</b>	<b>Environmental Protection and Enforcement Bureau</b>
<b>DAR</b>	<b>Department of Agrarian Reform</b>	<b>EPETF</b>	<b>Environmental Protection and Enforcement Task Force</b>
<b>DCD</b>	<b>Development Communication Division</b>	<b>ERDB</b>	<b>Ecosystems Research and Development Bureau</b>
<b>DENR</b>	<b>Department of Environment and Natural Resources</b>	<b>EU</b>	<b>Employees Union</b>
<b>DMC</b>	<b>DENR Memorandum Circular</b>	<b>FA</b>	<b>Financial Assistance</b>
<b>DMRA</b>	<b>Davao Mineral Reservation Area</b>	<b>FAP</b>	<b>Foreign Assisted Project</b>
<b>DO</b>	<b>Dissolved Oxygen</b>	<b>FASPs</b>	<b>Foreign-Assisted and Special Projects</b>
<b>DOLE</b>	<b>Department of Labor and Employment</b>	<b>FGD</b>	<b>Focus Group Discussion</b>
<b>DOST</b>	<b>Department of Science and Technology</b>	<b>FERD</b>	<b>Forest Ecosystem Research Division</b>
<b>DOST-PCIEERD</b>	<b>Department of Science and Technology - Philippine Council for Industry, Energy, and Emerging Technology Research and Development</b>	<b>FFP</b>	<b>Forest Foundation Philippines</b>
<b>DOT</b>	<b>Department of Tourism</b>	<b>FIPA</b>	<b>Forestry Investment Portfolio Approach</b>
<b>DPWH</b>	<b>Department of Public Works and Highway</b>	<b>FLEGT</b>	<b>Forest Law Enforcement and Governance and Trade</b>
<b>DSWD</b>	<b>Department of Social Welfare and Development</b>	<b>FLUP</b>	<b>Forest Land Use Plans</b>
<b>DTI</b>	<b>Department of Trade and Industry</b>	<b>FMB</b>	<b>Forest Management Bureau</b>
<b>EA</b>	<b>Environmental Aide</b>	<b>FMP</b>	<b>Forestland Management Project</b>
<b>EAS</b>	<b>East Asian Seas</b>	<b>FMR</b>	<b>Farm-to-Market Road</b>
<b>ECA</b>	<b>Environmentally Critical Areas</b>		

# ACRONYMS AND ABBREVIATIONS

<b>FMRDP</b>	Forestland Management Project Farm-to-Market Road Final Mine Rehabilitation/ Decommissioning Plan	<b>ICM</b> <b>ICP</b> <b>ICT</b> <b>IDUA</b>	Integrated Coastal Management Information and Communications Protocol Information and Communication Technology International Day for Universal Access to Information
<b>FOI</b>	Freedom of Information	<b>IEC</b>	Information, Education and Communication Integrated
<b>FPO</b>	Forest Protection Officer	<b>INREMP</b>	Natural Resources and Environmental Management Project
<b>FTAA</b>	Financial or Technical Assistance Agreements	<b>IPRR</b>	Investment Portfolio for Risk Resilience
<b>FTSC</b>	Forest Tree Seed Centers	<b>IPT</b>	Indigenous Plus Tree
<b>FWRDEC</b>	Forest and Wetlands Resource, Development, and Extension Center	<b>IRR</b>	Implementing Rules and Regulations
<b>FYWP</b>	Five-Year Work Plan	<b>ISAG</b>	Industrial Sand and Gravel
<b>GAA</b>	General Appropriations Act	<b>ISAGP</b>	Industrial Sand and Gravel Permit
<b>GAD</b>	Gender and Development	<b>ISF</b>	Informal Settler Family
<b>GAD Wizard</b>	GAD Wizard	<b>ISO</b>	International Organization for Standardization
<b>GC-ECD</b>	GAS Chromatograph - Electron Capture Detector	<b>IVAS</b>	Inspection, Verification and Approval Survey
<b>GES</b>	General Effluent Standards	<b>IWT</b>	Illegal Wildlife Trade
<b>GFPS</b>	GAD Focal Point System	<b>JMC</b>	Joint Memorandum Order
<b>GIS</b>	Geographic Information System	<b>KISS</b>	Knowledge and Information Systems Service
<b>GMEF</b>	Gender Mainstreaming Evaluation Network	<b>KRA</b>	Key Result Area
<b>GOP</b>	Government of the Philippines	<b>KWF</b>	Komisyon sa Wikang Filipino
<b>GPR</b>	Ground Penetrating Radar	<b>LAMS</b>	Land Administration and Management System
<b>GRT</b>	General Santos City Reversion and Cancellation Team	<b>LBSAP</b>	Local Biodiversity Strategic Action Plan
<b>HFCs</b>	Hydrofluorocarbons	<b>LCI</b>	Lion's Club International
<b>HGDG</b>	Harmonized Gender and Development Guidelines	<b>LDBR-WQMA</b>	Laguna De Bay Region Water Quality Management Area
<b>IATF</b>	Inter-Agency Task Force	<b>LES</b>	Livelihood Enhancement Support
<b>ICC</b>	Investment Coordination Committee	<b>LGBTQIA+</b>	Lesbian, Gay, Bisexual, Transgender/Transsexual, Inter- sex, Queer/Questioning, Asexual/Allies, Nonbinary/ Genderqueer+
<b>ICM</b>	Integrated Coastal Management	<b>LGU</b>	Local Government Unit
<b>GRT</b>	General Santos City Reversion and Cancellation Team	<b>LLDA</b>	Laguna Lake Development Authority
<b>HFCs</b>	Hydrofluorocarbons	<b>Im</b>	linear meter
<b>HGDG</b>	Harmonized Gender and Development Guidelines	<b>LOA</b>	Letter of Agreement
<b>IATF</b>	Inter-Agency Task Force	<b>LPPWP</b>	Las Piñas - Parañaque Wetland Park
<b>ICC</b>	Investment Coordination Committee		



# ACRONYMS AND ABBREVIATIONS

<b>LRFFF</b>	<b>Live-Reef-Fish-for-Food</b>	<b>NALECC-SCENR</b>	<b>National Law Enforcement Coordinating Council Sub-committee on Environment and Natural Resources</b>
<b>MB</b>	<b>Manila Bay</b>		
<b>MB</b>	<b>Minahang Bayan</b>	<b>NAMRIA</b>	<b>National Mapping and Resource Information Authority</b>
<b>MBCO</b>	<b>Manila Bay Coordinating Office</b>	<b>NCA</b>	<b>Natural Capital Accounting</b>
<b>MBAPTF</b>	<b>Manila Bay Anti-Pollution Task Force</b>	<b>NCCAP</b>	<b>National Climate Change Action Plan</b>
<b>MBTF</b>	<b>Manila Bay Task Force</b>	<b>NCI</b>	<b>National Convergence Initiative</b>
<b>MCW</b>	<b>Magna Carta of Women</b>	<b>NCR</b>	<b>National Capital Region</b>
<b>MCW</b>	<b>Maasim Council of Women</b>	<b>NDRRMC</b>	<b>National Disaster Risk Reduction and Management Council</b>
<b>MEOP</b>	<b>Marine Ecosystems and Oceanographic Process</b>	<b>NGAMP</b>	<b>National Geohazards Assessment and Mapping Program</b>
<b>MERS</b>	<b>Mass Emission Rate Standards</b>	<b>NGO</b>	<b>Non-government Organizations</b>
<b>MGB</b>	<b>Mines and Geosciences Bureau</b>	<b>NGP</b>	<b>National Greening Programs</b>
<b>MIS</b>	<b>Management Information System</b>	<b>NIA</b>	<b>National Irrigation Programs</b>
<b>MMDA</b>	<b>Metropolitan Manila Development Authority</b>	<b>NIMCAP</b>	<b>NIPAS-MPA Capacity Building Program</b>
<b>MMFN</b>	<b>Modernized and Mechanized Forest Nurseries</b>	<b>NIPAS</b>	<b>National Integrated Protected Area System</b>
<b>MOA</b>	<b>Memorandum of Agreement</b>	<b>NIR</b>	<b>National Implementation Report</b>
<b>MOPA</b>	<b>Memorandum of Partnership Agreement</b>	<b>NOV</b>	<b>Notice of Violation</b>
<b>MOU</b>	<b>Memorandum of Understanding</b>	<b>NPC</b>	<b>National Power Corporation</b>
<b>MPA</b>	<b>Marine Protected Area</b>	<b>NPOA-ML</b>	<b>National Plan of Action for the Prevention, Reduction and Management of Marine Litter</b>
<b>MPAN</b>	<b>Marine Protected Area Network</b>	<b>NSWMC</b>	<b>National Solid Waste Management Commission</b>
<b>MPN</b>	<b>Most Probable Number</b>	<b>NTF-West</b>	<b>National Task Force-West Philippine Sea</b>
<b>MPP</b>	<b>Mineral Processing Unit</b>	<b>NWRB</b>	<b>National Water Resources Board</b>
<b>mps</b>	<b>meter per second</b>	<b>NWRRC</b>	<b>National Wildlife Rescue and Rehabilitation Center</b>
<b>MPSA</b>	<b>Mineral Production Sharing Agreements</b>	<b>ODA</b>	<b>Official Development Assistance</b>
<b>MRF</b>	<b>Material Recovery Facility</b>	<b>OpCen</b>	<b>Operation Center</b>
<b>MWCI</b>	<b>Manila Water Company Inc.</b>	<b>OPMS</b>	<b>Online Permitting and Monitoring System</b>
<b>MWSI</b>	<b>Maynilad Water Services inc.</b>	<b>PAB</b>	<b>Pollution Adjudication Board</b>
<b>MWSS</b>	<b>Metropolitan Waterworks and Sewerage System</b>		
<b>M&amp;E</b>	<b>Monitoring and Evaluation</b>		
<b>mg/L</b>	<b>milligram per liter</b>		
<b>µg/Ncm</b>	<b>micrograms per normal cubic meter</b>		
<b>NAA</b>	<b>Non-Attainment Area</b>		
<b>NALECC</b>	<b>National Law Enforcement Coordinating Committee</b>		

# ACRONYMS AND ABBREVIATIONS

<b>PADRO</b>	Pool of Alternative Dispute Resolution Center	<b>PQMI</b>	Palawan Quicksilver Mines, Inc.
<b>PAGASA</b>	Philippine Atmospheric, Geophysical and Astronomical Services Administration	<b>PRCMO</b>	Pasig River Coordinating and Management Office
<b>PAMB</b>	Protected Area Management Board	<b>PRFCP</b>	Pasig River Ferry Convergence Program
<b>PAMP</b>	Protected Area Management Plan	<b>PRMRR</b>	Philippine Rise Marine Resource Reserve Predicting Responses between Ocean Transport and Ecological Connectivity in Threatened Ecosystems in the West Philippine Sea
<b>PARC</b>	Presidential Agrarian Reform Council	<b>PROTECT-WPS</b>	
<b>PASA</b>	Protected Area Suitability Assessment		
<b>PBC</b>	Polychlorinated Biphenyl	<b>PRRC</b>	Pasig River Rehabilitation Commission
<b>PBC-WEEE</b>	Polychlorinated Biphenyl-Waste Electrical and Electronic Equipment	<b>PRUMS</b>	Pasig River Unified Monitoring System
<b>PBD</b>	Program Beneficiaries Development	<b>PTFNR</b>	Provincial Task Force Naboc River
<b>PBDE</b>	Polybrominated Diphenyl Ether	<b>PWD-SC</b>	Persons with Disabilities and Senior Citizens
<b>PCSDS</b>	Palawan Council for Sustainable Development and Staff	<b>QMS</b>	Quality Management System
<b>PD</b>	Presidential Degree	<b>QPM</b>	Quality Planting Materials
<b>PDP</b>	Philippine Development Plan	<b>QRT</b>	Quick Response Team
<b>PEMU</b>	Provincial Environmental Management Unit	<b>RA</b>	Republic Act
<b>PENRO</b>	Provincial Environmental and Natural Resource Office	<b>RBCO</b>	River Basin Coordinating Office
<b>PEZA</b>	Philippine Economic Zone Authority	<b>RDEC</b>	Research Development and Extension Center
<b>PGRS</b>	Philippine Geodetic Reference System	<b>RDDZ</b>	Research and Development Demonstration Zone
<b>PID</b>	Pubic Information Division	<b>REE</b>	Rare Earth Elements
<b>PIKIFI</b>	Philippine Island Kids Internation Foundation, Inc.	<b>RESPONSE</b>	Rapid Enforcement Support, Planning, Operation Network System Enhancement
<b>PLA</b>	Public Land Application	<b>RFP</b>	Residential Free Patents
<b>PLGU</b>	Provincial Land Government Unit	<b>RLTA</b>	Rapid Land Tenure Appraisal
<b>PM</b>	Particulate Matter	<b>RO</b>	Regional Office
<b>PMDC</b>	Philippine Mining Development Corporation	<b>RRP</b>	Risk Resiliency Program
<b>PMS</b>	Particulate Matter Monitoring System	<b>RRPG</b>	Recovery and Rehabilitation Planning Guideline
<b>PNP</b>	Philippine National Police	<b>RTNMC</b>	Rio Tuba Nickel Mining Corporation
<b>PO</b>	People's Organization	<b>R&amp;D</b>	Research & Development
<b>POP</b>	Persistent Protective Equipment	<b>SAEPD</b>	Strategic Alliance and Environmental Partnership Division
<b>PPE</b>	Personal Protective Equipment	<b>SAGP</b>	Sand and Gravel Permit
<b>PPSRNP</b>	Puerto Prinsesa Subterranean River National Park	<b>SALT</b>	Sloping Land Use Technology
		<b>SAT</b>	Sampling Assessment Team
		<b>SB</b>	Swimming and Bathing
		<b>SC</b>	Supreme Court

# ACRONYMS AND ABBREVIATIONS

<b>SCUBA</b>	<b>Self-Contained Underwater Breathing Apparatus</b>	<b>TSHES</b>	<b>Tenement and Safety and Health, Environment, and Social Development and Management</b>
<b>SCS SAP</b>	<b>Strategic Action Plan Programme for the South China Sea</b>	<b>TSS</b>	<b>Total Suspended Solid</b>
<b>SC-ELE</b>	<b>Specialized Course on Environmental Law Enforcement</b>	<b>TWG</b>	<b>Technical Working Group</b>
<b>SEEB</b>	<b>Socio-Economic and Environmental Baseline</b>	<b>URBDEC</b>	<b>Urban and Biodiversity Research, Development, and Extension Center</b>
<b>SEP</b>	<b>Strategic Environmental Plan</b>	<b>UNEP-GEF</b>	<b>United Nations Environmental Programme-Global Environment Facility</b>
<b>SHES</b>	<b>Safety, Health, Environment and Social Development</b>	<b>UNSDG</b>	<b>United Nations Sustainable Development Goal</b>
<b>SIBOL</b>	<b>Sustainable Interventions for Biodiversity, Oceans, and Landscapes</b>	<b>USAID</b>	<b>United States Agency for International Development</b>
<b>SLF</b>	<b>Sanitary Landfill</b>	<b>VRA</b>	<b>Vulnerability and Risk Assessment</b>
<b>SMART-SEAS</b>	<b>Strengthening the Marine Protected Area System to Conserve Marine Key Biodiversity Areas</b>	<b>WEEE</b>	<b>Waste Electrical and Electronic Equipment</b>
<b>SMCRD</b>	<b>Stakeholders Management and Conflict Resolution Division</b>	<b>WEO</b>	<b>Wildlife Enforcement Officer</b>
<b>SMP</b>	<b>Survey, Mapping and Planning</b>	<b>WFP</b>	<b>Wildlife Farm Permit</b>
<b>SO</b>	<b>Special Order</b>	<b>WPPS</b>	<b>Wood Processing Plants</b>
<b>SPA</b>	<b>Seed Production Area</b>	<b>WQG</b>	<b>Water Quality Guidelines</b>
<b>SRPAO</b>	<b>Survey and Registration of Protected Area Occupants</b>	<b>WQMA</b>	<b>Water Quality Management Area</b>
<b>STP</b>	<b>Sewage Treatment Plants</b>	<b>WQMCA</b>	<b>Water Quality Management and Conservation Area</b>
<b>SUCs</b>	<b>State Universities and Colleges</b>	<b>WQME</b>	<b>Water Quality Monitoring Equipment</b>
<b>SWEEP</b>	<b>Solid Waste Enforcement and Education Program</b>	<b>WRC</b>	<b>Wildlife Rescue Centers</b>
<b>SWM</b>	<b>Solid Waste Management</b>	<b>WtE</b>	<b>Waste-to-Energy</b>
<b>SWMP</b>	<b>Solid Waste Management Plan</b>	<b>WTMU</b>	<b>Wildlife Traffic Monitoring Unit</b>
<b>SWPLGUC</b>	<b>Solid Waste Management and Local Government Units Concerns</b>	<b>WWF</b>	<b>World Wildlife Fund</b>
<b>TA</b>	<b>Technical Assistance</b>	<b>WWRRDEC</b>	<b>Watershed and Water Resources Research, Development, and Extension Center</b>
<b>TAK</b>	<b>Tayo Ang Kalikasan</b>	<b>ZBTF</b>	<b>Zero Backlog Task Force</b>
<b>TB</b>	<b>Technical Bulletin</b>		
<b>TESDA</b>	<b>Technical Education and Skills Development Authority</b>		
<b>THWRDEC</b>	<b>Toxic and Hazardous Wastes Research, Development, and Extension Center</b>		
<b>TRNP</b>	<b>Tubbatha Reefs Natural Park</b>		
<b>TSD</b>	<b>Treatment, Storage Disposal</b>		

# FOREWORD

It is my honor and pleasure to present the Annual Report of the Department of Environment and Natural Resources (DENR) for calendar year 2021.

We continued advancing strongly across the broad front comprising our ten priority programs: the Enhanced National Greening Program (eNGP); Intensified Forest Protection and Anti-Illegal Logging; Improved Land Administration and Management; Geohazard, Groundwater Assessment and Responsible Mining; Enhanced Biodiversity Conservation; Scaling Up of Coastal and Marine Ecosystem; Manila Bay and Boracay Rehabilitation; Clean Air; Clean Water; and Solid Waste Management.

The quantitative accomplishments in each of these priority programs, in the body of this Annual Report, speak for themselves. But they do not tell the full story. We were able to compile impressive accomplishments despite restrictions and disruptions brought about by the COVID-19 pandemic throughout the year. Without these obstacles, we surely could have achieved more.

For these remarkable achievements, we gratefully acknowledge the major role that my predecessor, Secretary Roy A. Cimatu, performed, as we do to our hardworking workforce, our partners in the Build Back Better, Manila Bay, Boracay, and all others who are in one way or another participated in our undertakings.

These accomplishments are a challenge for all of us to exceed further. In the meantime, let us do our utmost to build on these gains.

For the sake of our people, environment, and natural resources, let us continue to push harder and attain more than what is expected of us.

***Mabuhay!***

  
JIM O. SAMPITENA  
Acting Secretary



# FOREWORD

With pride, we hereby present the Annual Report of the Department of the Environment and Natural Resources (DENR) for the year 2021.

As in 2020, the COVID-19 pandemic adversely impacted our movements in 2021. Nonetheless, in our determination to live up to our mandates, we managed to perform creditably, in many cases, exceeding our targets.

Among the highlights of our accomplishments was the completion of the closure of all open dumps, which was required to be done within the first three years of the effectivity of Republic Act 9003 or the Ecological Solid Waste Management Act of 2000. Our accomplishments that represent the strong political will of the current administration are likewise manifest in the continuing rehabilitation of Boracay Island and the coastal and marine ecosystems of Manila Bay.

However, solid waste management and rehabilitation programs are just two of our priority performance areas, the other eight being equally important being the Clean Air, Clean Water, Enhanced National Greening Program (eNGP), Intensified Forest Protection and Anti-Illegal Logging, Improved Land Administration and Management, Geohazard, Groundwater Assessment and Responsible Mining; Enhanced Biodiversity Conservation; and the Scaling Up of Coastal and Marine Ecosystem.

The accomplishments we post in this 2021 Report are not ours alone, for we were assisted by many partners, both local and international. With our unwavering passion, belief in our objectives, and close partnerships, we shall accomplish more in our quest for a better environment for all.

  
ATTY. JONAS R. LEONES  
Undersecretary  
Policy, Planning, and International Affairs



# ABOUT THE DENR

## MISSION

To mobilize our citizenry in protecting, conserving, and managing the environment and natural resources for the present and future generations.

## VISION

A nation enjoying and sustaining its natural resources and a clean and healthy environment.

## MANDATE

(E.O. 192, s. 1987)

The Department is the primary 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:

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



# EXECUTIVE SUMMARY

The Department of Environment and Natural Resources is committed and determined to perform its mandate to conserve, manage, develop and use properly the country's environment and natural resources despite the adversities brought by the COVID-19 pandemic. The Department managed the implementation and accomplishments of its targets under various programs and projects for CY 2021 anchored on the Philippine Development Plan 2017-2022.

This Report highlights achievements in the implementation of priority programs, as follows: Enhanced National Greening Program (eNGP); Intensified Forest Protection and Anti-Illegal Logging; Improved Land Administration and Management; Geohazard, Groundwater Assessment and Responsible Mining; Enhanced Biodiversity Conservation; Scaling Up of Coastal and Marine Ecosystem; Manila Bay and Boracay Rehabilitation; Clean Air; Clean Water; and Solid Waste Management.

Also highlighted are several policies issued, as well as strategies and innovations developed and undertaken to achieve targets and address the negative impacts of the pandemic on programs and projects. Contributing to the success of implementation and achievement of targets were the collaboration and support of different stakeholders, partner agencies, and local governments.

Among the accomplishments under the priority programs are as follows: planted 95,666 hectares, and engaged 18,600 families in the eNGP; apprehended/seized about 2.69 million of logs/lumber, patrolled 127,710 km distance of forest through LAWIN system, and hired 1,552 Forest Protection Officers (FPOs) under the intensified forest protection and anti-illegal logging; issued 16,545 agricultural patents and 26,550 residential patents or 216% and 111% accomplishment, respectively, for improved land administration and management; conducted groundwater resources and vulnerability assessment in 53 municipalities (106%) under the geohazard, groundwater assessment and responsible mining; maintained 367 ecotourism facilities and issued 12,518 permits under the enhanced biodiversity conservation; and monitored 37 Marine Protected Area Networks (MPANs) and provided technical assistance to 38 LGUs on Integrated Coastal Management (ICM) under the Scaling Up of Coastal and Marine Ecosystem.

The Department's collaborative effort to win the battle for Manila Bay's rehabilitation continues to be in progress. Activities include, monitoring of 6,206 establishments, and issuance of 1,400 Notice of Violations (NOVs) and 5 Cease and Desist Orders (CDOs). In addition, about 72,755.9 cu.m. of solid wastes have been collected through the trash traps, trash boats and clean-up activities. Mangrove and coconut tree planting were also conducted in the bay area. In CY 2021, Manila Baywalk Dolomite Beach was also opened, covering a stretch of 810 meters.

The Department, in tandem with partner agencies and LGUs, continued to rehabilitate Boracay, focusing on: a) pollution control and prevention; and b) rehabilitation and recovery of ecosystems. In pollution control and prevention, accomplishments were the installation

of three barangay level solid waste management systems, construction of Materials Recovery Facility (MRF) and sanitary landfill with six (6) bio-reactors and 10 leachate ponds, and connection of 428 establishments and households to sewer lines. Under the rehabilitation and recovery of ecosystems, the Department launched an Adopt-a-Wetland Program, and arranged zoning in the coastal areas to control water/sports activities.

As to the Clean Air program, nationwide air quality significantly improved from 76 µg/Ncm in CY 2011 to 26 µg/Ncm in CY 2021 which can be attributed to stricter restrictions imposed by the declaration of community quarantine due to COVID-19 pandemic. Under the Clean Water program, there were 44 priority recreational waters, 117 bathing beaches, 50 priority water bodies, 147 rivers, and 248 esteros monitored. For the compliance monitoring of firms under this program, about 7,720 discharge permits and 6,607 NOVs were issued.

Under the Solid Waste Management Program, all illegal dumpsites were closed in CY 2021. For the safe disposal of solid wastes, a total of 245 Sanitary Landfills were operationalized servicing 478 LGUs nationwide. The Department also facilitated the approval of Solid Waste Management Plans (SWMPs) and supported the establishment of MRFs.

For greater law enforcement and public compliance, different task forces were created under the Department, namely, Task Force Tayo ang Kalikasan and the Provincial Task Force Naboc River. Task Force Tayo ang Kalikasan continues to use different platforms as part of their information, education and communication (IEC) campaign to disseminate the importance of preserving our natural resources for present and future generations. The Provincial Task Force Naboc River was launched in 2021 which aims to minimize pollution and rehabilitate the Naboc River in Monkayo, Davao de Oro. To date, full blast dredging of Naboc River has covered 333 kilometers resulting in the recovery of 615 cu.m. of sand and gravel and 86.83 grams of amalgam. In addition, CDOs were also issued to 53 illegally operating processing plants.

The Department is also a member of the Build Back Better Task Force, which manages to successfully implement its various recovery and rehabilitation programs in the three strategic focus areas: a) Cagayan River Basin; b) Marikina River Basin; and c) Bicol River Basin.

Indeed, the DENR, in 2021, delivered on its mandate and achieved its targets in various programs and projects, in spite of challenges and difficulties brought about by the pandemic. Nevertheless, the situation presented vast opportunities to innovate, formulate strategies, and identify prospects towards a more efficient and effective performance under the new normal.



# POLICIES ISSUED

For CY 2021, a total of 45 policies were issued to support the Department's Programs.

## BIODIVERSITY

**Policy Number:** DENR Administrative Order 2021-10

**Title:**

Draft DAO re: Designation of Buffer Zone Around Las Piñas- Parañaque Wetland Park (LPPWP), Providing for Its Management and For Other Purposes

**Policy Number:** DENR Administrative Order 2021-13

**Title:**

Guidelines for the Development and Recognition of Biodiversity-Friendly Enterprises (BDFEs) in Protected Areas Under the National Integrated Protected Area System (NIPAS) and Conservation Areas, Providing for Incentives and Supporting Mechanisms

**Policy Number:** DENR Administrative Order 2021-34

**Title:**

Guidelines for the Establishment and Implementation of the Cave Management, Protection and Conservation Program (CMPCP)

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**Policy Number:** DENR Administrative Order 2021-36

**Title:**

Declaring Sasmuan Bangkung Malapad Coastal Wetland Situated at Bangkung Malapad Brgy. Batang, 2nd, in the Municipality of Sasmuan, Province of Pampanga as Critical Habitat and Ecotourism Area

**Policy Number:** DENR Memorandum Circular  
2021-05

**Title:**

Additional List of Classified Caves for 2020 and ERRATA on  
DMC 2014-03 and 2018-09

**Policy Number:** DENR Administrative Order 2021-13

**Title:**

Additional List of Classified Caves for 2021

## ENVIRONMENT

**Policy Number:** DENR Administrative Order 2021-08

**Title:**

Chemical Control Order for Cadmium and Cadmium  
Compounds

**Policy Number:** DENR Administrative Order 2021-09

**Title:**

Chemical Control Order for Chromium (VI) and Chromium (VI)  
Compounds

**Policy Number:** DENR Administrative Order 2021-14

**Title:**

Amendment of Some Provisions of DAO 2010-06: Guidelines  
on the Use of Alternative Fuels and Raw Materials in Cement  
Kilns

**Policy Number:** DENR Administrative Order 2021-19

**Title:**

Updated Water Quality Guidelines (WQG) and General Effluent  
Standards (GES) for Selected Parameters

**Policy Number:** DENR Administrative Order 2021-23

**Title:**

Designation of Bolo River System as Water Quality Management Area and Creation of its Governing Board

**Policy Number:** DENR Administrative Order 2021-24

**Title:**

Designation of Panglao Island and Coastal Waters as a Water Quality Management Area and Creation of its Governing Board

**Policy Number:** DENR Administrative Order 2021-31

**Title:**

Chemical Control Order (CCO) for Hydrofluorocarbons (HFCs)

**Policy Number:** DENR Administrative Order 2021-44

**Title:**

Guidelines on the Establishment of the Carbon Accounting, Verification, and Certification System (CAVCS) for Forest Carbon Projects

**Policy Number:** DENR Memorandum Circular  
2021-10

**Title:**

Adoption of the National Plan of Action for the Prevention, Reduction and Management of Marine Litter (NPOA-ML)

# FORESTRY

**Policy Number:** DENR Administrative Order 2021-02

**Title:**

Amending Certain Provision of DENR Administrative Order (DAO) No. 2004-28 and DAO No. 2004-59 re: Rules and Regulations Governing the Use of Forest Lands for Tourism Purposes and Rules and Regulations for the Special Uses of Forest Lands

**Policy Number:** DENR Administrative Order 2021-05

**Title:**

Revised Regulations Governing the Establishment and Operations of Wood Processing Plants (WPPS)

**Policy Number:** DENR Administrative Order 2021-11

**Title:**

Guidelines in the Processing and Issuance of Permits for the Cutting, Removal and Relocation of Naturally Growing Trees

**Policy Number:** DENR Administrative Order 2021-04

**Title:**

Guidelines in the Implementation of the Forestry Investment Portfolio Approach (FIPA)

**Policy Number:** DENR Administrative Order 2021-06

**Title:**

Revised Regulations Governing the Entry and Disposition of Imported Wood Products

**Policy Number:** DENR Administrative Order 2021-17

**Title:**

Guidelines for the Affirmation of Community Resource Management Framework (CRMF) and Approval of Five-Year Work Plan (FYWP) of the Holders of Community-Based Forest Management Agreement (CBFMA)

**Policy Number:** DENR Administrative Order 2021-20

**Title:**

Guidelines in Managing Untenured Forestlands with Plantations Established through Government Funds

**Policy Number:** DENR Administrative Order 2021-21

**Title:**

Adopting the Field Manual for Tree Seed Collection, Processing and Certification of Quality Planting Materials and Providing Mechanism on its Adoption

**Policy Number:** DENR Administrative Order 2021-26

**Title:**

Rules and Regulation Governing the Establishment, Harvesting and Transport of Bamboo

**Policy Number:** DENR Administrative Order 2021-27

**Title:**

Prescribing the Guidelines on the Issuance of Provisional Agreement for All Tenure Instruments Issued Under the Forestry Sector

**Policy Number:** DENR Administrative Order 2021-32

**Title:**

Guidelines on the Operationalization of the National Forest Monitoring System for the Implementation of the Philippine REDD+ Strategy

**Policy Number:** DENR Administrative Order 2021-33

**Title:**

Guidelines Governing the Tapping, Extraction, Collection and Transport of Gums, Resins, Oils and Exudates

**Policy Number:** DENR Administrative Order 2021-41

**Title:**

Guidelines in the Creation of Watershed Management Councils

**Policy Number:** DENR Administrative Order 2021-43

**Title:**

Guidelines on the Establishment of the Carbon Accounting, Verification, and Certification System (CAVCS) for Forest Carbon Projects

**Policy Number:** DENR Memorandum Order 2021-03

**Title:**

Adopting the Revised Forms on Price Monitoring of Forest Products

**Policy Number:** DENR Administrative Order 2021-42

**Title:**

Guidelines on the Processing of Applications for Expansion of Areas Under Community Based Forest Management Agreement (CBFMA) to Cover Adjacent Untenured Areas

**Policy Number:** DENR Memorandum Order 2021-02

**Title:**

Adopting the Revised Statistical Reporting Forms on Forestry

**Policy Number:** DENR Memorandum Order 2021-03

**Title:**

Adopting the Revised Form and Submission Schedule of the Wood Importation and Disposition Report

# LANDS

**Policy Number:** DENR Administrative Order 2021-01

**Title:**

Guidelines on the Conduct of Virtual Alternative Dispute Resolution (ADR) Proceedings in the Resolution of Land Claims and Conflicts and other Natural Resources Disputes in the Department

**Policy Number:** DENR Administrative Order 2021-16

**Title:**

Rules and Regulations Governing the Processing and Approval of all Energy Projects in Foreshore Lands

**Policy Number:** DENR Memorandum Circular 2021-01

**Title:**

Guidelines on the Establishment of Pool of Alternative Dispute Resolution Officers (PADROs) in the DENR and the Referral of Land Claims and Conflicts Cases and Other Disputes

**Policy Number:** DENR Administrative Order 2021-07

**Title:**

Guidelines on the Establishment of Legal Easements along the Seas, Rivers, Lakes, Esteros, and Creeks

**Policy Number:** DENR Administrative Order 2021-38

**Title:**

Implementing Rules and Regulations (IRR) of Republic Act No. 11573 Entitled, "An Act Improving the Confirmation Process for Imperfect Land Titles, Amending for the Purpose"

**Policy Number:** DENR Memorandum Circular 2021-07

**Title:**

Adoption of the Online Public Land Application (PLA) Module Under the LAMS Philippines

# MINES AND GEOSCIENCES

**Policy Number:** DENR Administrative Order 2021-12

**Title:**

Guidelines for the Automatic Renewal of the Exploration Permit/Period and the Timely Filing of DMPF under the EP, MPSA, FTAA, and Similar Mining Tenements

**Policy Number:** DENR Administrative Order 2021-29

**Title:**

Extending the Application Period Prescribed Under DAO No. 2019-19 in RE: Guidelines on the Disposition of Residual Stockpiles Covered by Valid Mining Permits Issued Pursuant to Presidential Decree No. 1899 DAO No. 2012-07, the IRR of Executive Order No. 79, S. of 2012

**Policy Number:** DENR Administrative Order 2021-40

**Title:**

Lifting of the Ban on the Open Pit Method of Mining for Copper, Gold, Silver and Complex Ores in the Country under DENR Administrative Order No.2017-10 and Providing for Additional Enhanced Parameters and Criteria for Surface Mining Methods

**Policy Number:** DENR Administrative Order 2021-25

**Title:**

Implementing Rules and Regulations of Executive Order No. 130 entitled: Amending Section 4 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

**Policy Number:** DENR Administrative Order 2021-35

**Title:**

Harmonizing the Mining Operations of an Operator Under a Mining Tenement

**Policy Number:** DENR Administrative Order 2021-37

**Title:**

Harmonizing the Mining Operations of an Operator Under a Mining Tenement



# BORACAY ISLAND REHABILITATION

Boracay Island is hailed as one of the most beautiful beaches in the world for its crystal-clear waters and powdery white sand. For many, it is simply paradise.

Over several decades, it has become a popular destination for global tourism. Tourist arrivals grew exponentially, leading to an increased demand in infrastructure and socio-economic services. Based on a 2018 study of the University of the Philippines Los Baños and the Ecosystems Research and Development Bureau, the total population carrying capacity of the island is 55,757 people only, but the existing population in 2018 was 70,781. Along with the influx of tourists came uncontrolled development which altered Boracay's landscape due to abuse, negligence, and excessive commercialization. Paradise was lost to urban junk.

In 2018, President Rodrigo Roa Duterte declared Boracay a "cesspool". DENR Secretary Roy A. Cimatu, together with the Boracay Inter-Agency Task Force (BIATF), led an ocular inspection and identified the following critical problems:

- 1. Pollution along coastal areas and high concentration of fecal coliform;**
- 2. Commercial establishments and households are not connected to sewerage infrastructure, and dispose of their waste products improperly;**
- 3. Degradation of coral reefs and loss of biodiversity;**
- 4. Poor solid waste management;**
- 5. Illegal structures on beach and road easements, wetlands and forestlands;**
- 6. Increased influx of tourists worsen the situation in the Island; and**
- 7. Excessiveness of the carrying capacity of the island.**

Due to these reasons, government issued Proclamation No. 475 in 2018, declaring Boracay Island's temporary closure to tourists to give way to long-overdue rehabilitation after decades of indiscriminate development that led to degradation. Relatedly, the Department implemented several mandatory tasks such as: a) recovery of easement and demolition, b) detection of buried illegal pipes, c) closure of non-compliant establishments, d) expansion of septage and sewerage facilities, e) improvement of the Boracay circumferential road, f) Handog Titulo in Boracay, g) relocation of Informal Settler Families (ISFs), h) enhancement of wetlands management, and i) provision of livelihood and financial support through the Department of Social Welfare and Development (DSWD) and the Department of Labor and Employment (DOLE).

Today, Boracay Island has regained its former glory and is no longer regarded as a cesspool. Prior to the closure of the island, coliform level readings in outfalls reached millions. According to the Environmental Management Bureau of Region 6, the latest coliform count for regular ambient stations range from 1.8 MPN/100 mL to 79 MPN/100 mL (average coliform level at the white beach, way below the 100 MPN/100mL standard for swimming, skin diving and other recreational activities). After a rehabilitation period of six months, Boracay was re-opened, regaining higher domestic and international patronage.

The significant accomplishments achieved by the DENR in CY 2021 in compliance with Executive Order No. 53 and in collaboration with BIATF member agencies, LGUs, and the private sector are presented hereunder, according to thematic areas:

### **THEME 1: ENFORCEMENT OF LAWS AND REGULATIONS**

Identified and validated 791 illegal forestland occupants in 11 timberland blocks.

Demolished 196 structures by the said illegal occupants within forestlands and wetlands.

Cleared two (2) and one (1) partially, out of nine (9) wetlands, of illegal structures.

Facilitated the compliance of 1,060 out of 1,230 establishments within the 12-meter road easement and 100 percent of the establishments in Bulabog.

Monitored the proliferation of illegal settlers and structure and maintained security, public order and safety through the hiring and training of 50 Forest Protection Officers

Prepared 217 cases folders for filing in court for the recovery of forestlands (three already filed; 79 ready for filing; 55 for submission and filing; 80 for completion of Joint Affidavits and annexes; and 13 demolished)

Filed cases against 22 big commercial establishments for violation of Sections 20 and 78 of Presidential Decree 705 and Presidential Decree 1067 which resulted in dismissal of 2 violators.

Filed legal complaints against 41 illegal occupants through the DENR Legal Division.



Deployment of FPOs to ensure the protection of recovered areas and to maintain security and order in the area

- Recovered and restored shoreline and road right of way 25+5 easements which demolished 290 out of 339 beach structures.



Aerial shot of the White Beach after the removal of obstructions



*Demolition of Boracay Submarine/Astoria Stellar Hotel in 2018 (L to R)*

*Boracay Circumferential Road accessing Mt. Luho going to Sinagpa (L to R)*





*Demolition of Lasatin Residential House at Diniwid Area and Monaco Suites de Boracay (L to R)*

- Constructed 53 Sewage Treatment Plants (STPs) out of 54 establishments along the front beach and 53 STPs out of 55 establishments outside the white beach.

## **THEME 2: POLLUTION CONTROL AND PREVENTION**

- Conducted capacity-building activities for LGU Malay, firms and stakeholders on pollution prevention and control; wastewater management training for households; pollution control officers, barangay officials, health workers and other volunteers on the Highland to Ocean program to sustain water supply and sustainable water management.
- Issued Administrative Order No. 2019-15 declaring the entire island of Boracay and its surrounding waters a water quality management area, thereby creating the Boracay Island Water Quality Management and Conservation Area (BIWQMCA).
- Implemented “No Segregation, No Collection” policy resulting in a 60-70 percent reduction in volume of wastes generated during the last quarter of 2020, most of which were household wastes.
- Installed three barangay-level solid waste management monitoring systems with 69 designated collection points for waste segregation.
- Constructed one (1) Material Recovery Facility (MRF) and sanitary landfill (SLF) with six (6) bio-reactors and 10 leachate ponds.
- Operationalized centralized MRF as a Staging Area and sanitary landfill.
- Connected 428 establishments and households to sewer lines.



*DENR-EMB conduct of water quality Sampling: Ambient and at the STPs of establishments in Boracay Island*

- Completed 56 out of 100 compact STPs by Boracay Tube System Inc. (BTSI)
- Constructed and operationalized one (1) of the three (3) drainage interceptors by BTSI.
- Constructed individual STPs for 103 hotels, resorts and similar establishments.
- Installed compact wastewater treatment systems for selected Quick Services Restaurants by DOST-PCIEERD.
- Installed and implemented Ambient Air Quality Monitoring Systems in three barangays, 1) CENR Office in Barangay Yapak; 2) Balabag Elementary School in Barangay Balabay; and 3) Manoc-Manoc Barangay Hall in Barangay Manoc-Manoc.
- Implemented evidence-based activities based on Boracay Island's Carrying Capacity, a study undertaken by UP Los Baños and DENR-ERDB.
- Developed various multisector-led rehabilitation programs for Boracay Island, namely: PUNOan ang Palatubigan, Adopt-an-Estero Program, Amot Amot Kita sa Malimpyong Boracay, and Coastal Resource Management.



*Planting of 860 seedlings in Nabaoy Watershed*

### THEME 3: REHABILITATION AND RECOVERY OF THE ECOSYSTEM

- Launched the Adopt-a-Wetland Program in which the government partners with the private sector to assist in the rehabilitation and restoration of wetlands.
- Arranged zoning in coastal areas to control water sports/activities on the island.
- Completed assessment and prepared plans for cave protection and management, wetlands rehabilitation, wildlife tourism, and coastal and marine resources.
- Conducted trainings on protecting and conserving forest and wildlife resources, environmental laws and municipal ordinances.
- Implemented programs for the rehabilitation of wetlands, including the clearing of informal settlers, fencing of cleared wetlands, regular monitoring, and tree and mangrove planting activities.
- Monitored fisheries resource habitat and groundwater resources.
- Conducted coastal geohazard field mapping and vulnerability risk assessment.



*Demolition of illegal structures in Wetland 6*



*Construction of walkway in Wetland 6*



*Coastal and underwater cleanup*



*Planting of mangrove and reef fragments and monitoring of seagrass*

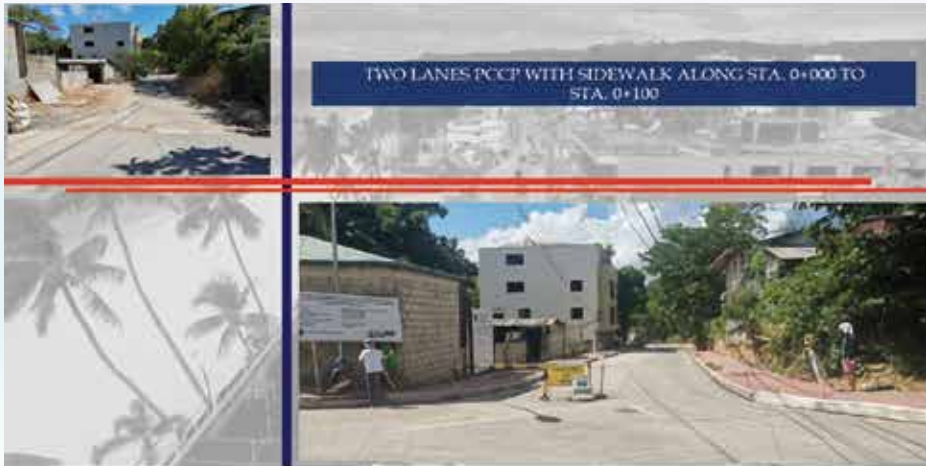


## THEME 4A: PUTTING IN PLACE RELIABLE INFRASTRUCTURE FACILITIES

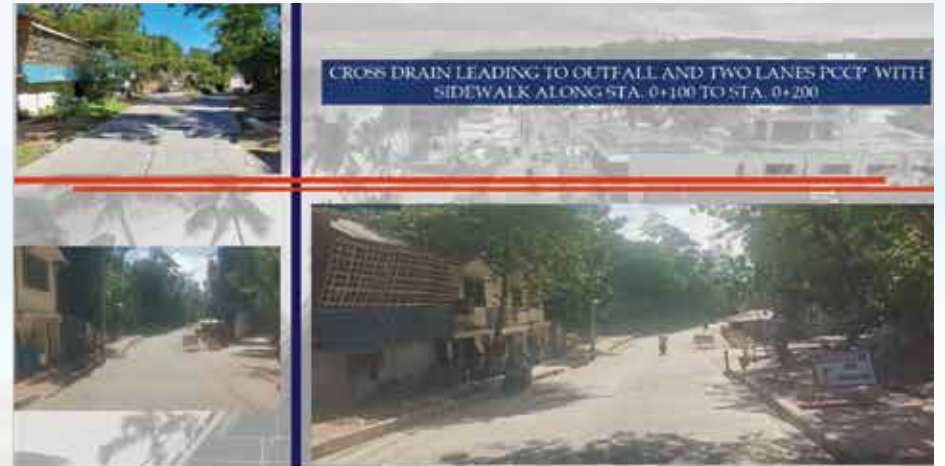
- Completed 43.4% of the 21.0 km main road network/Boracay Circumferential Road.
- Partially completed the main drainage system (2 of 6 contract packages of Tourism Infrastructure and Enterprise Zone Authority (TIEZA).
- Implemented ongoing modernization of Godofredo Ramos/Caticlan airport to accommodate bigger aircraft.
- Constructed the island cargo port of Barangay Manoc-manoc and improved three passenger ports located in Caticlan Jetty Port, Cagban Port and Tambisaan Port.
- Upgraded and expanded the water supply and wastewater facilities of Boracay Island Water Company (BIWC) for a centralized sewerage system and BTSI for septage.
- Partially established maritime security, fire safety and Information and Communications Technology (ICT) facilities.
- Completed the relocation of utility posts used by the electric cooperative, telecom and cable TV networks, and pipe and drainage system users.
- Ongoing improvement/rehabilitation of Circumferential Road: Junction Tambisaan to Cagban Port/Bulabog to Ati Village Pathwalk for Phase III.



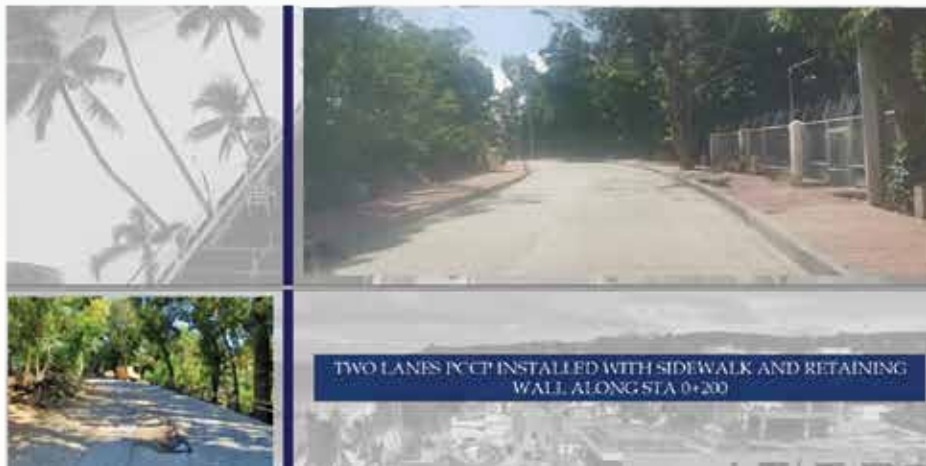
*DPWH's Projects Location Map in 2021 and the Proposed Projects for CY 2022*



*Junction Tambisaan (Manoc-Manoc)*



*Along Sitio Bubon*



*Along BIWCT Lift Station*



*Going to Cagban Port*

#### **THEME 4B : RESPONSIVE SOCIAL SERVICES INCLUDING HEALTH, EDUCATION AND HOUSING**

- Awarded lots to the Boracay Ati Tribe through the Comprehensive Agrarian Reform Program (CARP).
- Decreased malnutrition among pregnant women and children under the health intervention programs.
- Upgraded sanitation standards among establishments, with at least 87% food establishments and 90% non-food establishments obtaining sanitary permits.
- Complied with health standards in food handling through renewal of health certificates with the achievement of a compliance rate of 90% for food handlers and 95% for non-food handlers.
- Integrated basic food safety and healthy lifestyle in the capacity building of newly-hired workers.
- Constructed a municipal health office in Barangay Yapak, now 70% complete.

#### **THEME 4C : ECONOMIC OPPORTUNITIES, INCLUDING LIVELIHOOD AND TOURISM**

- Accredited 469 tourism establishments with 14,829 rooms and 4,588 workers.
- Ensured compliance of 273 tourism enterprises with health and safety guidelines.
- Trained 4,404 tourism workers and indigenous peoples on Filipino Brand of Service Excellence, local community tour guiding, tourism awareness, self-reinvention and Infection prevention, among others.
- Increased participation in livelihood and business opportunities in the form of enterprise and institution building trainings.
- Facilitated product development, funding, market linkage, and access to technologies and tools from various government agencies like DOT, DOLE, DA, BFAR, DTI, DOST, TESDA, DSWD, CDA.

## WAYS FORWARD

1. **Continuous enforcement of Easement Laws on the 25+5-meter beach easement and road easement.**

**Implementation of Carrying Capacity Regulations such as Management of the “One Entry, One Exit Policy” through a Digital/Electronic System in ports, the Moratorium on New Construction and Decongestion Plan: Construction of Workers Village in Mainland Malay.**

2. **Completion of road and drainage projects.**
3. **Completion of Wetland/Ecosystem Rehabilitation by Corporate Adopters.**
4. **Regular conduct of Environmental Compliance Monitoring by EMB Region 6.**
5. **Implementation of initiatives in tourism economic recovery and provision of livelihood opportunities.**
6. **Support the creation of the Boracay Island Development Authority (BIDA) through the passage of the BIDA bill; national and local government agencies may adopt the same arrangements of the BIATF, albeit in an ad hoc manner.**
7. **Develop a dashboard to monitor compliance and performance in terms of key indicators adopted by the BAP. To support this effort, the creation of an independent monitoring team consisting of major stakeholders in the development of Boracay is recommended.**

# MANILA BAY REHABILITATION

On 18 December 2008, the Supreme Court (SC) issued a Mandamus Order directing 13 government agencies to clean up, rehabilitate and preserve Manila Bay, and restore and maintain its waters to swimming and bathing (SB) level.

In 2019, President Rodrigo Duterte mandated the 13 agencies to comply with the SC Mandamus Order. To speed up implementation, the President issued Administrative Order No. 16 creating the Manila Bay Task Force (MBTF). Rehabilitation commenced in January 2019 with the launching of the Battle for Manila Bay program, where more than 5,000 volunteers joined a Unity Walk in support of the rehabilitation.

Despite two years of recurring lockdowns due to the COVID-19 pandemic, DENR and other task force agencies undauntedly worked to restore Manila Bay to its former glory.

Improving the Bay's water quality has been the main objective since the start of the rehabilitation program. Since then, in the Baywalk area, a significant decrease in coliform levels was observed in Station 2 (from 11.6M to 2,800), Station 4 (from 4.8M to 28,300), and Station 6 (from 32M to 57,600). Overall, Baywalk area registered fecal coliform level of 151,000 MPN/100ml from 5,750,000 MPN/100ml in 2019.

Continuously undertaken were the following tasks: river and estero clean up, construction of solar-powered Sewage Treatment Plant (STP), enforcement operations through the closure of erring establishments around the bay area, Bataan Shipyard and Engineering Company (BASECO) clean up and mangroves planting, and the Manila Baywalk geo-engineering interventions, which include the installation of high-density polyethylene pipes and beach nourishment.

CY 2021 marks the third working year of the rehab program. DENR's collaborative efforts to win the Battle for Manila Bay progresses. Conduct of activities and delivery of services and outputs were sustained by maximizing operational capacities within DENR and among partner agencies, local governments, and stakeholders. Accomplishments in the program areas of liquid and solid waste management were as follows:

## **LIQUID WASTE MANAGEMENT**

- Monitored 6,206 establishments wherein 1,400 were issued Notice of Violations (NOVs), five (5) Cease and Desist Orders (CDOs) and five (5) Ex-Parte Orders.
- Connected 25.78% and 47.09% of the 17.189 million water-served population for sewerage systems and sanitation services, respectively. Services were provided by the Maynilad Water Services Inc. (MWSI) and Manila Water Company Inc. (MWCI).



Cleanup operations in Baseco, Pasig River, and Manila Baywalk Dolomite Beach

## SOLID WASTE MANAGEMENT

- Collected a total of 72,755.90 cu.m of solid wastes through trash traps, trash boats, and cleanup activities done by volunteers and Estero Rangers.
- In addition, the Manila Metropolitan Development Authority (MMDA) collected and disposed 3,881.92 cu.m. of wastes in BASECO and Baywalk areas.

In accordance with Administrative Order 16 which aims to fast-track the rehabilitation program, the Manila Bay, Baywalk, Baseco Beach Area, and Pasig River were designated as priority areas for daily clean-up operations from July 28 to December 31, 2021, wherein a total of 10,967.83 tons have been collected by DENR NCR, LGU of Manila, and Pasig River Coordinating and Management Office (PRCMO).

- Recorded 356,485 Informal Settler Families (ISFs) residing within easement areas of various waterways in the Manila Bay Area with 28.84% total resettlement rate.
- Planting of 5,630 seedlings of mangrove and 17,031 bamboo shoots across the Manila Bay Area by the Habitat and Resource Management Cluster to help protect river easements from encroachment and prevent further soil erosion.
- Registered a decrease in fecal coliform level in seven (7) stations, as follows: Station 1 (100m left of US Embassy) from 217K to 3,500 MPN/100mL, Station 2 (Padre Faura Drainage Outfall) from 11.61M to 2,800 MPN/100mL, Station 3 (In front of Diamond Hotel) from 11,000 to 6,000 MPN/100mL, Station 4 (across Hop Inn) from 4.8M to 28,300 MPN/100mL, Station 6 (Remedios Drainage Outfall) from 32M to 57,600 MPN/100mL, Station 7 (Grand Boulevard Hotel) from 88,300 to 42,600 MPN/100mL, and Station 9 (Quirino Ave.) from 469.7K to 75,600 MPN/100mL. Meanwhile, an increase was registered in two stations, namely, Station 5 (across Carpel Shell Eport and Museum) and Station 8 (in front of Admiral Hotel along Roxas Blvd.).
- Registered a decrease in coliform level in Station 3 from 196M to 110M at the Estero de San Antonio de Abad. However, an increase in fecal coliform was noted in Station 4 from 55.3M to 110M, Station 8 from 63.2M to 120M, Station 9 from 18.1M to 92M and Station 10 from 31.3M to 110M.
- Registered a decrease in coliform level in Station 7 from 80,500 to 11,200, Station 8 from 39,600 to 9,200, and Station 9 from 28,500 to 5,400 at the BASECO Beach Area.



Fecal coliform level in the Manila Bay-walk Area

- Registered a decrease in fecal coliform level from 80.5 MPN/100mL in January 2021 standard to 1.8 MPN/100mL in December 2021. This demonstrates that the fecal coliform standard level for Class SB in the Manila Baywalk STP was achieved. Based on DAO 2016-08, the standard level form for Class SB is 100MPN/100mL.

Fecal Coliform of Sewage Treatment Plant in Manila Baywalk Area

Parameter	Station	2020 Annual Geomean	2021											
			Jan	Feb	Mar	April	May	June	Jul	Aug	Sep	Oct	Nov	Dec
Fecal Coliform	STP Influent	11.3M	20.9M	20.7M	27.2M	6.7M	15.6M	10.7M	5.8M	16M	8.8M	78.1M	78.24M	92M
	STP Effluent	21.8K	80.5	6,890	41.6	1.8	4	1.8	2K	1.8	9.4	1.8	9.28	1.8



- Graced the construction of Libertad STP and wastewater interceptor which aims to treat wastewater from the Tripa de Gallina – identified as the “main polluter” – that has been discharging wastewater to the Libertad Channel that drains toward the Manila Bay.
- Opened to the public the Manila Baywalk Dolomite beach, which covers a stretch of 810 meters (500 meters visible area and 310 meters submerged area) with dolomite sand laid out on a priority area of 140 meters, from the side of the U.S. Embassy until the Padre Faura Outfall, with the remaining area covered by gray sand.



*2,500 linear meter of trash booms*



*3,100 linear meters of silt curtains*



*Solar-powered Sewage Treatment Plant near Manila Yacht Club along Roxas Boulevard*

- Planted 60 mature coconut palms along the Manila Baywalk to complement the agency's beach nourishment project, which aims to bring back the "tropical aura" of Manila Bay.
- Conducted 1,107 cleanup activities participated in by 1,426 Estero Rangers (ERs) and collected a total of 643,191 sacks of garbage from 416 waterways.
- Carried out various cleanup activities, primarily waste collection in the following Manila Bay Regions: 2.7M kilograms in NCR; 1,920.872 cu.m in DENR Region 3; and 121,558 kilograms in DENR Region 4A.
- Completed geo-engineering interventions which include (1) Installation of Trash Booms, (2) Installation of Silt Curtains, (3) Beach Nourishment (Phase 1), (4) Dredging and Desilting, (5) Construction of Sewage Treatment Plant (STP) along Roxas Boulevard, (6) Plugging of Illegal Pipes along the Seawall, (7) Wiring Installation from Padre Faura to San Antonio Abad of the Submersible Pumps of the Wastewater Interceptor, and (8) Desilting of Intake Drainage Canals along Roxas Boulevard.



*Dolomite Beach along the Roxas Boulevard*



CY 2022 Manila Baywalk  
Perspective

## WAYS FORWARD

1. Construction of solar-powered Mandamus Office and Solar-powered Beach Maintenance Facility.
2. Repair and upgrade of one (1) old comfort room as souvenir shop.
3. Construction of solar powered comfort room at Padre Faura and Abad area.
4. Construction of PWD ramp and access stairs to the Manila Baywalk Dolomite Beach.
5. Implementation of Beach Nourishment Phase 2 consisting of an additional 360 meters dolomite beach (total of 500 meters including the existing 140-meter dolomite beach); construction of Fishing Wharf, 100-meter Manila Baywalk Dolomite Beach, and solar powered lighting fixtures along the Manila Baywalk.
6. Installation of a historical marker, the Fort Drum Cannon fronting the Rajah Sulayman Park.
7. Installation/construction of high-density polyethylene (HDPE) pipes at Padre Faura, Remedios, and Abad Outfalls.
8. Installation of 1.3 kilometers of Wooden Perimeter Fence along Baywalk.
9. Installation of 12 units of CCTV along Baywalk.
10. Installation of project marker and Baywalk landscaping

# PASIG RIVER REHABILITATION

Decades ago, the Pasig River served as a human settlement, mode of transportation and navigation, as well as source of food, water, and livelihood of Filipinos. But since the early stages of industrialization and urbanization, various negative impacts including overpopulation and growth of industrial and commercial establishments around the riverbanks were experienced. Because of untreated wastewater discharged from these establishments, air and water pollution as well as poor waste management occurred.

In the 1990s, Pasig River was declared biologically dead as it could no longer sustain aquatic life. Flora and fauna in the river declined. Passengers could no longer use the Pasig ferry boats as regular transport, since the pristine quality of the river was gone; worst, fecal coliform count in the river main reached 18.2 Billion MPN/100 mL in 2009.

Moreover, tributaries of Pasig River including its esteros and creeks became severely polluted while informal settlements mushroomed along the easement proper. Promotion of urban renewal along the riverbanks was critical to improve the situation.

National and local agencies, public and private organizations, and civil society groups attempted to rehabilitate the river, resulting only in short-term effects. With the creation of the Pasig River Coordinating and Management Office (PRCMO) through DAO No. 2022-02 dated January 02, 2020, various initiatives to sustainably rehabilitate Pasig River were done.

Pasig River was identified as one of the priority waterbodies in the Philippine Development Plan (PDP) 2017-2022 under Chapter 20 *“Ensuring Ecological Integrity, Clean and Healthy Environment.”* The PDP aims to provide *“Matatag, Maginhawa at Panatag na Buhay”* for all Filipinos by ensuring cleaner and healthier waterways and improved environmental quality.

Since the establishment of the PRCMO, Pasig River has shown tremendous improvement through core programs of the Office on Environmental Enforcement and Water Quality and Waste Management.

Under environmental enforcement, the PRCMO facilitated programs, activities, and projects to maintain and sustain the cleanliness of Pasig River and its tributaries. These included the conduct of regular and special clean-up activities, installation of perimeter fences and trash traps in strategic locations, and repair and maintenance of established linear parks along waterways.

Moreover, the Office was also able to implement appropriate and sustainable waste and water quality management programs, projects, and activities to restore the pristine quality of the river and its tributaries. Through the Pasig River Unified Monitoring System (PRUMS), the PRCMO was able to regularly track water quality by jointly conducting water and sediment quality analysis with partner agencies. A significant decrease in fecal coliform count was observed as a result of numerous efforts of the Office to improve the river system.

The PRCMO also serves as secretariat of the Pasig River Ferry Convergence Program (PRFCP) Technical Working Group (TWG) which aims to re-establish the Pasig River Ferry Service for commuter transport, disaster response, and tourism, as well as streamline overall system rehabilitation. The convergence program also helps establish more ferry terminals along the existing route, as well as expand services to Manila Bay and Laguna Lake areas for improved regional connectivity. The PRCMO is committed to lead and facilitate the river's restoration and sustainable development, since the River's main and tributary location is vital to the metropolis' economic strength, being a chief mode of transport and habitat to a diverse array of fish and other aquatic life.

The Pasig River is regarded as the lifeline of our nation, having established itself as a vital ecosystem and irreplaceable natural resource with the potential to be a catalyst for economic growth. A number of legislations were passed and commissions and bodies were formed to ensure the restoration of Pasig River to its historically pristine condition conducive to transport, recreation, and tourism or according to its beneficial usage, starting with the creation of the Pasig River Rehabilitation Commission (PRRC) in 1999.

In 2019, Executive Order No. 90 was issued amending Executive Order No. 54 (s. 1999) transferring the chairmanship of the PRRC from the Office of the President to the DENR and for other purposes. However, by virtue of Executive Order No. 93 (s. 2019), the PRRC was disestablished and the PRCMO created as an adjunct office of the DENR, to enable the DENR to perform the necessary and incidental powers transferred to it.

As stated above, the PRCMO was established to ensure the continuity of the rehabilitation and development of the river system, particularly in relation to the Manila Bay Rehabilitation Program which targets the improvement of the water quality of the Pasig River to Class C level through regular cleanup activities and other related programs.

On its second year of operation, the PRCMO did not only succeed in performing the functions of its predecessor, but also innovatively introduced key programs and initiatives. Resonating with its core values, the Office was able to deliver essential services consistent with national priorities and the needs of the people, even in times of adversity.

On January 26, 2021, DENR Secretary Roy A. Cimatu issued Special Order No. 2021-17 creating the Manila Bay Anti-Pollution Task Force (MBAPTF) to expedite the rehabilitation and restoration of the coastal and marine ecosystem of Manila Bay. The MBAPTF is headed by the Undersecretary for Solid Waste Management and Local Government Units Concerns (SWMLGUC) and is supported by various offices including the PRCMO.

To further support and strengthen the objectives of the MBAPTF, Special Order No. 2021-575 was issued on October 25, 2021 creating the Task Force Water Hyacinth. The Laguna Lake Development Authority (LLDA) was designated chair, while the PRCMO, DENR-NCR, DENR-Region IV4, DPWH Bureau of Equipment (DPWH-BOE), Manila Bay Coordinating Office (MBCO), MMDA, and the River Basin Coordinating Office (RBCO) were designated co-chairs. Task force accomplishments are as follows:



Before and after photos of cleanup operations (BASECO, Pasig River, Estero de Magdalena and Estero de San Lazaro) (L to R, first row to fourth row)

- Conducted regular and special clean-up operations through the deployment of Environmental Aides (EAs) known as River Warriors and River Patrollers in order to maintain the Pasig River System free from solid wastes and other floating debris.
- Acquired two mini dump trucks to augment transport in the hauling and disposal of waste from the daily cleanup operations of the Office.
- Collected a total of 412,793 sacks or 12,383,790 kilograms of solid wastes, 316,373 sacks of which are non-biodegradable and the remaining 96,420 sacks, biodegradable.
- DENR issued Special Order No. 2021-575 creating Task Force Water Hyacinth with the following duties and responsibilities:
  - Coordinate with all concerned agencies, offices, and local governments in harvesting, trapping, and disposing of water hyacinth present in different waterways;
  - Spearhead the undertaking of remedial measures;
  - Conduct study on effective disposal, reusable forms, and general behavior of water hyacinth, and lead information drive regarding farming practices to mitigate the excessive proliferation of water hyacinth;
  - Strictly monitor the enforcement of Republic Act No. 9003 or the Ecological Solid Waste Management Act, and
  - Prepare a master plan for water hyacinth management and utilization. The proliferation of water hyacinths along main Pasig River from Laguna Lake to Manila Bay became an eyesore and an impediment to the navigation of boats and ferries. It impacts adversely on the environment and transportation as well as on current programs for Pasig River and Manila Bay.
- Set up action plans in coordination with partner agencies in the national government and private stakeholders to address the excessive growth of water hyacinths in the Pasig River and Manila Bay.

- Repaired and maintained four (4) esteros: Estero de Pandacan (Barangay 853), Estero de Pandacan (Jesus to Quirino Streets), and two (2) areas of Ermitanyo Creek (Aurora Boulevard to N. Domingo and R. Lagmay streets), through painting and beautification of plant boxes, fences, and walkways.
- Installed trash traps in variously identified tributaries in seven (7) esteros to prevent floating wastes from going directly to the Pasig River.
- Established three (3) perimeter fences to secure the easements of the waterways from informal settler families (ISFs) who tend to throw garbage directly to the esteros and easements.
- Monitored and inspected a total of 33,919 linear meters of easements within the Pasig River.



*PRCMO's cleanup activity using the new mini dump truck*



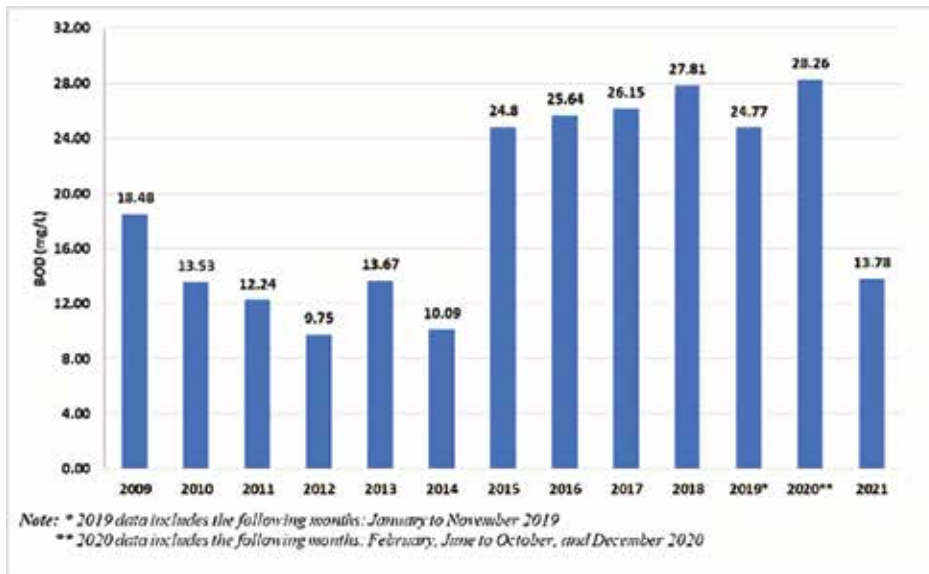
*Installation of the trash traps in the seven tributaries*

Name of Waterway/Area	Type
<b>Estero de Pandacan (concurrent at Estero de Tripa de Galina, Kahilum 1 area)</b>	<b>Bamboo floating barrier with nylon net</b>
<b>Estero de Pandacan</b>	<b>Bamboo floating barrier</b>
<b>Estero de Paco (Quirino Bridge, Brgy. 734)</b>	<b>Bamboo floating barrier</b>
<b>Estero de San Miguel</b>	<b>Casting nylon net</b>
<b>Estero de Magdalena</b>	<b>Bundled bamboo floating barrier</b>
<b>Estero de Magdalena (corner P. Algue / La Torre)</b>	<b>Casting net type with bamboo Floater</b>
<b>Estero de Sta. Clara</b>	<b>Casting net type</b>

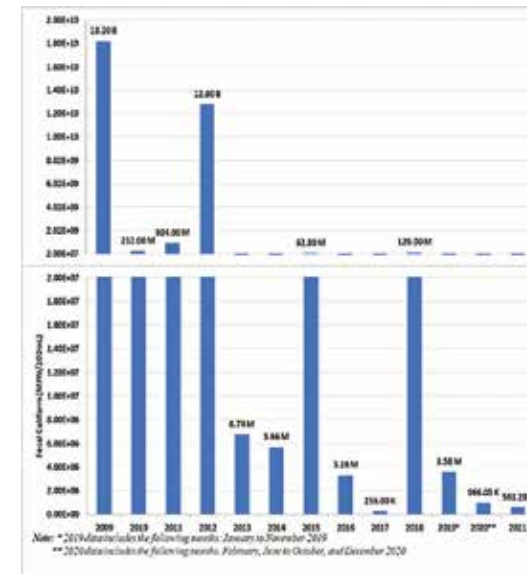
*Establishment of perimeter fences*

Name of Waterway/Area	Type
<b>Estero de Pandacan (Brgy. 853)</b>	<b>Bamboo fence with net</b>
<b>Estero de Pandacan (Brgy. 832)</b>	<b>Bamboo Fence</b>
<b>Parola Compound</b>	<b>Bamboo fence with net</b>

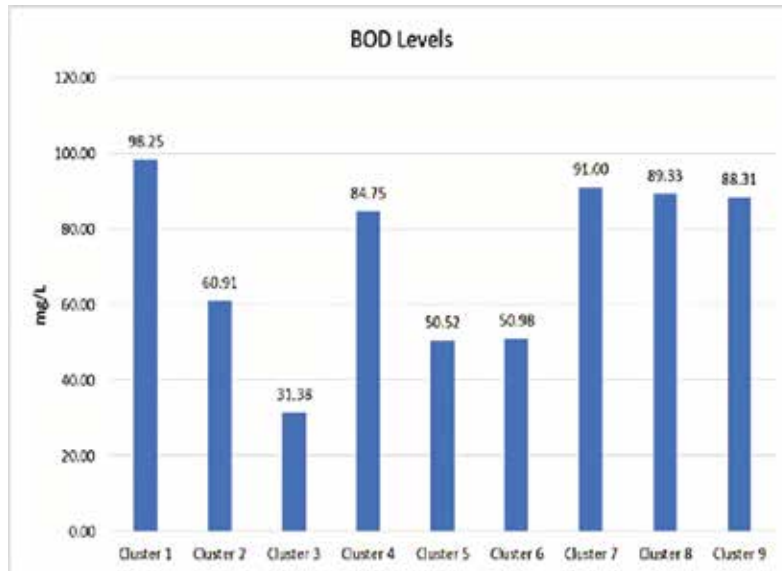
- Recorded a decrease in Biochemical Oxygen Demand (BOD) concentration at the main Pasig River by 51% (from 28.26 mg/L to 13.78 mg/L); and a decrease in fecal coliform level by 42% (from 966.05K MPN/100mL to 561.28K MPN/100mL). Compared to 2020 data, both recordings indicated a significant improvement in the water quality of the Pasig River.
- Conducted water quality monitoring in 47 Pasig River tributaries divided into nine (9) clusters. A significant reduction in BOD level was recorded in Cluster 4 with 84.75 mg/L, from 107.78 mg/L in CY 2020. Also, significant reduction in fecal coliform level in Cluster 1 was registered with an average of 14,883,958.33 MPN/100mL, from 979,680,208.33 MPN/100mL in the previous year. This reduction could be attributed to the continuous implementation of rehabilitation programs in the priority tributaries which include regular cleanup operations, surveys, saturation of commercial establishments, and implementation of bioremediation projects.



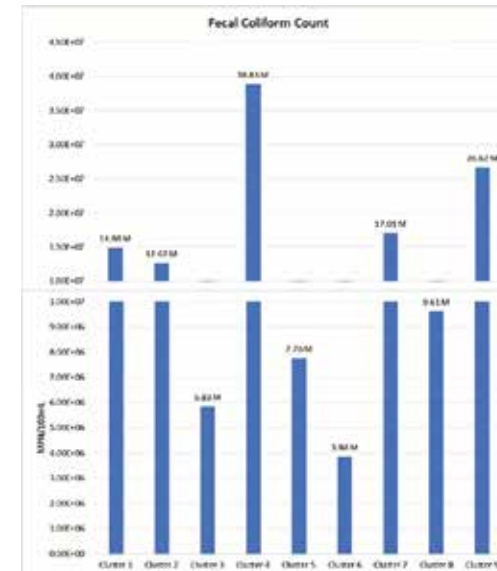
Biochemical Oxygen Demand (BOD) concentration in the Main Pasig River



Fecal coliform count in the main Pasig River



Average BOD levels at the nine clusters



Average fecal coliform count at the nine clusters

## WAYS FORWARD

1. **Achievement of targets and desired outcomes in solid waste management, liquid waste management, biodiversity and tourism advocacy, easement enforcement, and institutional arrangements.**
2. **Approval of the Three-Year Operational Plan of the PRCMO for Fiscal Years 2022-2024.**
3. **Application of the water quality improvement technology (Phytoremediation) to priority tributaries.**
4. **Strengthening of regular and special cleanup activities with partners from the local and national governments, civil society organizations, and other stakeholders.**

# NABOC RIVER REHABILITATION

The dredging and rehabilitation of Naboc River is among the top priorities of DENR Secretary Roy A. Cimatu that aims to restore the river to its pristine quality and free from mercury and other toxic properties. Naboc River is part of the Upper Agusan River Basin. Over time, it became critically contaminated with mercury due to mineral processing activities at the gold-rich Mt. Diwata in the upland.

Accomplishments were made possible with the active participation of dredgers who volunteered their services in the cleanup drive, guided by the Naboc River Rehabilitation Master Plan. The provincial LGU of Davao de Oro, the PNP, AFP, DPWH, NCIP and other stakeholders became active participants in the rehabilitation of the river as members of the Provincial Task Force Naboc River (PTFNR). The Task Force is chaired by the PENR Officer and co-chaired by the provincial governor, the 25thIB commanding officer, and the PNP provincial director. The task force likewise provided oversight to the monitoring and evaluation activities.

Although the master plan was approved in December 2019, dredging work came in full swing only in September 2021 due to the onslaught of COVID-19 that affected the arrival of dredging equipment from the USA custom-built by Clean Mineral Recovery Technologies, Inc. (CMRT), consultant of this project.

Of the 24-kilometer stretch of Naboc River, a total of 9.98 kilometers is subdivided into nine (9) River Quarry Blocks (RQB) targeted for mechanical dredging. The remaining stretch that is mostly inaccessible via heavy equipment will employ alternative cleaning methods. All RQBs were duly issued with Industrial Sand and Gravel (ISAG) Permits by the provincial government. The corresponding Environmental Compliance Certificates (ECCs) were issued by the EMB-XI.

Notably, dredging is only the first phase of the rehabilitation process of Naboc River. Parallel activities in the next phases include riverbank stabilization through vegetative measures and other soil conservation engineering methods as deemed appropriate.

The PTFNR is taking measures to minimize pollution in the Mt. Diwata, Monkayo area. Detailed accomplishments under the rehabilitation project were the following:

- Launch of dredging and rehabilitation of Naboc River on March 12, 2021.



*Former DENR Secretary Roy Cimatu together with RED Bagani Evasco, OIC PENRO Chamberlain Bablera and Governor Jayvee Tyron Uy during the launching of the Naboc River Dredging Project*

- Full blast dredging of 433 meters of the river on September 01, 2021 that resulted in the extraction of 13,696.74 cu.m. of sand and gravel (SAG) and recovery of 118.69 grams of amalgam by the end of the year. Out of the extracted SAG, 815 cu.m. were disposed.



*Ceremonial launching of dredging of Naboc River located in Monkayo, Davao de Oro*

- Close monitoring of the concentrator machines, SAG stockpiles, and overall dredging operation by the PTFNR Monitoring and Evaluation Composite Team. The team, composed of representatives from member-agencies/offices of the PTFNR, report onsite on a daily basis and utilize special template forms for evaluation and reporting.
- Conduct of Water Quality Monitoring by the EMB-XI to check whether the actual water quality of Naboc River conformed to its present classification and intended use. There was a notable decline observed in the presence of mercury and cyanide per monitoring station, specifically in Station 4. The enforcement of Cease-and-Desist Orders in all mineral processing plant operators including the transfer of minerals from Mt. Diwata to Mabatás contributed to the decline, since the handling of mercury was curtailed and/or contained properly.
- Successful conduct of 21 transfer operations from Mt. Diwata to Mabatás through the issuance of Mineral Processing Permits (MPPs) from January 29 to February 05, 2021, in close coordination with the LGU of Monkayo. Notably, some operators voluntarily dismantled their equipment and transferred to Mabatás using their own logistics.
- Serving of 53 CDOs by the MGB, seizure of 27 items, and issuance of 24 Seizure Receipts against MPP operators illegally operating in Mt. Diwata from September 06 to 10, 2021. This was a joint undertaking of the DENR, MGB, EMB, PNP, AFP, provincial and municipal LGUs, and other law enforcers.
- Provision of financial assistance by the provincial government to affected operators thru cash-for-work and soft loans to build their processing plants in Mabatás. A total of Php130,200.00 was released to 35 qualified beneficiaries on March 25, 2021.
- Construction of a Mercury Containment Facility by dredgers in Mabatás to serve as final repository for recovered mercury.
- Ongoing improvement/repair of the PTFNR satellite office within the MMPZ complex to serve as a monitoring station for PTFNR and Davao Mineral Reservation Area (DMRA)-related activities. The tripartite MOA was signed by and among DENR Region 11, the Philippine Mining Development Corporation (PMDC), and GRANCON.



*MOA signing by and between the dredgers group and the PMDC on the use of the lot for the installation of Mercury Containment Facility in Mabatás*



*Issuance of Cease-and-Desist Order against illegal MPP operators in Mt. Diwalwal, Monkayo, Davao de Oro*



*Transfer and hauling of mineral processing plants from Mt. Diwata to Mabatás Mineral Processing Zone, Upper Ulip, Monkayo, Davao de Oro*



*Releasing of cash-for-work to MPP operators beneficiaries*



*Sample of amalgam recovery*



*Members of the composite Monitoring and Evaluation Team at work onsite*



*Renovation of PTFNR Satellite Office located in Mabatas, Upper Ulip, Monkayo*



*Stockpile of Sand and Gravel (SAG) and boulders for disposal*



## WAYS FORWARD

1. For 2023, riverbank stabilization activities for Naboc River have been programmed which include vegetative and soil engineering measures through the planting of bamboo and forest trees covering 2.4 hectares and the installation of a 100-meter eight-pile gabion. To be prioritized are areas adjacent to the river which have been dredged.
2. For the ARDEC-ERDB to undertake a three-year project utilizing remediation strategies that employ organic filters and phytostabilization species in mercury-contaminated agricultural fields along the irrigation networks of Naboc River. The project, scheduled to start in 2022, is aimed at managing and controlling mercury contamination using organic filter technology and the planting of phytoremediation trees that absorb mercury such as Molave and Narra, among other indigenous species.
3. Further, the PTFNR looks forward to put into effect a sharing agreement with indigenous peoples (IPs) on their royalty share from the proceeds of SAG commercial disposal and from gold which is yet to be retorted from amalgam. Of this income, the 10 percent rehabilitation fund shall be obtained for use in other rehabilitation activities.

# LAGUNA LAKE DEVELOPMENT

Enforcement of environmental laws was intensified all the way to the Manila Bay area, as a result of which more establishments were saturated and sanctioned for violating RA 4850 and the Clean Water Act of 2004. Developmental projects gained major importance with ongoing partnerships and collaborations with local and international agencies as well as with private and public institutions.

The range of accomplishments on Laguna Lake Development were as follows:

- Implemented online LLDA clearance applications and submission of self-monitoring reports by 6,000 industries in CALABARZON.
- Planted 53,806 seedlings in various municipalities around Laguna de Bay covering 53.99 hectares, in support to the eNGP.
- Produced 179,837 various seedlings of forest and fruit-bearing trees, including bamboo culms, from nurseries situated in Calauan and Lumban in Laguna which were dispersed to requesting parties and utilized for tree planting activities within the region.



*Tree planting activity in Pililla Wind Farm, Brgy. Halayhayin, Pililla, Rizal  
on June 14, 2021*



*Lake Seeding in Yambo Lake*

- Conducted the dispersal of 20,125 common carp fingerlings for lake seeding in the Seven Crater Lakes of San Pablo City, Laguna on May 27, 2021.
- Collected more than 25,000 kilograms of solid waste materials through the conduct of river cleanup activities within the region which were disposed to designated LGU facilities.
- Received a total of 1,990 LLDA Clearance and 5,408 Discharge Permit applications, of which, 1,378 and 5,406 were approved, respectively.
- Conducted compliance monitoring of 1,962 establishments, of which 1,005 were within the Manila Bay Area and the remaining 957, outside the Manila Bay Area which resulted in the issuance of 623 NOVs and 269 CDOs.



*Issuance of Cease and Desist Order to Hobbies of Asia Commercial Bldg., Pasay City on January 18, 2021*

*Monitoring of industries in CY 2021*

AREA	NO. OF COMPLIANCE MONITORING	NO. OF NOTICE OF VIOLATION ISSUED	NO. OF CEASE AND DESIST ORDER ISSUED
Within Manila Bay	1,005		67
Outside Manila Bay	957	623	202
<b>TOTAL</b>	<b>1,962</b>	<b>623</b>	<b>269</b>

Moreover, the implementation of the online Water Quality Monitoring System in Laguna de Bay in partnership with the Hungarian Government has enabled the processing of requirements needed by the Investment Coordination Committee (ICC) - NEDA.

### POLICIES ISSUED

Responsive policies were issued that promote the vibrant economic development of the region and, in like manner, protect and advance the rights of lakeside stakeholders without compromising the integrity of the lake were ratified and approved by Laguna Lake Development Authority.

- Board Resolution No. 600, "A Resolution Creating an Enabling Environment for Renewable Energy Resources in Laguna De Bay, Designation Portions Therefore, Providing for the Necessary Institutional Mechanisms and for Other Purposes"; and
- WQMA Board Resolution No. 03, "A Resolution Approving the Proposed Governing Rules for the Operationalization of the Laguna De Bay Region Water Quality Management Area (LDBR-WQMA) and its Area Water Quality Management Fund (AWQMF).

## WAYS FORWARD

Major undertakings are in place for the succeeding years to provide the delivery of excellent services to the stakeholders. This is in keeping with the goal of attaining an ecologically-balanced Laguna de Bay Region despite the COVID-19 pandemic.

1. Sustain audit recertification for ISO 9001:2015, Quality Management System (QMS), to achieve a high-quality standard of service in the delivery of programs and projects. Further, the LLDA Laboratory intends to sustain its ranking as a Laboratory of Excellence capable of generating 100% acceptable data, a recognition granted by the Environmental Resource Associates (ERA) of USA.
2. Invest in information technology, state of the art laboratory equipment, and transport of services including the use of ferry boats for the improvement of operational and strategic management.
3. Strengthen and sustain linkages and collaboration with local and international partners.
4. Seek opportunities for involvement in GAA-funded and foreign-assisted projects to finance and implement various projects and scientific engagements in order to deliver substantial and meaningful impacts.

# ENHANCED NATIONAL GREENING PROGRAM

Given the importance of conservation, management, and the proper use of the country's environment and natural resources including forests, the National Greening Program (NGP) was conceived as a priority program of the national government.

The NGP is a convergence initiative of the DENR and the Departments of Agriculture and Agrarian Reform where the DENR stands as the lead agency as mandated by the EO No. 23 series 2011. The NGP was declared a government priority undertaking based on EO No. 26, series of 2011 which aims to plant 1.5 billion trees covering 1.5 million hectares within lands of public domain from 2011-2016. The program aims to pursue sustainable development for poverty reduction, food security, biodiversity conservation, environmental stability, and climate change mitigation and adaptation. In addition, it also aims to: 1) contribute in reducing poverty; 2) implement sustainable management of natural resources; 3) provide goods and services; 4) promote public awareness on the value of forests and watersheds; 5) enhance the formation of positive values in the sustainable management of tree plantations and forest resources, and 6) consolidate and harmonize all greening efforts.

The program had positive impacts such as contributing to the mitigation of environment-related risks (i.e. soil erosion, landslide, and flooding) as well as increasing forested areas in the Philippines from 2010-2015. The Expanded NGP intends to cover and rehabilitate the remaining unproductive, denuded and degraded forest lands estimated at 7.1 million hectares from 2016-2028.

To achieve these targets, various activities were conducted in CY 2021 under the NGP program, which include the following: a) site assessment; b) seedling production; c) plantation establishment; d) maintenance and protection; and e) hiring of extension officers and technical support staff.

In site assessment, the Survey, Mapping and Planning (SMP) activity is conducted prior to site development. The SMP assesses and identifies the suitability of sites for plantation establishment as well as allocates these areas for production and protection purposes. The SMP also includes the following: a) soil analysis to determine soil condition and suitable species; and b) gathering of baseline information such as target partners like people's organizations (POs)/ upland communities that will be engaged and contracted for the implementation of the program.

The NGP seedling production activity aims to continuously produce quality planting materials. The seedlings of various commodities produced were used as materials for the plantation establishment activities.

Given the demand for seedlings, the program also maximized the use of science and technology in meeting the needs for planting materials. This also represents one of the priorities of the Department, to ensure that the requirements for high quality seedlings for the reforestation efforts of the government are met. The interventions done include the establishment and maintenance of the following: a) Seed Production Areas (SPAs)/ Individual Plus Trees (IPTs); b) clonal nursery; and c) Modernized and Mechanized Forest Nurseries (MMFNs).

To ensure the survival of the planted seedlings, maintenance and protection activities were made part of the program as stipulated in the agreement between partner contractors and the DENR. The partner contractor also has the obligation to conduct regular maintenance and protection activities (i.e. weeding, replanting and foot patrol). Maintenance and protection activities are conducted by hired extension officers/technical staff, and partner POs for three (3) years.

Likewise in 2021, the Enhanced National Greening Program (eNGP) adopted an alternative contracting method per Technical Bulletin No. 30 released by the Forest Management Bureau (FMB). This is the Family Approach Strategy that gives opportunity to family beneficiaries to directly benefit and be engaged in the program by developing the plantations or rehabilitating qualified lands. Engagement is done through a Letter of Agreement (LOA) for Comprehensive Site Development between DENR and POs for three (3) years. The PO identifies and engages the families to develop corresponding areas, as well as specifies the amount of compensation they shall receive.

For the continuous rehabilitation and conservation of denuded and degraded forests, the DENR also partnered with other government agencies, state universities and colleges (SUCs), NGOs, as well as private organizations through different legal instruments such as Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU) in the implementation of activities under the NGP. Through this strategy, public and private sectors are encouraged to do their part in protecting and conserving the environment for the improvement of lives and for future generations.

The NGP also promoted the use of bamboo as species for the establishment of plantations. Bamboo poles harvested from these plantations can be a source of supply for the construction industry. They will undergo processing into engineered bamboo and serve as an alternative to lumber. Bamboo plantations also ensure an ample supply of light construction materials for handicraft industries as well as rehabilitation tools in stabilizing riverbanks and highly erodible areas. In addition, bamboo has the following qualities: fast-growing, resilient, good soil erosion control, good water harvester, and can absorb up to 12 tons of carbon dioxide per hectare per year, which make it one of the priority species in NGP plantation establishment.

The COVID-19 pandemic posted challenges in the implementation of the program but with sustained support from the government, the Department's sustained momentum in furthering its gains in the rehabilitation and protection of forest resources, the DENR was able to accomplish the following:

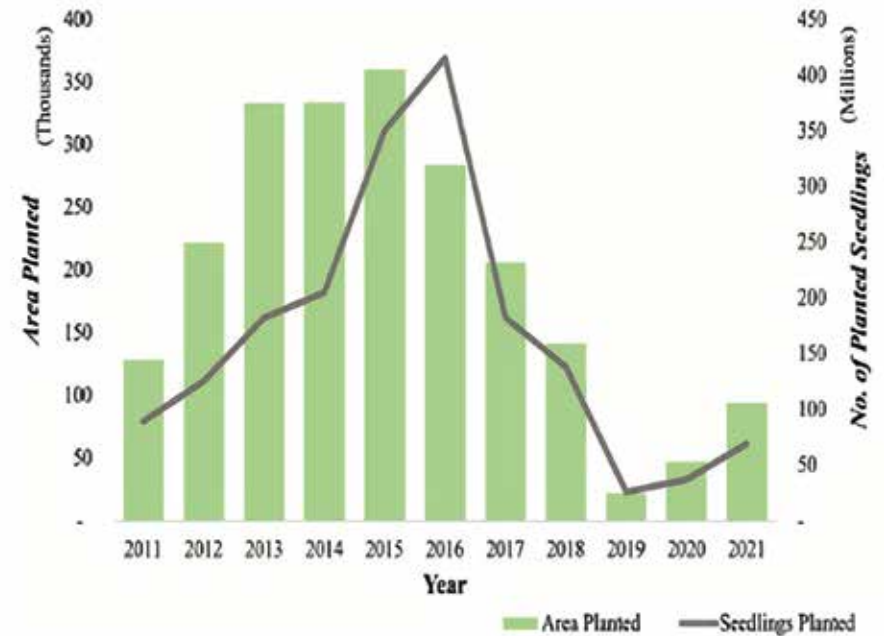
- Planted 95,666 hectares utilizing 70.72M of various seedlings. These figures bring to 2.17 million hectares of areas planted under the program, or a total of 1.82 billion seedlings planted since 2011.



*Bamboo as sustainable alternative to wood*



Year	Area Planted (ha)	Seedlings Planted (no.)
2011	128,558	89,624,121
2012	221,763	125,596,730
2013	333,160	182,548,862
2014	334,302	205,414,639
2015	360,357	351,014,239
2016	284,089	415,564,211
2017	206,136	182,185,530
2018	141,310	138,020,616
2019	21,925	25,851,359
2020	47,299	37,206,581
2021	95,666	70,727,108
<b>TOTAL</b>	<b>2,174,565</b>	<b>1,823,753,996</b>



- Created 225,588 ENGP-related jobs benefitting some 38,547 individuals. In total, around 5.85 million ENGP-related jobs have so far been created benefitting 845,014 individuals.
- Hired a total of 1,221 forest extension officers and technical workers tasked to provide technical assistance to NGP partners and beneficiaries in NGP plantation development activities.
- Engaged a total of 18,600 families following the adoption of the family approach strategy to award ENGP contracts to forestry-resource dependent families.
- Maintained 22 clonal nurseries, 76 SPAs/IPTs, and 10 MMFNs.

Year	Jobs Generated (no.)	Persons Employed (no.)
2011	335,078	47,868
2012	380,696	55,146
2013	466,990	65,198
2014	1,079,792	152,008
2015	915,729	123,519
2016	842,792	114,584
2017	582,070	84,315
2018	393,903	62,375
2019	268,171	46,313
2020	367,195	55,141
2021	225,588	38,547
<b>TOTAL</b>	<b>5,858,004</b>	<b>845,014</b>

- Registered a favorable average survival rate of 89.82% of the established plantations in CY 2021.
- Assessed and mapped 82,738 ha of potential areas for development through SMP.
- Prepared 21 Reforestation Plans.
- Maintained and protected a total of 156,836.92 ha of NGP plantations established from CY 2019-2021.
- Procured 992 geotagging equipment.

Region	Survival Rate (%)
<b>Average</b>	<b>89.82</b>
<b>CAR</b>	<b>93.77</b>
<b>1</b>	<b>91.38</b>
<b>2</b>	<b>89.28</b>
<b>3</b>	<b>87.62</b>
<b>4A</b>	<b>90.21</b>
<b>4B</b>	<b>91</b>
<b>5</b>	<b>90</b>
<b>6</b>	<b>89.7</b>
<b>7</b>	<b>92</b>
<b>8</b>	<b>89.98</b>
<b>9</b>	<b>88.4</b>
<b>10</b>	<b>90.99</b>
<b>11</b>	<b>89.95</b>
<b>12</b>	<b>87</b>
<b>13</b>	<b>86</b>

## WAYS FORWARD

**Vigorously pursue the following activities:**

- 1. Assessment, survey, and mapping of unproductive, denuded and degraded forest lands to identify target areas for plantation establishment.**
- 2. Sustainment of seedling production to supply quality seedlings.**
- 3. Adoption of the family approach strategy to provide additional income to families.**
- 4. Establishment of bamboo plantations as substitute to timber to meet the wood demand as well as augmentation to minimize the use of timber.**

# INTENSIFIED FOREST PROTECTION AND ANTI-ILLEGAL LOGGING

Forests play a vital role in supporting life on planet earth, as they provide the basic needs of humanity such as air, water, and food. Forests also act as an important buffer against climate change, prevent soil erosion, and perform significant ecological functions (i.e. carbon storage and nutrient cycling) and ecosystem services. In the Philippine context, the country's forests are prime natural resources and are classified as tropical rainforests that home a great diversity of living organisms. The geographical location of the country near the equatorial line creates the perfect climate that nurtures a wide variety of flora and fauna.

At present, one of the alarming situations in the Philippines is the decline of forest zones compared to the status in the 1900s, primarily due to irresponsible human activities like deforestation and overexploitation. Contributing to the reduction of forest zones is the logging industry which became a thriving business since the 1960s. At one point, the Philippines became the biggest, single log producer in the world. As the country exported logs, massive deforestation occurred and on record, it earned the worst deforestation rate in the Asia Pacific Region.

Relatedly, in 1934, Philippine forests comprised more than half of the country's total land area at approximately 57%. Based on the latest National Mapping and Resource Information Authority (NAMRIA) Land Cover Report in 2015, the remaining forest area of the Philippines is 7,014,152 hectares, equivalent to only 23% of the Philippine land area. Given the alarming declination of forest zones and considering the importance and value of forests to humans and other living organisms, the need to protect and conserve the remaining Philippine forests is an absolute and crucial responsibility.

The state has the obligation to protect and rehabilitate remaining forests in order to sustain different services vital to human life, prevent or mitigate some natural disasters, and preserve biodiversity. In response, Executive Order No. 23, series of 2011 titled, "Declaring a Moratorium on the cutting and harvesting of timber in the natural and residual forests and creating the Anti-Illegal Logging Task Force" was created for the protection and rehabilitation of the country's remaining forests.

Consequently, a campaign to intensify forest protection and law enforcement under the Intensified Forest Protection and Anti-Illegal Logging priority program of the Department has been relentlessly and persistently pursued. Ongoing activities are the following: (1) continuous forest patrolling thru the Lawin System; (2) neutralization of illegal logging hotspots; and (3) forest fire prevention. To ensure that the implementation and monitoring of these activities would succeed, the Department also allocated funds for the trainings as well as the procurement of equipment needed by field office personnel.

1	Provision of full logistic and material support that are essential in forest law enforcement.
2	Construction/Improvement of Infrastructures.
3	Active collaboration and involvement of forest communities and other stakeholders in forest protection and law enforcement undertakings.
4	Undertake capacity building to DENR Personnel and enhance their skills and competence for effective protection of forests and plantations for biodiversity conservations.
5	Sustain a well-planned Information, Education and Communications (IEC) campaign region-wide down to CENRO level.
6	Consistent apprehension and mandatory administrative adjudication and confiscation of apprehended forest products including conveyances and other implements.
7	Provision of institutional support in investigation, filing of information and/or criminal complaints and prosecution of forestry cases.
8	Effective Forest Fire, Pest, & Disease Management Measures.
9	Pursue Sustainable Forest Management mechanisms, initiatives practices & other institutional reforms in forestry.
10	Sustainable implementation of the Lawin Forest and Biodiversity Protection System.

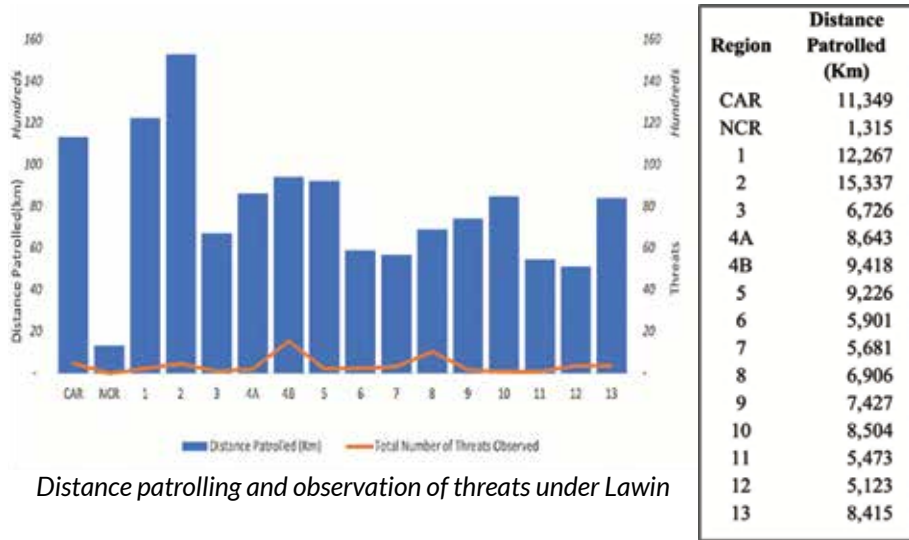
*Menu of Activities*

The menu of activities implemented under the program was designed to provide field offices a guide in the protection and conservation of remaining Philippine forests from further destruction and degradation due to different irresponsible and illegal human activities.

It also ensured that the needs of field personnel in the course of conducting their activities on the ground were in harmony and result in success.

For CY 2021, the regions accomplished more than 100% across the menu of activities, garnering an overall rating of 107.5%. Accomplishments were as follows:

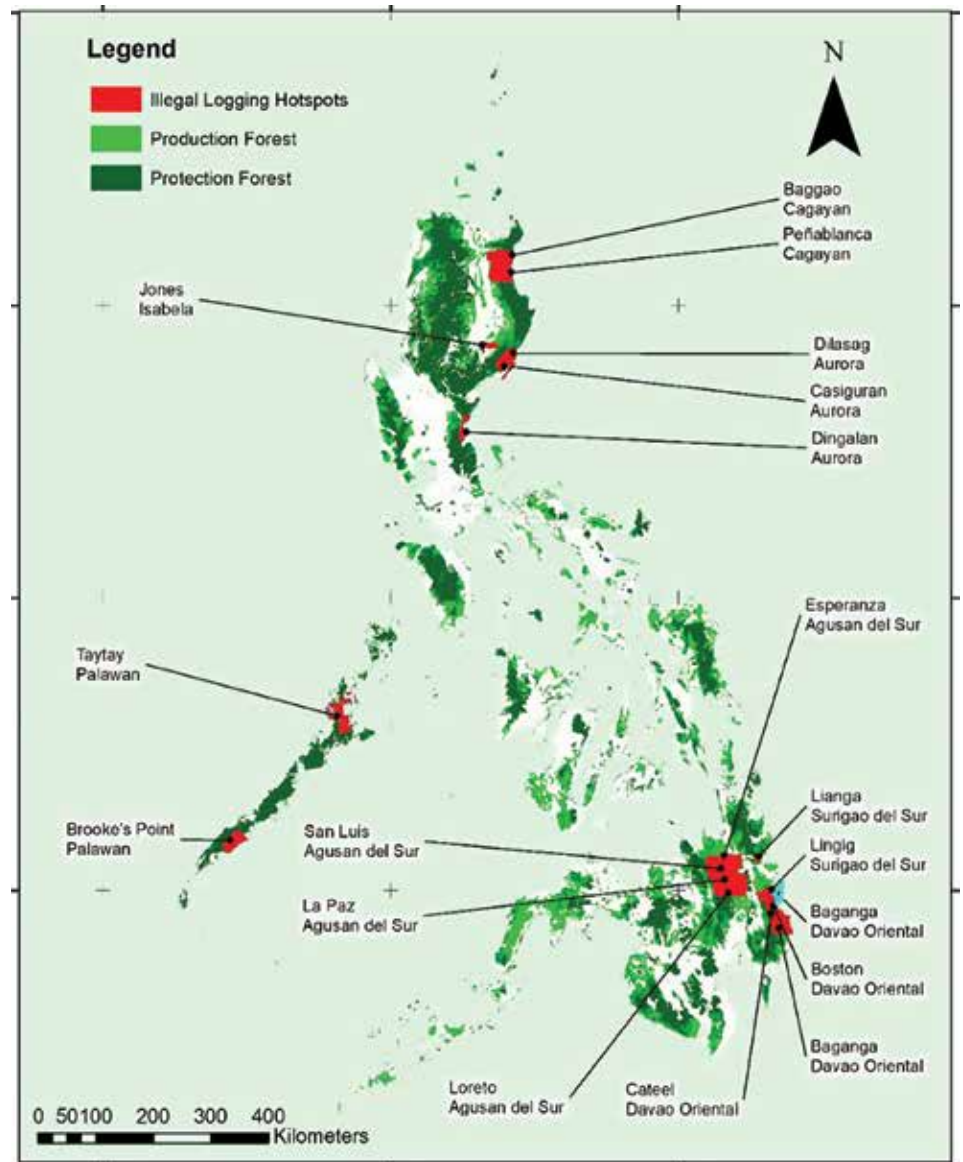
- Patrolled a total distance of 127,710 kilometers which involved 3,563 patrollers composed of forest rangers, foresters, forest technicians, forest protection officers (FPOs), Bantay Gubat members, and volunteers. Based on the patrolling, a total of 6,030 threats were observed.
- Addressed and responded to the 2,999 threats or 90% of the 3,345 threats requiring post-patrol responses. Observed threats could be either natural or anthropogenic activities. The top five (5) commonly observed threats were the following: annual and perennial farming (1,682), cutting of trees (1,047), garbage (684), typhoon-related threats (619) and landslide/mudslide (587).
- Neutralized 18 hotspot municipalities, 5% lower compared to the CY 2020 report of 19 hotspot municipalities. There were three (3) municipalities that were registered as hotspots in 2020 but were not registered in 2021. These are the municipalities of Mangatarem in Pangasinan, Laak in Compostela Valley, and Talacogon in Agusan del Sur. On the other hand, there were two (2) municipalities registered as hotspot areas in 2021 but were not registered in 2020. These are the municipalities of Jones in Isabela and Boston in Davao Oriental.
- Hired 157 lawyers/legal researchers/legal assistants.
- Hired 1,552 Forest Protection Officers.
- Apprehended 2,698,665.24 board feet of logs/lumber, 723 units of implements, and 873 conveyances which resulted in the filing of 448 cases including information and criminal complaints in different prosecutors' offices nationwide for violation of PD 705 "Revised Forestry Code of the Philippines" and RA 9175 "Chainsaw Act of 2002".



Distance patrolling and observation of threats under Lawin



Number of common observed threats nationwide



Illegal logging hotspots



Apprehension of forest products in Regions 3 and 11

## WAYS FORWARD

1. Procure material support that are essential to forest law enforcement in the field offices.
2. Continue the involvement of communities and other stakeholders in forest protection and law enforcement undertakings.
3. Capacitate and enhance the skills of DENR personnel for effective implementation of forest protection.
4. Continue the campaign on forest protection through Information, Education and Communication (IEC).
5. Continue the consistent apprehension and mandatory administrative adjudication and confiscation of forest products including conveyances and other implements.
6. Continue the filing of criminal complaints and prosecution of forestry cases.
7. Implement different Forest Fire, Pest, & Disease Management Measures.
8. Continue the implementation of the Lawin Forest and Biodiversity Protection Systems.

# ENHANCED BIODIVERSITY CONSERVATION

The Philippines is one of the megadiverse countries across globe. Importantly, it is also considered a biodiversity hotspot. However, there are major threats to biodiversity such as the following: habitat loss and degradation, overexploitation of biodiversity resources, pollution, climate change and invasive alien species.

The DENR, through its Biodiversity Management Bureau (BMB) and its regional and field offices, implements programs and activities that aim to halt biodiversity loss, rehabilitate degraded ecosystems, and strengthen protection and conservation of the biodiversity of the country. In CY 2021, the following activities were conducted:

## PROTECTED AREAS, CAVES AND WETLANDS MANAGEMENT

- Protected Area Suitability Assessment (PASA) on 14 proposed protected areas which include the Calauit Island Game Preserve and Wildlife Sanctuary in Palawan, Guadalupe Mabugnao-Mainit Hot Spring National Park in Cebu, Polillo Watershed Forest Reserve in Quezon Province, and the Tirad Pass National Park in Ilocos Sur.
- Survey and Registration of Protected Area Occupants (SRPAO) in 93 barangays covering 23 Protected Areas. These protected areas include Mt. Pulag Protected Landscape in the Cordillera Region, Mt Arayat National Park in Pampanga, Bicol National Park in the Bicol Region, and Selinog Island Protected Landscape and Seascape in Zamboanga Del Norte.
- Biodiversity Monitoring System (BMS) in 128 Protected Areas. Results were then presented to the respective Protected Area Management Board (PAMB) for appropriate management action.
- 822 Protected Area Management Board (PAMB) meetings resulting in the passage and approval of 2,333 PAMB Resolutions.
- Updating/Preparation of 23 Protected Area Management Plans (PAMPs)

## ECOTOURISM MANAGEMENT

- Maintenance, repair, and improvement of 367 ecotourism facilities.
- Impact monitoring of 61 ecotourism programs in selected PAs in accordance with DENR Administrative Order 2013-19 or Guidelines on Ecotourism Planning and Management in Protected Areas and the National Ecotourism Strategy and BMB Technical Bulletin No. 2014-03.



## MANAGEMENT OF CAVES AND CAVE RESOURCES

- Assessed 77 caves with recommended classification. To date, of the 3,197 identified caves nationwide, 1,230 were assessed while 769 were classified.



*Aerial view and Location Map of Ambuaya Lake*

- Drafted and formulated 56 Cave Management Plans in accordance with the National Caves and Cave Resources Management and Protection Act of 2001 also known as R.A. 9072, with the corresponding guidance and direction of DAO No.29 to ensure adequate protection of the entire cave habitat and to promote sustainable livelihood among nearby local communities.

### **INLAND WETLAND CONSERVATION**

- Identified a total of 603 wetlands of which 61 have wetland management plans. Of the 603 identified, 125 were found within the PAs, of which 18 have wetland management plans.
- Inventoried and mapped 20 inland wetlands.
- Mapped and profiled 20 priority wetlands.
- Designated Sasmuan Pampanga Coastal Wetland (SPCW) as a Ramsar Site Wetland, a classification of national and international importance.

### **CONSERVATION OF THREATENED SPECIES**

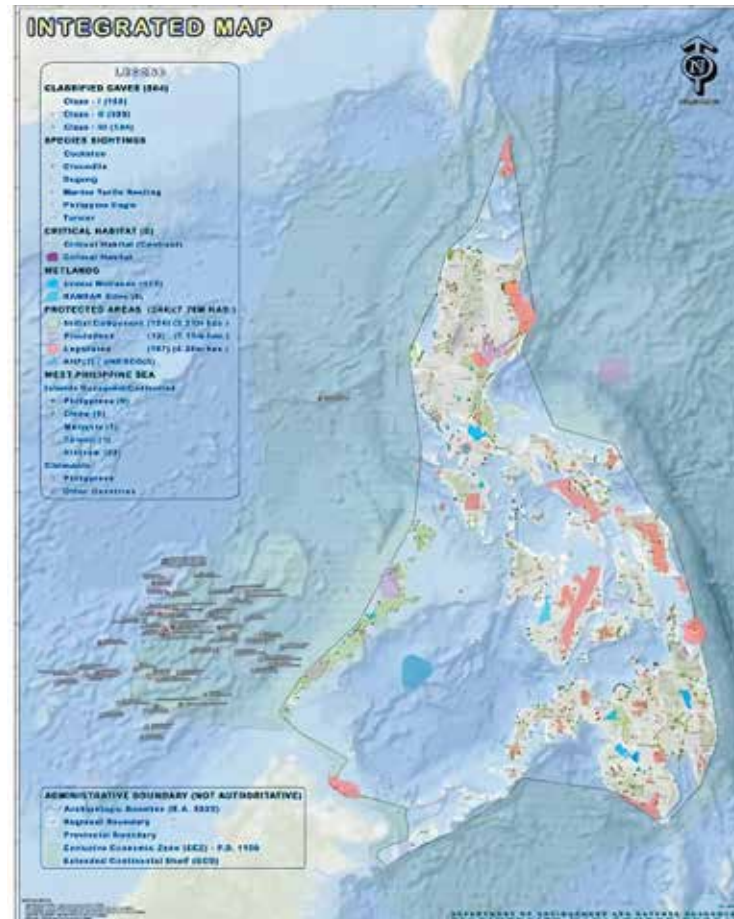
- Continuously monitored threatened wildlife species such as Philippine Eagles, marine turtles, flying fox tarsiers, tamaraws, and whale sharks or dugong. Population and field survey monitoring of these species were conducted in their respective natural habitats.
- Maintained 30 DENR-established wildlife rescue centers nationwide. At the National Wildlife Rescue and Rehabilitation Center (NWRCC) at the Ninoy Aquino Parks and Wildlife Center, 678 confiscated and retrieved birds, mammals, reptiles and arthropod species were accepted and received. As of December 2021, the NWRRC housed a total of 1,009 wildlife species.
- Issued DAO 2021-36 declaring the Sasmuan Bangkung Malapad Coastal Wetland situated at Bangkung Malapad, Barangay Batang 2nd, Sasmuan, Pampanga as a critical habitat and ecotourism area.

### **BIODIVERSITY ENFORCEMENT AND REGULATORY PROGRAM**

- Processed and issued 11,813 wildlife permit applications by the DENR regional, PENR, and CENR offices; 805 Convention on International Trade in Endangered Species (CITES) permits; and four (4) gratuitous permits (GPs) by BMB.
- Monitored 1,302 Wildlife Farm Permits (WFP) and Certificate of Wildlife Registration (CWR) holders.
- Deputized 727 Wildlife Enforcement Officers (WEOs) and mobilized 240 Wildlife Traffic Monitoring Units (WTMUs) to man major airports and seaports nationwide to ensure strict implementation of wildlife laws and regulations.

## PRODUCTION OF BIODIVERSITY-RELATED MATERIALS

- Conducted Communication, Education and Public Awareness (CEPA) sessions which include the airing of PA Talk and Our Fragile Earth: Protected Areas of the Philippines, Season 3 Program.
- Launched the digital BMB eLibrary to augment the Bureau's existing information services and offer a comprehensive biodiversity collection that users can browse through.

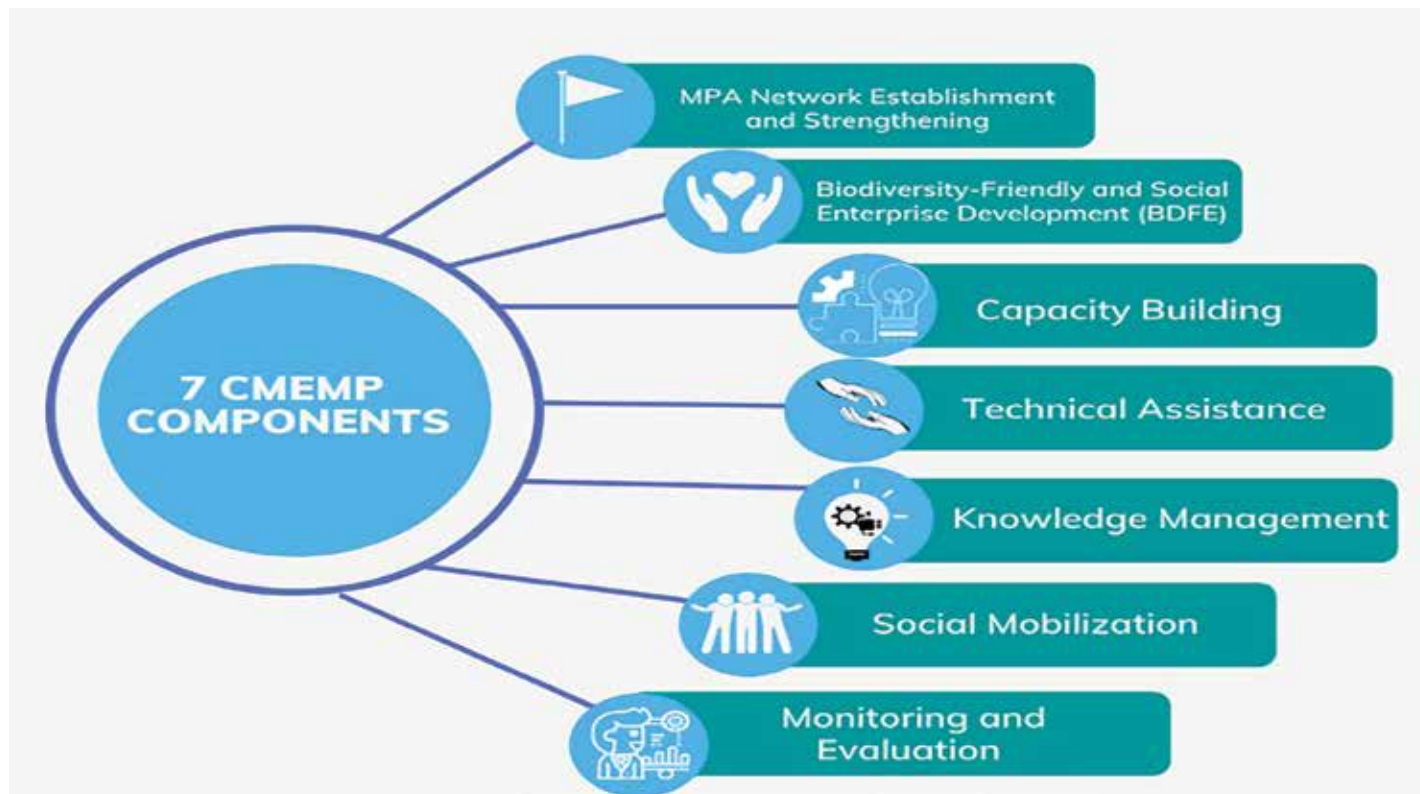


*BMB Integrated Map containing the location of the wildlife rescue centers, marine turtle nesting sites, Philippine Eagle sightings, classified caves, identified wetlands, established critical habitats, protected areas and features of West Philippine Sea*

# SCALING UP OF COASTAL AND MARINE ECOSYSTEMS MANAGEMENT

The Coastal and Marine Ecosystems Management Program (CMEMP) is a national program that aims to comprehensively manage, address and effectively reduce the drivers and threats of degradation of coastal and marine ecosystems in order to achieve and promote sustainability of ecosystems services, food security, and climate change resiliency for the benefit of present and future generations.

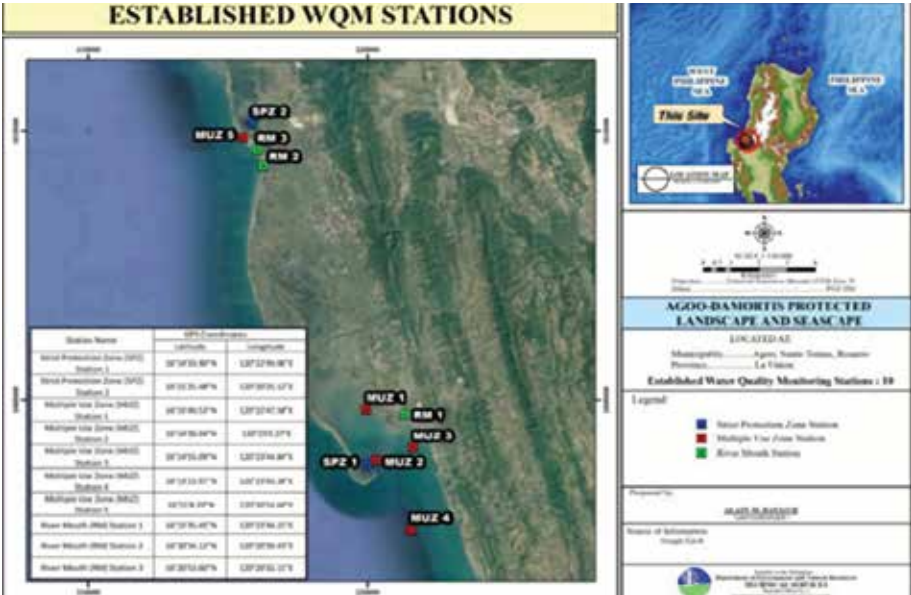
In 2021, strategies were employed by field offices in the implementation of seven (7) program components of the CMEMP: 1) Marine Protected Area (MPA) network establishment and strengthening; 2) Development of Biodiversity-Friendly Enterprise (BDFE); 3) capacity building; 4) technical assistance; 5) knowledge management; 6) social mobilization; and 7) monitoring and evaluation.



CMEMP Components



Extraction of Crown of Thorns in Region 3 and assessment/monitoring of coral reefs, seagrass and mangroves in Region 13



Google Map location and GPS coordinates of the sampling stations in ADPLS (Region 1).

Achievements of the program were as follows:

- Maintained and protected a total of 35 NIPAS MPAs which include two (2) priority areas, namely: Verde Island Passage and West Philippine Sea.
- Provided technical and financial support to the Philippine Rise Marine Resource Reserve, Snake Island, and Turtle Island Heritage Protected Area.
- Monitored the conditions of corals, mangroves and seagrass in 37 MPAs. The BMB and DENR regional and field offices implemented response measures to address the threats. Among the threats identified are high numbers of macro and epiphytic algae which may alter the growth and development of seagrasses; and presence of crown of thorns starfish and solid wastes.
- Conducted water quality monitoring in 36 PAs. Results showed high fecal coliform readings which may have come from fish worker sheds, mariculture/aquaculture cages in nearby communities, and sampling stations. Causes of other failed parameters could be due to insufficient water exchange and the open sea, especially during low tide.
- Established 12 MPA networks and strengthened 16 MPA networks.
- Patrolled a total of 92 or 112% of targeted areas for the maintenance and protection of coastal and marine ecosystems. The most common issues that were observed in the regions were the presence of moss beds, barnacles, garbage and debris, occurrence of crown thorns, coral bleaching, and illegal construction.



Water quality monitoring within NIPAS MPAs in CARAGA and Region 5



Patrolling activities in the coastal areas of Batangas and Quezon.



Horiba Water Quality Monitoring conducted in Bongsanglay Natural Park



Maintenance and Protection activities in ADPLS (Region 1)



*Sea-borne patrol in Dumanquilas Bay Protected Landscape and Seascape in Region 9 together with the PNP Maritime and Bantay Dagat volunteers*

### WEST PHILIPPINE SEA

- Conducted the 2<sup>nd</sup> Biodiversity and Habitat Survey Expedition to the Kalayaan Island Group in May 2021 in partnership with the University of the Philippines Diliman (through the Marine Science Institute), in coordination with Area Task Force - West and the Palawan Council for Sustainable Development. This was done by virtue of the Memorandum of Agreement for the project titled, "Predicting Responses between Ocean Transport and Ecological Connectivity in Threatened Ecosystems in the West Philippine Sea (PROTECT-WPS) 2.0 Project."
- Conducted Coastal Resource Assessment (CRA) of Grande and Chiquita Islands, Subic Bay, Zambales on October 18 to 26, 2021 in line with the directive of the National Task Force for the West Philippine Sea, enabling the DENR to establish a Marine Scientific Research Station in Grande Island, Subic Bay, Zambales.

### PHILIPPINE RISE

- Facilitated the PAMB meeting held on November 23 to 24, 2021 via a blended workshop at Park Inn, Radisson Hotel, Quezon City. PAMB members were updated on the revision of PAMB, reconvening of the Technical Working Group (TWG), modification of PAMB resolutions, and other matters.

### BIODIVERSITY-FRIENDLY AND ENTERPRISE DEVELOPMENT

- Approved proposals from 18 POs for BDFE Financial Assistance. Eight (8) peoples organizations (POs) submitted complete requirements, enabling them to receive financial assistance worth PhP5,256,136.

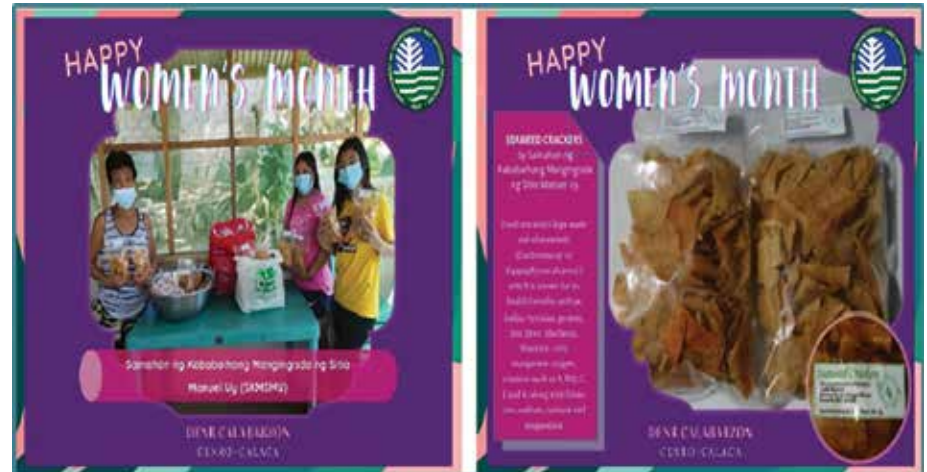


*Coastal Resource Assessment in Grande and Chiquita Islands (Subic Bay, Zambales)*

- Enhanced the BDFE development of 112 targeted POs within the NIPAS MPAs through the conduct of training in business development, simple bookkeeping, and sustainable management and financing.
- Conducted BDFE orientation sessions on the recently signed DAO 2021-13 titled, "Guidelines for the Development and Recognition of Biodiversity-Friendly Enterprises" in Protected Areas under the National Integrated Protected Area System (NIPAS) and Conservation Areas, providing for incentives and supporting mechanisms" and on Appraisal Tools from July 27 to 29, 2021 via the Zoom online platform.
- Conducted the following trainings for DENR implementers and stakeholders to transfer/share knowledge and skills on coastal and marine management activities so they could participate in the overall achievement of the objectives of CMEMP. Training subjects were:
  - » Open Water, Advanced Open Water, and Refresher Diving Training
  - » Diving Refresher Course with Covid-19 Safety Diving Protocols
  - » Orientation on the conduct and implementation of Water Quality Monitoring within NIPAS-MPAs
  - » Learning Event on Citizen Science Approach on Monitoring of the Coastal and Marine Environment for All BMB Staff where Majority is Women with Participating Members of the LGBTQIA+ (lesbian, gay, bisexual, transgender/transsexual, intersex, queer/questioning, asexual/allies, nonbinary/genderqueer+)



*Monitoring and extension of TA on BDFE project by Batangas Seaweeds Farmers' Association*



*Samahan ng Kababaihang Mangingisda ng Sitio Manuel Uy and their seaweed crackers*



- » NIPAS-MPA Capacity Building Program (NIMCAP) - Enhancement Trainings on NIPAS MPA Capacity Building Program Indicator under Capacity Building Component of CMEMP
  - » Capacity Building and Leveling Off for DENR Personnel on the Guidance for the Implementation of CMEMP
  - » Training on Marine Ecosystems and Oceanographic Processes (MEOP)
  - » Coaching and Mentoring on Marine Protected Area Networking (MPAN)
  - » Training on Fundamentals of Marine Protected Area (MPA) Management
  - » Biodiversity Assessment and Monitoring System (BAMS) for Coastal and Marine Ecosystem
  - » Learning Event and Refresher course on Self-Contained Underwater Breathing Apparatus (SCUBA) Diving
  - » Geographic Information System (GIS) Mapping Training
- Provided TAs to 131 LGUs nationwide which covered the sharing/transfer of technical capacity of DENR personnel to the LGUs. Among the activities were: meeting and consultations with key officials of provincial/municipal LGUs; actual conduct of trainings to the LGUs; provision of regular supervision and guidance to the LGUs in accordance with their respective ICM and PHE frameworks; collaborative meetings with LGUs particularly on activities pertaining to the updating of their coastal and marine management databases.



*BDFE Project of PO Samahan ng mga Magsasaka sa Mataas na Lupa, Inc. in Mt. Arayat National Park in Pampanga (Region 3)*

## KNOWLEDGE MANAGEMENT

- Maintained and updated the databases of 15 regions, except CAR. The regions are continuously populating the AGOS database, both online and offline as applicable, in the absence of a database programmed to update the backend of the system.
- Maintained the AGOS database which is the repository of coastal habitat assessment data and other CMEMP components.

## CONDUCT OF MOBILIZATION/CEPA ACTIVITIES

- Conducted special events such as: Month of the Ocean, Coral Triangle Day, and International Coastal Cleanup, among others.

## PROGRAM SUPPORT AND MANAGEMENT

- Hired 74 Coastal Extension Officers to support the implementation of CMEMP.



*Product enhancement training on mat weaving at Selinog Island Protected Landscape and Seascape in partnership with the DTI*

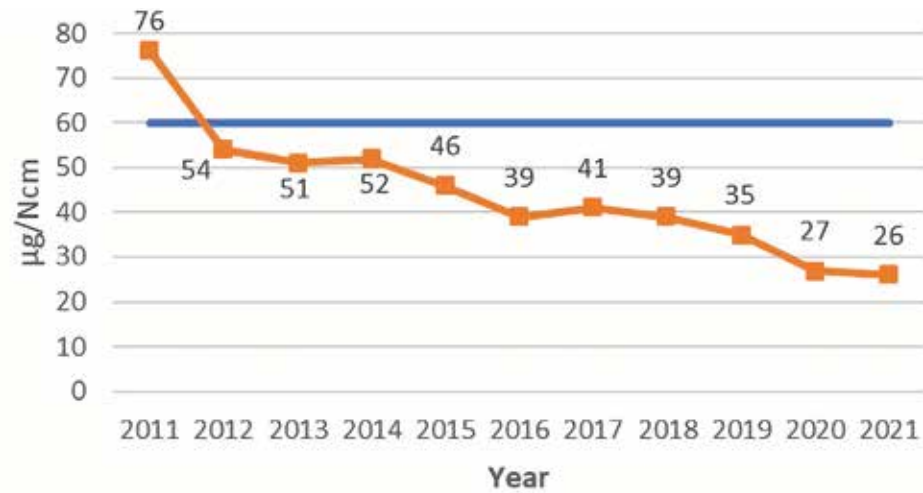
## WAYS FORWARD

1. Continue to establish and manage protected areas, caves, wetlands and other biodiversity ecosystems, conserve and protect wildlife and manage coastal and marine ecosystems.
2. Utilize online platforms to conduct consultations and improve coordination between and among DENR regional and field offices and BMB.
3. Continue to formulate sound policies and amend existing policies as need arises for effective implementation of programs.
4. Enjoin Foreign-Assisted Projects (FAPs) to sustain their best practices and efforts, and highlight their accomplishments on the conservation and protection of biodiversity.
5. Strengthen partnerships with other national agencies, Civil Society Organizations (CSOs), NGOs, the academe, POs and other stakeholders involved in biodiversity conservation.
6. Give greater focus to the establishment of protected areas under the NIPAS. This will prioritize the remaining initial components of the NIPAS and anticipated legislations of additional PAs. This will also facilitate the operationalization of the National NIPAS Review Committee; operationalization of PA management offices subject to the creation of plantilla positions by the DBM; monitoring of Protected Area activities such as SRPAO, boundary demarcation, and on-site NIPAS Act Implementation subject to COVID-19 alert status; socio-cultural mapping and documentation in AHPs; conduct of Management Effectiveness Assessment with assistance from the SIBOL Project; and operationalization of the PA Academy with assistance from FAPs.
7. Fast-track the amendment of RA 9147 and its IRR to strengthen wildlife law enforcement.

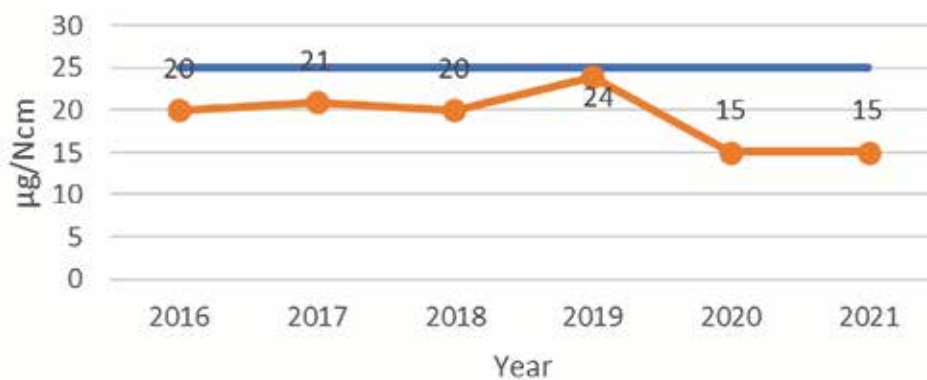
## WAYS FORWARD

8. Continue protecting wildlife resources against illegal trade and other threats.
9. Continue consultations on the enhancement of the handbook titled, Blue and Green Infrastructure in the Philippines which are scheduled on the first semester of 2022.
10. Inventory and mapping of urban green spaces around the country.
11. Facilitate the implementation of the Adopt-a-City/Urban Park Project in Quezon City, a three-year project in partnership with DENR-NCR, QC-LGU and Metro Pacific Investment Corporation as part of the implementation of the Urban Biodiversity Program.
12. Develop Guidelines and Standards for Urban Forest Bathing in the Philippines in partnership with Forest Foundation of the Philippines, Philippine Association of Landscape Architects and Philippine Institute of Environmental Planners.
13. Strengthen the contributions of CMEMP to the Philippine Development Plan targets; implement standardized assessment methods to come up with comparable and cumulative results and set trends over the years; conduct continuous validation and updating of submitted data; focus on the progress of the roadmap that guides CMEMP component implementation; identify research potentials on emerging issues related to coastal resource management; and strengthen the involvement of various stakeholders in Coastal Resource Management (CRM) activities.

# CLEAN AIR



— PM10 Standard — Nationwide PM10 Level  
Nationwide air quality status in PM<sub>10</sub>



— PM2.5 Standard — Nationwide PM2.5 Level  
Nationwide air quality status in PM<sub>2.5</sub>

The status of air quality in the country are still within the air quality guideline value of 60 µg/Ncm for Particulate Matter 10 (PM<sub>10</sub>) and 25 µg/Ncm for Particulate Matter 2.5 (PM<sub>2.5</sub>). However, a slight increase in concentration was observed due to the gradual easing of restrictions as the country slowly reopened its economy. An increase in the number of vehicles plying major thoroughfares was reported by the Metro Manila Development Authority (MMDA) as it decided to bring back the number coding scheme within Metro Manila from 5:00PM to 8:00PM every weekday.

## STATUS OF NATIONWIDE AIR QUALITY

### Particulate Matter 10 (PM<sub>10</sub>)

In comparison with baseline year 2011, nationwide Particulate Matter (PM<sub>10</sub>) concentration has significantly improved by 66% (from 76 µg/Ncm to 26 µg/Ncm). The observed reduction of PM<sub>10</sub> concentration from CY 2020 to CY 2021 (from 27 µg/Ncm to 26 µg/Ncm) may be attributed to the tighter restrictions imposed by the declaration of community quarantine (granular lockdown) due to the surge of COVID-19 cases in some parts of the country. Natural occurrences such as the volcanic eruption of Taal Volcano contributed to the increase in monthly and annual concentration of PM<sub>10</sub> in some areas of the country in CY 2020.

### Particulate Matter 2.5 (PM<sub>2.5</sub>)

Air quality in terms of PM<sub>2.5</sub> has improved from 20 µg/Ncm in CY 2016 (Baseline) to 15 µg/Ncm in CY 2021. The data below shows the nationwide PM<sub>2.5</sub> results from CY 2016 to CY 2021.

## STATUS OF METRO MANILA AIR QUALITY

Air quality monitoring stations still need human intervention for physical checking and maintenance. In CY 2020, 75% of data requirements for air quality monitoring stations was not achieved due to the declaration of community quarantine and strict implementation of lockdowns in Metro Manila.

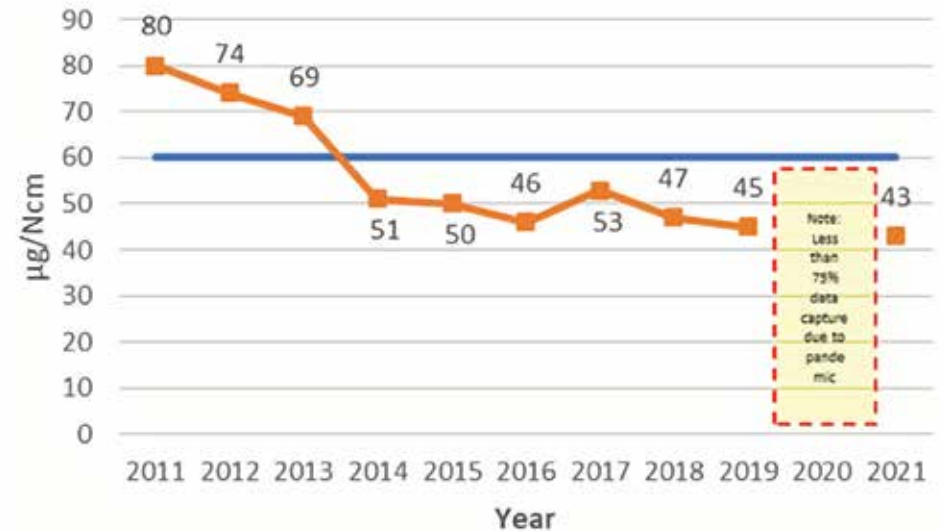
However, in CY 2021 with the gradual ease of restriction, the Environmental Management Bureau has successfully monitored the air quality in Metro Manila in terms of  $PM_{10}$  and  $PM_{2.5}$ .

### Particulate Matter 10( $PM_{10}$ )

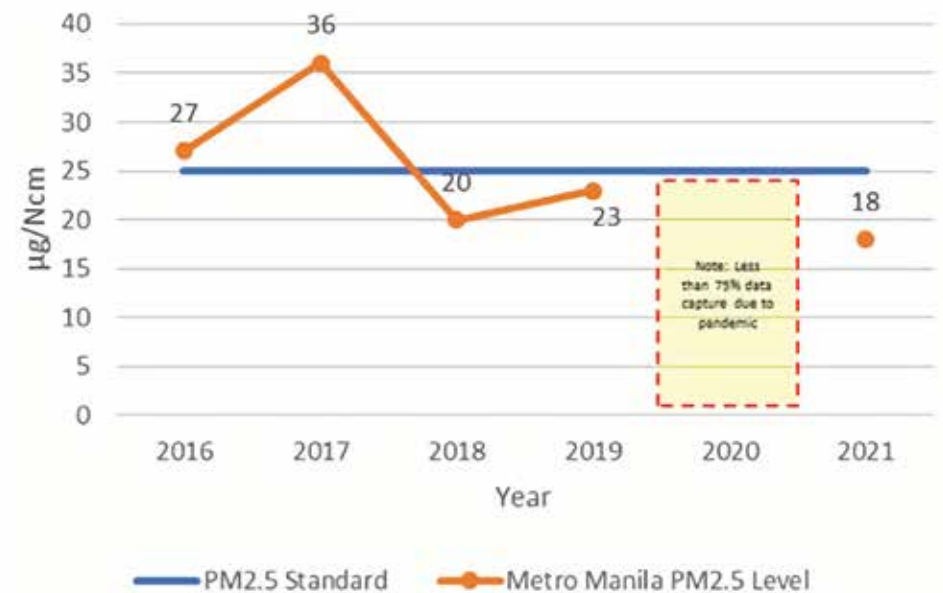
- Recorded a decrease of 46% in concentration from 80  $\mu\text{g}/\text{Ncm}$  (CY 2011) to 43  $\mu\text{g}/\text{Ncm}$  (CY 2021) data. The air quality in Metro Manila in terms of  $PM_{10}$  is still within the DENR guideline value of 60  $\mu\text{g}/\text{Ncm}$ .

### Particulate Matter 2.5( $PM_{2.5}$ )

- Remained within the air quality guideline value of 25  $\mu\text{g}/\text{Ncm}$  in CY 2016 (baseline) to 15  $\mu\text{g}/\text{Ncm}$  in CY 2021.



Metro Manila air quality status in  $PM_{10}$



Metro Manila air quality status in  $PM_{2.5}$

## **STATUS OF AIR QUALITY MONITORING STATIONS**

The EMB was able to operationalize 80% of the 106 Air Quality Monitoring Stations. These include Open-Path Stations, Particulate Matter Monitoring System (PMMS) Stations, Conventional Monitoring Stations and Manual Monitoring Stations.

*Status of air quality monitoring nationwide*

<b>Type of Station</b>	<b>Total No. of Stations</b>	<b>Functional/Operational</b>	<b>Not Operational</b>
CAAQMS – PMS	28	22	6
CAAQMS – Conventional	6	3	3
CAAQMS – Open-path	20	11	9
Manual Reference Method	55	51	4
<b>Total</b>	<b>109</b>	<b>87</b>	<b>22</b>
<b>Percent Functional/Operational</b>			<b>80%</b>
<b>Percent Not Operational</b>			<b>20%</b>

## **MOTOR VEHICLE EMISSION MONITORING PROGRAM (“BANTAY TAMBUTSO”)**

- Calibrated 34 units of opacimeters to ensure that the equipment used would generate accurate results in the apprehension of vehicles.
- Issued 432 Certificates of Conformity with the set emission standards pursuant to Section 22 of the RA 8749 or Philippine Clean Air Act.

## **INDUSTRIAL EMISSION MONITORING PROGRAM (“BANTAY TSIMNEYA”)**

- Created the Sampling Assessment Team (SAT) to monitor emissions from Air Pollution Source Installations (APSI) of industries nationwide. To date, a total of 22 firms with 46 teams have been accredited in accordance with accreditation procedures as stipulated in DAO 2013-26 or the Revised Guidelines for DENR Accreditation of Third Party Source Emission Testing Firms.

In CY 2021, there was an increase in the number of Notice of Violations (NOVs) issued compared to the previous year. This was due to relaxation of quarantine protocols which led to the conduct of actual monitoring, inspection and sampling among industries and firms to check their compliance with air quality standards.

*Percentage of compliance of firms*

Details	CY 2020	CY 2021
Permit to Operate Issued	9,999	11,239
Firms Monitored	19,521	18,143
Notices of Violation Issued	2,713	3,840
Percentage of Compliance	86%	79%

**DESIGNATION OF ATTAINMENT AND NON-ATTAINMENT AREAS IN AIRSHEDS**

Based on the developed Airshed assessment checklist, as of to date, there are seven (7) Inactive Airsheds (Category 1) and 14 Active Airsheds (Category 2).

**Category 1: Inactive Airshed**

Airshed that does not have or means of verification of operationalization, as required for Criteria 1 (e.g. signed special order or board resolution listing the members of the airshed governing board, training reports or minutes relative to airshed, IEC materials produced and distributed).

**Category 2: Active Airshed**

Airshed that has proven its operationalization thru submission of required means of verification for Criteria 1.

While the designation of attainment and/or non-attainment airshed areas requires the establishment of an airshed governing board, the conduct of emission inventory, GIS spatial distribution, air dispersion modeling (using representative air quality data), public consultation of area designation, recommendation of the EMB Central Office to the DENR and signed and published Department Administrative Order is required by law.



<b>REGION</b>	<b>AIRSHED</b>	<b>CATEGORY</b>
<b>NCR</b>	<b>National Capital Region Airshed</b>	<b>Category 1 - Inactive Airshed</b>
<b>CAR</b>	<b>Blast Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>1</b>	<b>Northeastern Pangasinan (NEPA) Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>2</b>	<b>Metro Tuguegarao (Piestta) Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>3</b>	<b>Bulacan - Pampanga - Bataan Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>4A</b>	<b>Cavite - Laguna - Rizal Airshed</b>	<b>Category 1 - Inactive Airshed</b>
	<b>Makiling - Banahaw (Mak-Ban) Geothermal Airshed</b>	<b>Category 1 - Inactive Airshed</b>
<b>4B</b>	<b>Baco - Calapan City - Naujan Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>5</b>	<b>Naga City Airshed</b>	<b>Category 2 - Active Airshed</b>
	<b>Bacon-Manito (Bac-Man) Geothermal Airshed</b>	<b>Category 2 - Active Airshed</b>
	<b>Legazpi Airshed</b>	
<b>6</b>	<b>Metropolitan Iloilo Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>7</b>	<b>Metro Cebu Airshed</b>	<b>Category 2 - Active Airshed</b>
	<b>Southern Negros Geothermal Airshed</b>	<b>Category 1 - Inactive Airshed</b>
<b>8</b>	<b>Leyte Geothermal Airshed</b>	<b>Category 1 - Inactive Airshed</b>
	<b>Tacloban City Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>9</b>	<b>Zamboanga City Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>10</b>	<b>Metro Cagayan De Oro Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>11</b>	<b>Davao City Airshed</b>	<b>Category 2 - Active Airshed</b>
<b>12</b>	<b>Northern Cotabato Geothermal Airshed</b>	<b>Category 1 - Inactive Airshed</b>
	<b>South Cotabato Airshed</b>	<b>Category 1 - Inactive Airshed</b>
<b>13</b>	<b>Agusan Del Norte - Butuan City Airshed</b>	<b>Category 2 - Active Airshed</b>

## WAYS FORWARD

1. Policy Review and Update the Stationary Source Mass Emission Rate Standards (MERS) Phase 2.
2. Formulation of the following guidelines:
  - » Ambient Air Quality Guideline Values / Standards for Hazardous Air Pollutants - Phase 3.
  - » Accreditation of CEMS/COMS Audit Service Providers.
  - » Emission Charge System.
3. Updating of DAO 2000-82, "Philippine Integrated Air Quality Improvement Framework - National Air Quality Control Action Plan."

# CLEAN WATER

There was an increase in the number of waterbodies monitored for CY 2021 compared to CY 2020. The slightly relaxed quarantine measures in CY 2021 allowed EMB personnel to conduct water quality monitoring activities. An increase in the number of NOVs issued was observed due non-compliance with water quality standards. Such observances were made during the conduct of actual site visits and inspections including water quality sampling and testing.

The devolution of function to LGUs per the Mandanas ruling enabled the strengthening of decentralized governance and improvement of social service delivery in the Philippines. The EMB is preparing to devolve its ambient water quality monitoring to the LGUs which will start up capacity building activities in CY 2022. Issues encountered in the accessibility of the waterbodies by the EMB Regional Office Staff will be resolved once the devolution of functions is implemented. This will allow more waterbodies to be monitored by LGUs themselves, resulting in increased public awareness on the status of waterbodies.

The EMB is also gradually moving towards automated monitoring methods. Additional real-time water quality monitoring equipment has been proposed for the succeeding calendar year. This will be in addition to the recently procured four (4) Water Quality Monitoring Equipment (WQME) of the EMB NCR and the 12 units of portable real-time water quality monitoring equipment.

## **MONITORING OF PRIORITY RECREATIONAL WATERBODIES (BATHING BEACHES)**

- Monitored 41 priority recreational waterbodies for fecal coliform, of which 17 or 39% passed the 100MPN/100mL standard. Out of 40 recreational waterbodies monitored for pH, 38 or 86% bathing beaches were within the criteria.

## **MONITORING OF OTHER RECREATIONAL WATERS**

- Monitored 117 bathing beaches, of which 46 bathing beaches (39%) were within the Water Quality Guideline (WQG) for fecal coliform while 84 (72%) were within the WQG for pH.

## **MONITORING OF PRIORITY WATERBODIES**

- Monitored 44 priority waterbodies, of which 39 passed the water quality standard for Dissolved Oxygen (DO), while 37 waterbodies passed the water quality standard for Biochemical Oxygen Demand (BOD).

### MONITORING OF OTHER WATERBODIES

- Monitored 140 waterbodies for DO and 145 waterbodies for BOD. In terms of DO, a total of 111 waterbodies or 79% were within the water quality guideline. For BOD, 117 waterbodies or 81% passed the water quality standard.

### CLASSIFICATION OF WATERBODIES

- Endorsed 44 additional waterbodies for classification according to their best usage and maintenance of water quality.

### WATER QUALITY MANAGEMENT AREA

- Designated additional two (2) WQMAs, namely the Bolo River System and Panglao Island and Coastal Waters. To date, 39 WQMAs have been designated, including areas within the jurisdiction of the Laguna Lake Development Authority, which were designated as one WQMA by virtue of Section 5 of RA 9275).

### ADOPT-AN-ESTERO WATERBODY PROGRAM

- Monitored 248 esteros/waterbodies, of which 100 exhibited significant improvements in terms of BOD, while 76 other waterbodies showed water quality improvements in terms of DO.
- Collected a total of 5,420 sacks, and 2,504 kgs of mixed solid waste during the community clean up of esteros that were participated in by donor partners, LGUs, and surrounding communities.

### COMPLIANCE OF MONITORING FIRMS

DETAILS	CY 2020	CY 2021
Discharge Permit Issued	6,477	7,720
Firms Monitored	10,222	8,934
Notices of Violation Issued	3,928	6,607
Percentage of Compliance	62%	26%

## WAYS FORWARD

1. **Upgrading of Water Quality Management Information System Database**
2. **Formulation on the following policies:**
  - » **Guidelines on the Designation of Waterbodies as Non-Attainment Area (NAA) or Attainment Area (AAs)**
  - » **Supplemental Rules and Regulations on the Nationwide Implementation of the Wastewater Charge System under Rules 13 and 14 of DAO 2005-10**

# SOLID WASTE MANAGEMENT

The implementation of Solid Waste Management Program by the DENR through the Environmental Management Bureau (EMB) is in line with Section 8 of Republic Act No. 9003 or the Ecological Solid Waste Management Act of 2000. The Department, through the EMB, provides secretariat support to the National Solid Waste Management Commission consistent with Section 4 of the Act.

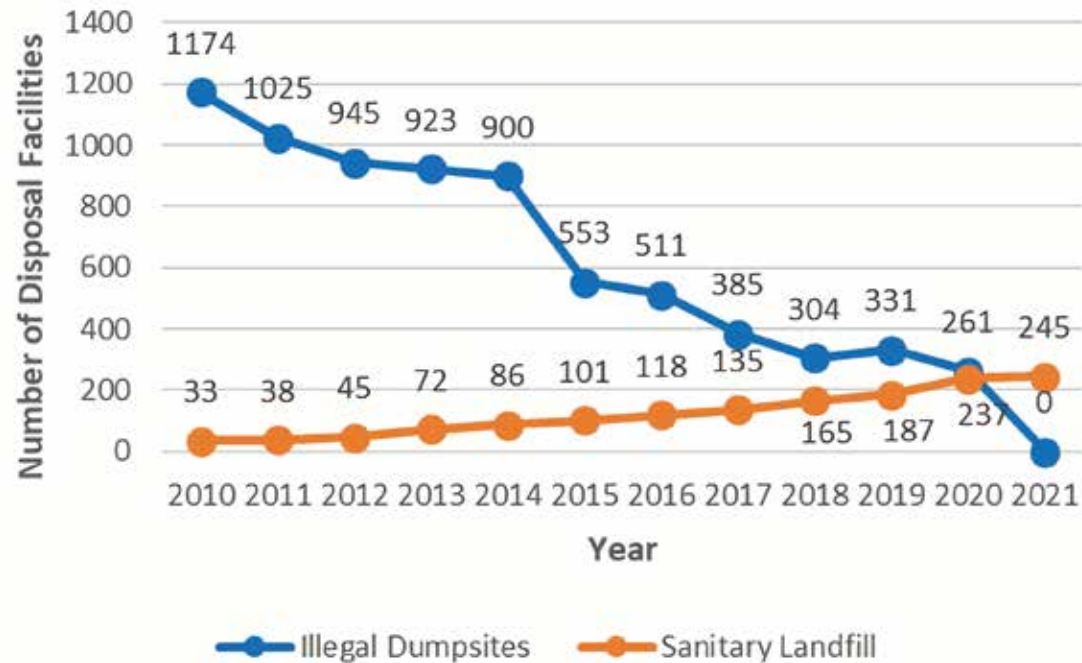
## CLOSURE OF OPEN DUMPSITES

- Issued a marching order to enforce the closure of all 1,174 illegal dumpsites in the country. In compliance, the DENR and EMB regional offices linked hands to enforce the closure of 335 open dumpsites nationwide and 245 sanitary landfills served 478 LGUs in terms of waste disposal.



Closure of illegal dumpsites

## FACILITATION AND APPROVAL OF THE 10-YEAR SOLID WASTE MANAGEMENT PLANS (SWMPs)



Data of disposal facilities since CY 2010

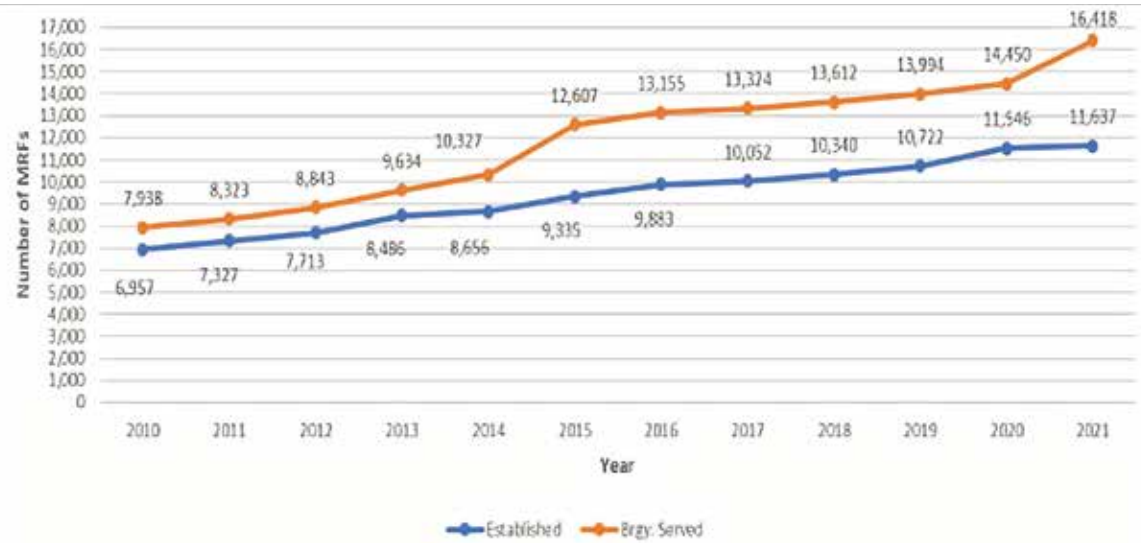
- Approved 111 Ten-Year SWM were approved by the National Solid Waste Management Commission *en banc*, which brings to a total 1,171 LGUs in the country or 72% of 1,634 cities, municipalities and provinces nationwide.

## SUPPORT IN THE ESTABLISHMENT OF MATERIALS RECOVERY FACILITY (MRF)

- Established 91 Material Recovery Facilities in 2021, which brings to a total 11,637 MRFs servicing 16,418 barangays nationwide. The establishment of MRFs is a scheme to divert waste from disposal sites through recovery, recycling and composting. These facilities also help manage greenhouse gas generated by LGUs nationwide through composting.
- Provided biowaste shredders with composters to 320 LGUs nationwide.



Map of the sites under SWEEP



Establishment of MRFs from CY 2010 to CY 2021

**SOLID WASTE ENFORCEMENT AND EDUCATION PROGRAM**

- Monitored 28,671 unclean sites nationwide, of which 23,180 were cleaned up by Environmental Monitoring Officers (EnMOs).



Before and after photos of sites under SWEEP





*Bamboo Planting Activity in Old San Mateo Landfill*

### **CAPACITY BUILDING ON THE MANAGEMENT OF COVID-19 RELATED HEALTHCARE WASTE FOR LGUS**

- Conducted a virtual Capability Building on the Development of COVID-19 Waste Management Plan for Luzon, Visayas, and Mindanao LGUs respectively, in line with NSWMC Resolution No. 1364 titled, “Adopting the Interim Guidelines on the Management of COVID-19 Related Health Care Waste.”

### **NATIONAL PLAN OF ACTION FOR THE PREVENTION, REDUCTION AND MANAGEMENT OF MARINE LITTER (NPOA-ML)**

- Adopted the NPOA-ML by the NSWMC on May 12, 2021 through Resolution No. 1441, Series of 2021. The NPOA-ML is guided by its vision of, “A Philippines free of marine litter through shared responsibility, accountability, and participatory governance” while its overarching goal is, “Zero waste to Philippine waters by 2040.”
- Conducted the Marine Litter webinar on the following dates: for Luzon LGUs on November 15, 2021; for Visayas LGUs on November 17, 2021; and for Mindanao LGUs on November 22, 2021. The NPOA-ML was launched (hybrid) on November 26, 2021 in Tacloban City, Leyte.

## Capability Building on the Development of COVID-19 Waste Management Plan for LGUs



*Capacity building on the Development of COVID-19 Waste Management Plan for LGUs*

## Marine Litter Webinar

Luzon – November 15, 2021

Visayas – November 17, 2021

Mindanao – November 22, 2021



*Marine Litter Webinar for the LGUs in Luzon*

# WAYS FORWARD

1. For CY 2022, the EMB plans to formulate the following policies on Solid Waste Management:
  - » Policy on the Guidelines for Best Available Technologies (BAT) and Best Environmental Practices (BEP) for WTE Facilities
  - » Policy on Technical Standards of WTE Facility on Appropriately Controlled Combustion
  - » Policy on the Clustering of LGUs for Common WTE
  - » Policy amendment of Certain Provisions in the Adoption of Modified Guidelines on Site Identification Criteria and Suitability Assessment Procedure for SLFs
  - » Policy on the Importation of Recovered Paper for Recycling
  - » Consultation on the Amendment of RA 9003
  - » Public Consultation on the Phasing Out of NEAP
2. Further, in support of the implementation of ESWM, the EMB will provide biogas digesters per region that would enable the LGUs to process their biodegradable wastes to serve as their climate change mitigation activities. Around 185 Ten Year SWM Plans are targeted for final review in consideration of the upcoming national elections.
3. Continue to support Key Result Area No. 2: Solid Waste Management as rehabilitation strategy for Manila Bay.
4. Regularly convene the Coalition of Solid Waste Management Providers (CSWMP) to monitor development plans to expand SLFs to other regions of the country.
5. Conduct the Regional Launch of the National Plan of Action for the Prevention, Reduction and Management of Marine Litter (NPOA-ML).
6. Continue to provide technical assistance, through the EMB regional offices, for the design of SWM facilities and site assessments of proposed sanitary landfills, monitoring of SWM facilities, development and updating of ten-year SWM plans, and strengthening of Regional Ecology Centers, among others.

# IMPROVED LANDS ADMINISTRATION AND MANAGEMENT

As the impact of the COVID-19 pandemic continued to hamper the operation of the DENR field offices in 2021, the Land Management Bureau (LMB) also continued to discover new ways to deliver technology-assisted services. The development of web-based LAMS, the introduction of online Public Land Applications (PLAs) online, and the continued pursuit of linkage with the Land Registration Authority would make patent and survey plan registration more secure and efficient, and enable the initiatives of LMB not just to address current situations but also set the stage for what is to come.

The processing and issuance of free patents for agricultural and residential lands provide security of tenure to occupants and landowners of alienable and disposable (A&D) lands through a simplified, streamlined and cost-effective process of administrative titling. The Department is mandated to issue a free patent to untitled public A&D lands which are zoned as agricultural and residential by virtue of Commonwealth Act 141, Presidential Decree 1529, Republic Act 9176, Republic Act 10023, and Republic Act 11573.

A free patent is a mode of acquisition of public agricultural lands by means of an administrative confirmation of imperfect title. It is intended to legalize the land rights of Filipinos who are found to be occupying and cultivating such lands for a certain period of time. The benefits of having a land title include: (a) permanent ownership of the land occupied by a person is guaranteed if it is titled in his or her name; (b) the rights to the land will be secured by a legal document and protected by the government; and (c) enables the owner to use the subject land for economic activity like sale, lease or collateral for loans.



Implementing Rules and Regulations (IRR) of RA 11573

In 2021, the DENR has accomplished the following:

- Issued 16,490 agricultural free patents (AFPs) for agricultural lands. Since CY 2010, a total of 718,180 AFPs have been issued and distributed to target beneficiaries nationwide.



Issuance of agricultural free patent from CY 2010 to CY 2021

- Issued 26,400 residential free patents. Since 2011, a total of 516,656 were issued and distributed to targeted beneficiaries nationwide.



Issuance of residential free patent from CY 2010 to CY 2021

- Resolved/decided 105 cases nationwide addressing land claims and conflicts with 162% accomplishment rate, while 138 cases were settled amicably through Alternative Dispute Resolutions (ADRs).
- Determined 75,161 workable lots in 38 municipalities and 634 barangays through the Rapid Land Tenure Appraisal (RLTA). These, however, are still subject for validation.

*Number of Initial Workable Lots for the year 2021 and Subject for Validation*

Region	2021 (Unavailed) - Regular			2021 (Unavailed) - Central-Based			Total Workable Lots
	Municipality/City	No. of Brgy	Initial Workable Lots	Municipality/City	No. of Brgy	Initial Workable Lots	
<b>Total</b>	<b>24</b>	<b>408</b>	<b>50,598</b>	<b>14</b>	<b>226</b>	<b>24,563</b>	<b>75,161</b>
NCR	Makati City	16	612	Parañaque City	DCDB Cleansing (ongoing)		612
CAR	Villaviciosa, Abra and Sablan, Benguet	16	2,768	Luna, Apayao	22	1,729	4,497
Region 1	Aguilar and Burgos, Pangasinan	30	2,860	San Emilio, Ilocos Sur	8	610	3,470
Region 2	Antao, Nueva Vizcaya	22	753	Sanchez Mira, Cagayan	18	3,071	3,824
Region 3	Limay, Bataan	12	544	Masinloc, Zambales	13	1,963	2,497
Region 4A	San Pablo and Pangil, Laguna; and Sta. Teresita, Batangas	33	9,619	Baras, Rizal	9	3,040	12,659
MIMAROPA	Taytay, Palawan and Buenavista, Marinduque	35	3,623	San Teodoro, Oriental Mindoro	8	279	3,902
Region 5	Talisay, Camarines Norte	15	1,308	San Jacinto, Masbate	21	3,942	5,249
Region 6	Malinao, Aklan	23	5,322	Altavas, Aklan	14	2,115	7,437
Region 7	Oslob, Cebu; Alicia, Bohol; Zamboanguita, Negros; and Lazi, Siquijor	57	11,464	No target			11,464
Region 8	No target			Bato, Leyte	33	3,854	3,854
Region 9	Kumalarang and Bayog, Zamboanga del Sur	27	367	Imelda, Zamboanga Sibugay	19	739	1,106
Region 10	Salay, Misamis Oriental	18	2,669	Gitagum, Misamis Oriental	11	2,015	4,684
Region 11	Digos, Davao del Sur	26	5,990	Caraga, Davao Oriental	14	461	6,451

Region	2021 (Unavailed) - Regular			2021 (Unavailed) - Central-Based			Total Workable Lots
	Municipality/City	No. of Brgy	Initial Workable Lots	Municipality/City	No. of Brgy	Initial Workable Lots	
Region 12	Isulan and Matalam, Sultan Kudarat	51	2,100	Tupi, South Cotabato	15	756	2,856
Region 13	San Francisco, Agusan del Sur	27	599	Tandag, Surigao del Sur	21	The finalization of LTP of the 21 barangays of Tandag City is ongoing. The region is requesting for an extension on the submission of the final LTP and CCM until the 1st week of April 2022.	599

- Signed Memoranda of Partnership Agreements (MOPA) with 31 LGUs, of which 20 municipalities became involved in training of field personnel for cascading activities. Additionally, 16 Consolidated Cadastral Maps were prepared and 14 Land Tenure Profiles produced. These activities, however, are set to be completed in 2025.

#### LAND ADMINISTRATION AND MANAGEMENT SYSTEM PHILIPPINES

- Encoded and scanned around 15M survey plans including documents/attachments under the LAMS data capture activities. This brings to a total accomplishment of 87,469,974 since 2017.



Beneficiaries claiming their patents during the conduct of Handog Titulo Program in Ammacion, Pinukpuk, Kalinga



*Land Tenure Profiling in the Municipality of Aritao, Nueva Vizcaya.*



*Data capture activities*

Regions	Updated Universe as of June 2017	Total Accomplishment by Administration	Total Accomplishment by Outsourcing	Total Accomplishment (C+D)	%	Residual
<b>TOTAL</b>	<b>105,031,871</b>	<b>72,459,524</b>	<b>15,010,450</b>	<b>87,469,974</b>	<b>83%</b>	<b>17,561,897</b>
<b>CAR</b>	<b>3,758,315</b>	<b>2,351,322</b>	<b>-</b>	<b>2,351,322</b>	<b>63%</b>	<b>1,406,993</b>
<b>Region 1</b>	<b>7,979,981</b>	<b>7,979,981</b>	<b>-</b>	<b>7,979,981</b>	<b>100%</b>	<b>-</b>
<b>Region 2</b>	<b>10,938,567</b>	<b>10,702,579</b>	<b>-</b>	<b>10,702,579</b>	<b>98%</b>	<b>235,988</b>
<b>Region 3</b>	<b>9,481,080</b>	<b>9,481,080</b>	<b>-</b>	<b>9,481,080</b>	<b>100%</b>	<b>-</b>
<b>Region 4A</b>	<b>6,634,284</b>	<b>4,157,610</b>	<b>1,751,889</b>	<b>5,909,499</b>	<b>89%</b>	<b>724,785</b>
<b>MIMAROPA</b>	<b>4,468,362</b>	<b>2,003,319</b>	<b>2,673,062</b>	<b>4,676,381</b>	<b>105%</b>	<b>-208,019</b>
<b>Region 5</b>	<b>7,725,747</b>	<b>6,852,393</b>	<b>881,308</b>	<b>7,733,701</b>	<b>100%</b>	<b>-7,954</b>
<b>Region 6</b>	<b>9,075,012</b>	<b>1,230,460</b>	<b>-</b>	<b>1,230,460</b>	<b>14%</b>	<b>7,844,552</b>
<b>Region 7</b>	<b>8,059,252</b>	<b>3,193,102</b>	<b>3,768,321</b>	<b>6,961,423</b>	<b>86%</b>	<b>1,097,829</b>
<b>Region 8</b>	<b>5,432,507</b>	<b>5,432,507</b>	<b>-</b>	<b>5,432,507</b>	<b>100%</b>	<b>-</b>
<b>Region 9</b>	<b>4,143,085</b>	<b>4,143,085</b>	<b>-</b>	<b>4,143,085</b>	<b>100%</b>	<b>-</b>
<b>Region 10</b>	<b>7,110,103</b>	<b>2,368,960</b>	<b>1,695,752</b>	<b>4,064,712</b>	<b>57%</b>	<b>3,045,391</b>
<b>Region 11</b>	<b>7,210,043</b>	<b>4,429,624</b>	<b>-</b>	<b>4,429,624</b>	<b>61%</b>	<b>2,780,419</b>
<b>Region 12</b>	<b>7,734,986</b>	<b>5,844,247</b>	<b>-</b>	<b>5,844,247</b>	<b>76%</b>	<b>1,890,739</b>
<b>Region 13</b>	<b>5,280,547</b>	<b>2,289,255</b>	<b>4,240,118</b>	<b>6,529,373</b>	<b>124%</b>	<b>-1,248,826</b>
<b>NCR</b>					<b>100%</b>	

## WAYS FORWARD

1. Continue to introduce innovative policies and technologies.
2. Take on the challenging role of being the prime mover for land administration and management.
3. Level up internal and external communications.
4. Explore technology-driven access on real-time monitoring and evaluation such as satellite imagery and drone, machine learning, continuous data enhancement of LAMS Philippines, and digitization of data.
5. Decentralization of functions vis-a-vis integration of databases.
6. Build up the next generation using the 212 Principle to help bring performance to a highly productive level.

# GEOHAZARDS, GROUNDWATER ASSESSMENT AND RESPONSIBLE MINING

## Nine Minahang Bayan sites

Region	Minahang Bayan Petitioner	Commodity	Area (ha)	Location
CAR	Manuel T. Canipas	Gold	2.1	Guinaang, Manag, Conner, Apayao
CAR	Benguet Federation of Small-Scale Miners Association	Gold	19.77	Camp 6, Tuba, Benguet
CAR	Bulawan Land Owners Small-Scale Mining Association	Gold	20	Malitao, Butao, Calanasan, Apayao
CAR	Paul A. Delwasen	Gold	4.9995	Talifugo, Conner, Apayao
CAR	Ag-agit Small-Scale Mining and Multi-purpose Cooperative	Gold	20	Mapisla, Baay-Licuan, Abra
CAR	Federation of Taneg Indigenous Communities Livelihood Association	Gold	547.46	Taneg, Mankayan, Benguet
RO IX	Balian Timuay G. F. Bachiller Small-Scale Mining Association, Inc.	Chromite	20	Bacong, Gotalac, Zamboanga Del Norte
RO X	Pinatagan Small-Scale Mining Workers Cooperative	Gold	81	Sitio Pinatagan, Mainit, Iligan City, Iligan
RO XII	Masagana Small-Scale Mining Co-operative	Gold	42.51	Lomoyon, Kiamba, Sarangani

## RESPONSIBLE MINING

To contribute to the economic recovery of the country, the DENR's Mines and Geosciences Bureau (MGB) spearheaded efforts in the lifting of the moratorium on mining agreements, open pit mining ban, and suspension orders. The MGB identified several priority mining projects expected to significantly contribute to investment, employment generation, and revenue.

As steward of the country's mineral resources, the Bureau continually reviewed and gave recommendations for the approval of applications and issuance of mining rights, contracts, permits and other mining-related permits. It issued the declaration of Minahang Bayan (MB) sites in the country and monitored mining rights to see that these are in compliance with the terms and conditions and requirements of approved work programs under the Safety, Health, Environment and Social Development (SHES) Programs.

## MINERAL INVESTMENT PROMOTION PROGRAM

- Issued/endorsed for approval 4,911 mining rights/contract/permits and other mining-related permits.
- Declared nine (9) Minahang Bayan sites. To date, there are 47 declared MBs in the country.

## **MINING INDUSTRY DEVELOPMENT PROGRAM**

Prior to the onset of the COVID-19 pandemic, the MGB annually conducted Tenement and Safety and Health, Environment, and Social Development and Management (TSHES) audits of companies involved in mining, mineral processing, and mineral exploration activities. This activity includes performance assessments of the contractor/permittees' compliance with the terms and conditions of their mineral agreements/financial or technical assistance agreements, mineral processing permits, contracts, and are in accordance with implementing rules and regulations of Republic Act No. 7942 or the Philippine Mining Act of 1995, Executive Order No. 79, and with the standards on safety and health management, environmental management, and the social development and management of companies.

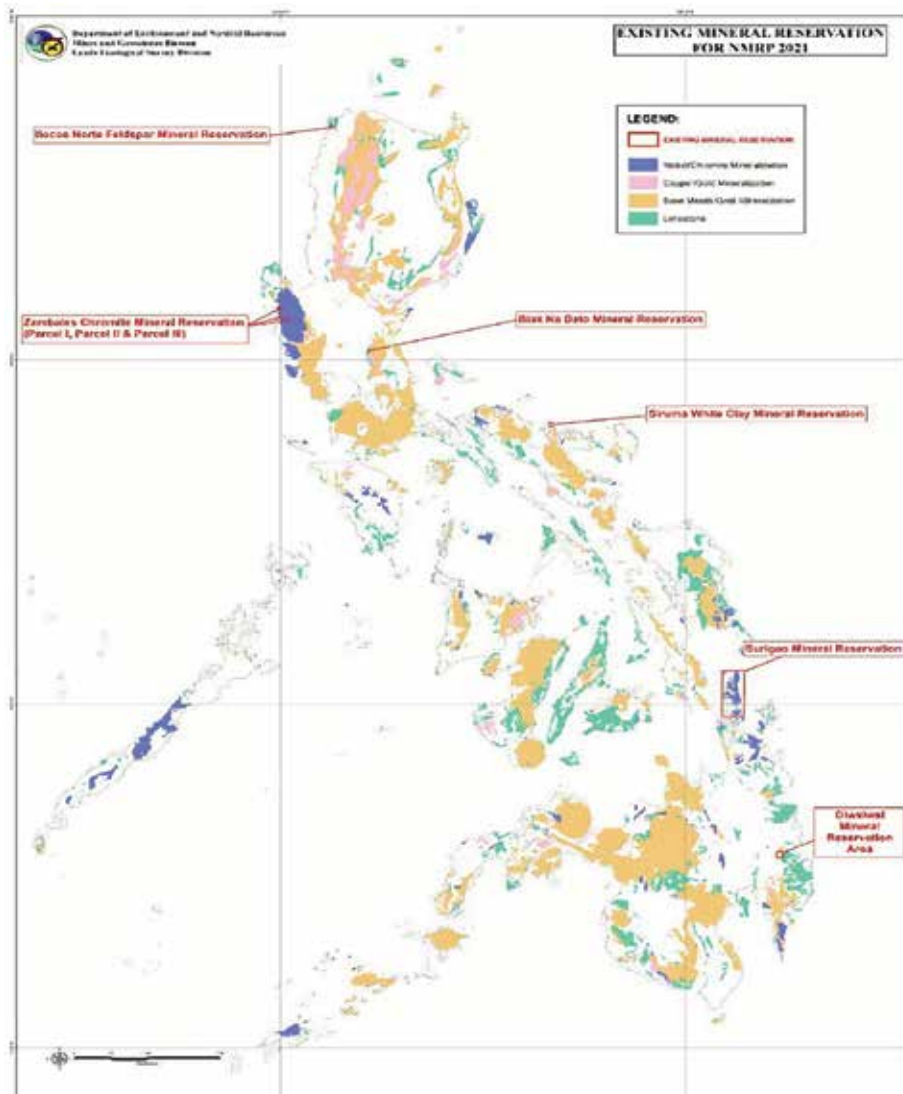
To ensure that the implementation of the said programs is in line with the objectives and guiding principles of the Philippine Mining Act of 1995 and its implementing rules and regulations and is in line as well with sustainable development, the TSHES Systems Audit of MGB Regional Offices (ROs) was also carried out since 2019 to review and assess the current evaluation and monitoring schemes of the 15 MGB regional offices.

For 2021, virtual MGB RO TSHES systems audits and TSHES verifications of mining companies were carried out in lieu of the usual onsite audit activities of the MGB due to local travel restrictions posed by the pandemic.

Overall, the MGB RO TSHES systems audit and TSHES audit of mining companies resulted in the detection of policy gaps that could be addressed through the review of existing regulations, provision of streamlined processes, and formulation of comprehensive policies. Such processes and policies are envisioned to be beneficial to the protection and enhancement of the environment, to community development, and to economic recovery. In line with these activities, the following were accomplished:

- Monitored 562 and 560 Mining Rights for compliance with the terms and conditions/requirements of Approved Work Programs and Approved Safety, Health, Environment and Social Development (SHES) Programs, respectively.
- Operationalized 224 Multi-partite Monitoring Teams of mining projects to monitor compliances of companies with their approved Annual Environmental Protection and Enhancement Programs (AEPEPs).
- Conducted an annual audit of the compliances of the ROs and all contractors with the Tenement Monitoring System and SHES Management, respectively.

In 2021, out of the 105 mining, mineral processing, and exploration companies monitored and subjected to the TSHES scoring, 79 were deemed compliant based on their performance ratings and adherence to the mandatory requirements.



Areas under the Upgrading and Monitoring of Existing Mineral Reservations Activity of NMRP

Accordingly, 15 MGB ROs and 45 contractors/permittees/permit holders were subjected to the virtual and offsite MGB RO Systems Audit and TSHES verification. Results of these audits revealed that MGB ROs are compliant with existing procedures. However, there are several aspects of the TSHES system procedures and implementation of MGB ROs that must be reviewed, assessed, and modified. These shall be addressed through streamlining of existing processes, issuance of appropriate policies, and conduct of capacity building activities, among others.

- Signed and approved DAO 2021-40 otherwise known as Lifting of the Ban on the Open Pit Method of Mining for Copper, Gold, Silver and Complex Ores in the country under DENR Administrative Order No. 2017-10, and Providing for Additional Enhanced Parameters and Criteria for Surface Mining Methods.

### MINE REHABILITATION PROGRAM

Mining rehabilitation activities in 2021 were the following:

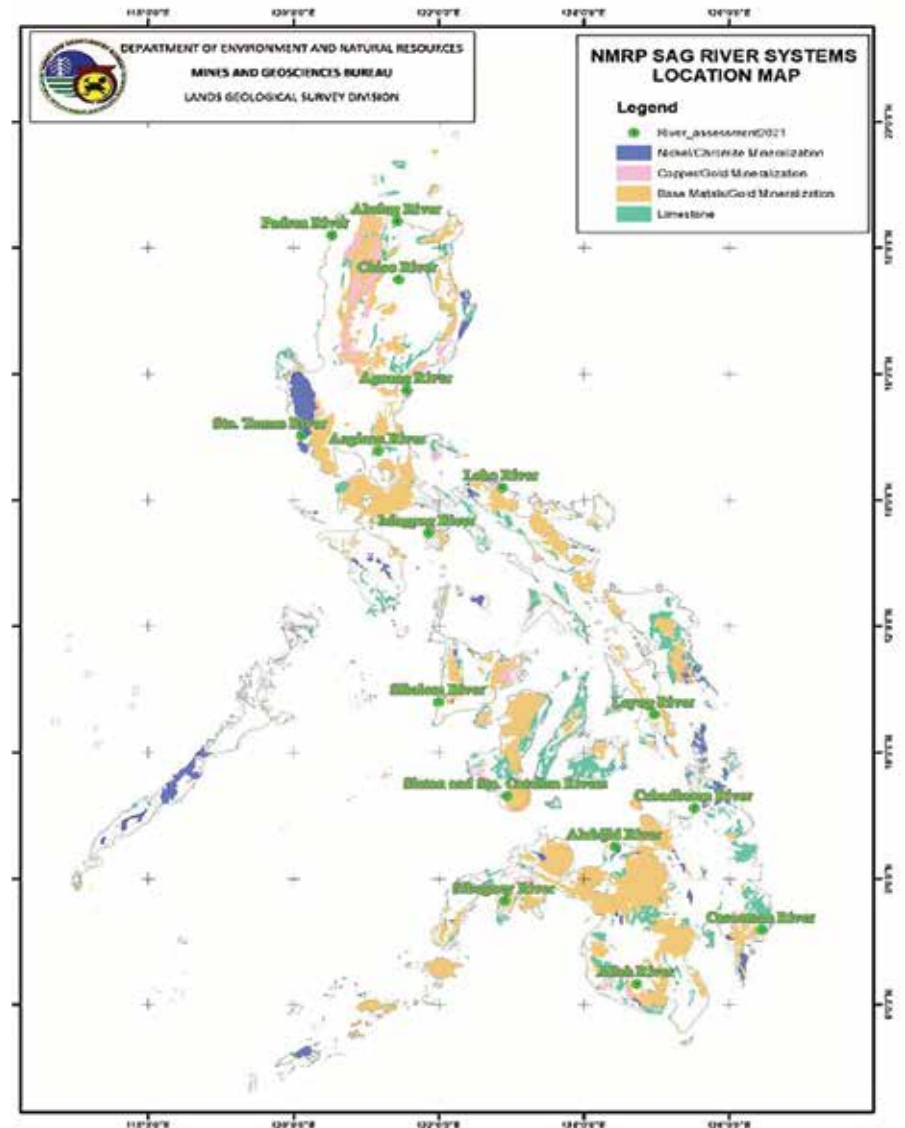
- Monitored the implementation of rehabilitation measures of Palawan Quicksilver Mines, Inc. (PQMI);
- Conducted risk assessment and the preparation of the Environmental Management Plan of Western Minolco Mining Company;
- Audited four (4) Final Mine Rehabilitation and/or Decommissioning Plans (FMR/DPs) of abandoned/closed mines, namely:
  1. TVI Resources Development (Phils.) Inc. – Canatuan Mining Project
  2. Rapu-Rapu Minerals, Inc. – Rapu-Rapu Polymetallic Project
  3. Holcim Resources and Development Corporation
  4. Hinatuan Mining Corporation – Sigbanog Nickel Project

- Monitored 10 other abandoned mines, namely:
  - Philex Mining Corp. (Sto Niño Mines formerly Baguio Gold Mining Company)
  - Western Minolco Mining Company
  - Black Mountain, Inc.
  - Benguet Exploration, Inc.
  - Barlo Mines, Inc.
  - Silica Sand Mines
  - Romblon Marble Mines
  - Benguet Consolidated, Inc.
  - Unidos Mining Corp.
  - Zambales Base Metals, Inc.
- Monitored the status of Mine Structure/Facilities of Marcopper Mining Corp.

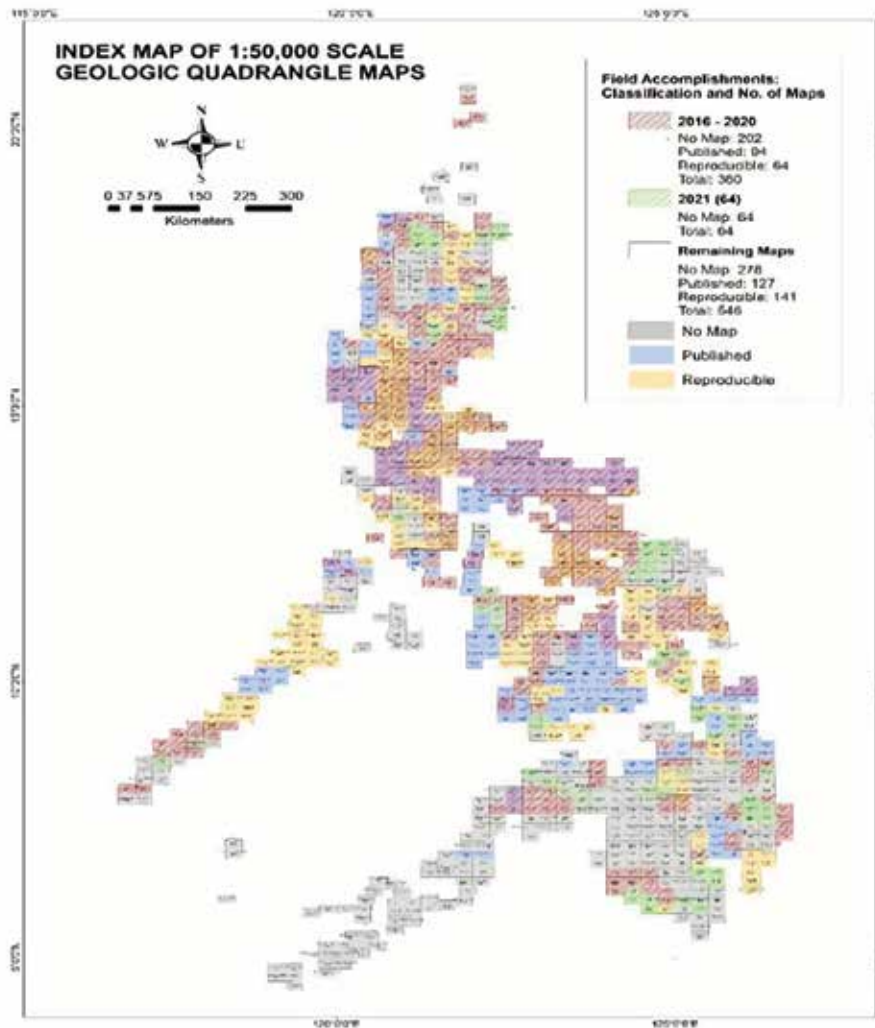
### NATIONAL MINERAL RESERVATION PROGRAM

Mineral reservation activities in 2021 were the following:

- Conducted additional exploration activities and monitored operations within eight (8) existing Mineral Reservation areas for the updating of geological information as well as assessment for possible value-adding commodities and minerals.
- Conducted exploration and assessment activities of seven (7) proposed mineral reservation areas.
- Conducted mineral assessment of Sand and Gravel/Dredgefill Resources along 17 river systems.
- Conducted surveys including geochemical samplings of five (5) areas/deposits under the Rare Earth Elements (REE) Exploration Project to assess the potential occurrence of value-adding elements in known mineral deposits.



*Areas under the Mineral Assessment along Major River System Activity of NMRP*



*National Geologic Quadrangle Mapping and Survey Program*

## NATIONAL GEOHAZARD ASSESSMENT AND MAPPING PROGRAM

- Conducted Vulnerability and Risk Assessment (VRA) with updating of 1:10,000 scale Flood and Rain-induced Landslide Susceptibility Maps for 82 cities/municipalities. To date, 991 cities/municipalities were assessed for VRA.
- Conducted Karst Subsidence Hazards Assessment in 19 cities/municipalities.
- Conducted virtual and face-to-face intensive IEC campaigns on geohazards and VRA in 92 cities/municipalities, which aim to increase awareness on geohazards and provide additional technical inputs to LGUs in their comprehensive land-use development and disaster risk reduction and management planning.
- Completed geohazard assessments for 13 Disaster-affected cities/municipalities.
- Completed geohazard assessments for 14 identified ECAs.
- Enhanced the Information and Communication Structure and Protocol and 100% operationalizing MGB early warning and early action systems for the DRR, specifically when there is an impending hydrometeorological event.

## COASTAL GEOHAZARD AND IMPACT OF CLIMATE CHANGE

- Assessed 31 municipalities/cities in 2021 utilizing new methods, specifically the Coastal Vulnerability Index (CVI) coupled with the Analytical Hierarchy Process (AHP). Nine (9) other municipalities/cities were assessed utilizing the Coastal Vulnerability Assessment Tool (CVAT).

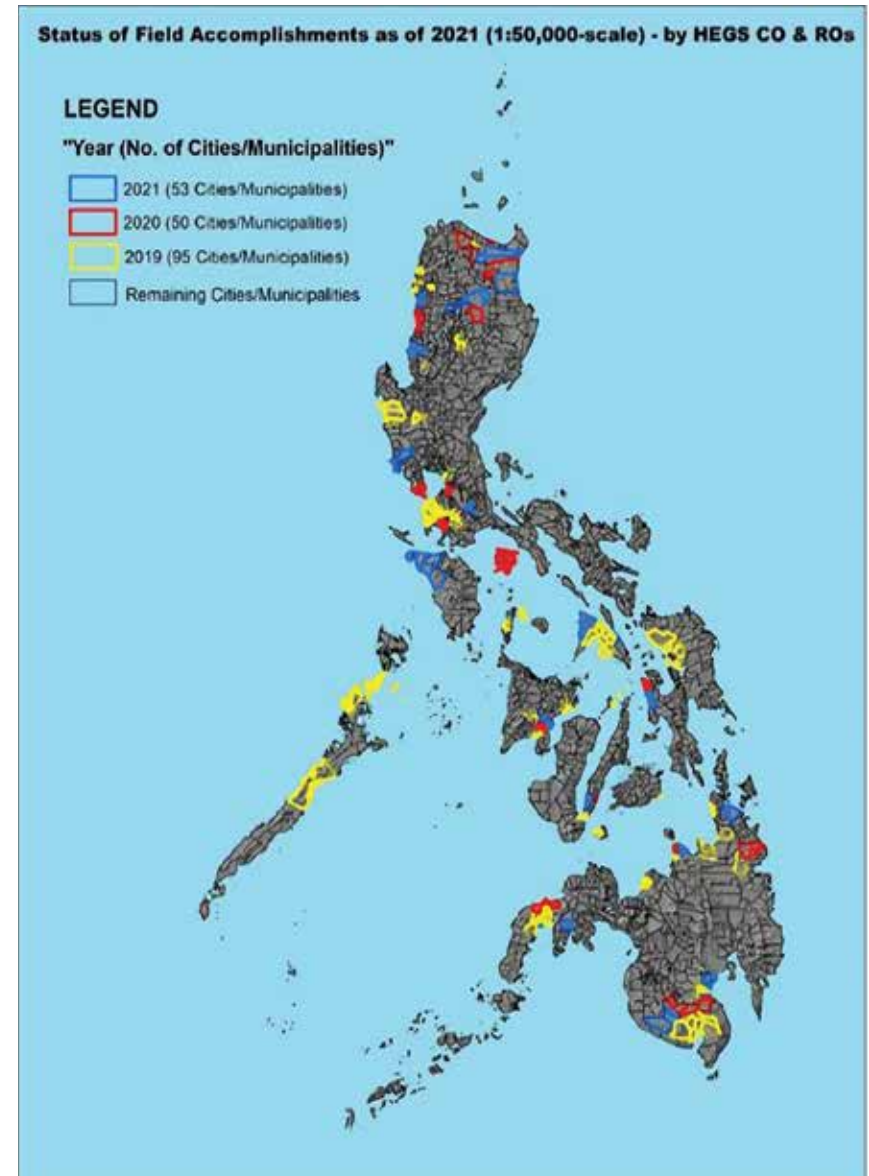
### NATIONAL GEOLOGIC QUADRANGLE MAPPING AND SURVEY PROGRAM

- Mapped and surveyed 64 quadrangles. Activities included collecting rock samples from outcrops for petrographic and paleontologic analysis that help determine the lithological character and age confirmation of rock formations in the area.

### GROUNDWATER RESOURCE AND VULNERABILITY ASSESSMENT

The Groundwater Resource and Vulnerability Assessment Project aims to produce valuable information and generate a database on the availability and vulnerability of groundwater resources in the Philippines. Key outputs are hydrogeologic and groundwater vulnerability reports and maps for the municipalities assessed and target watersheds covered.

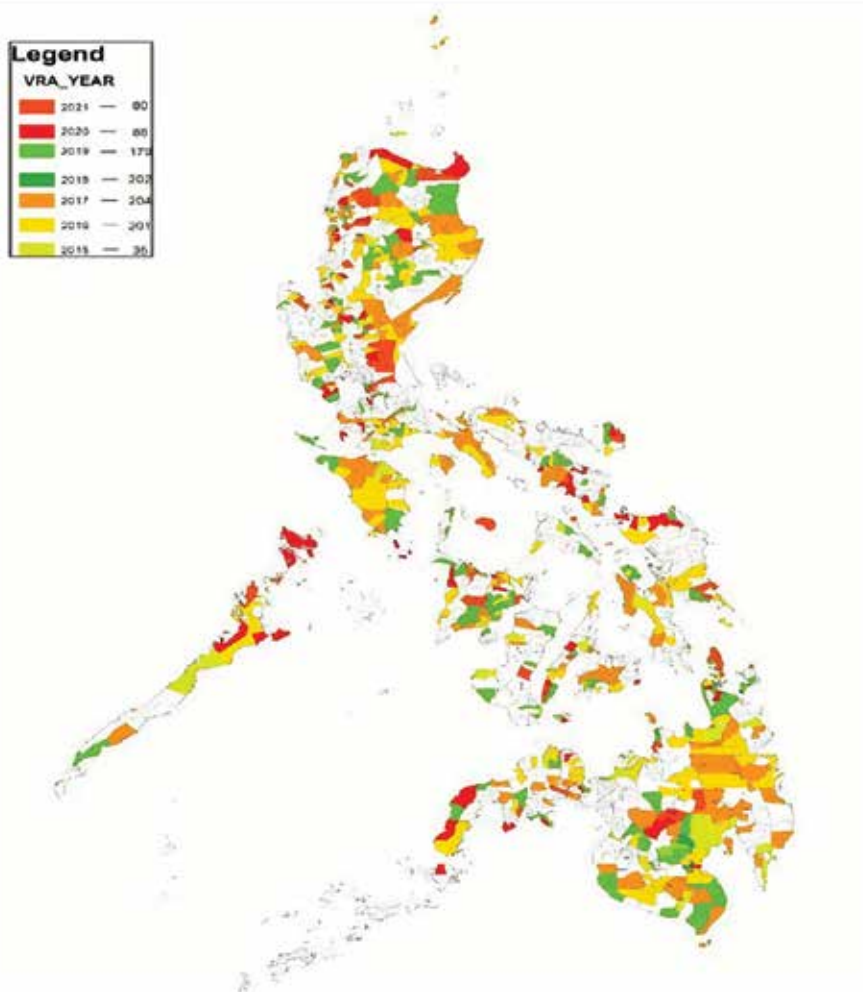
- Assessed 53 cities/municipalities to delineate areas with groundwater resource potential and identify the availability and physical quality of groundwater in various geologic formation/rock units. The activity also aims to determine the likelihood of contaminants reaching a groundwater system from ground surface to the aquifer.



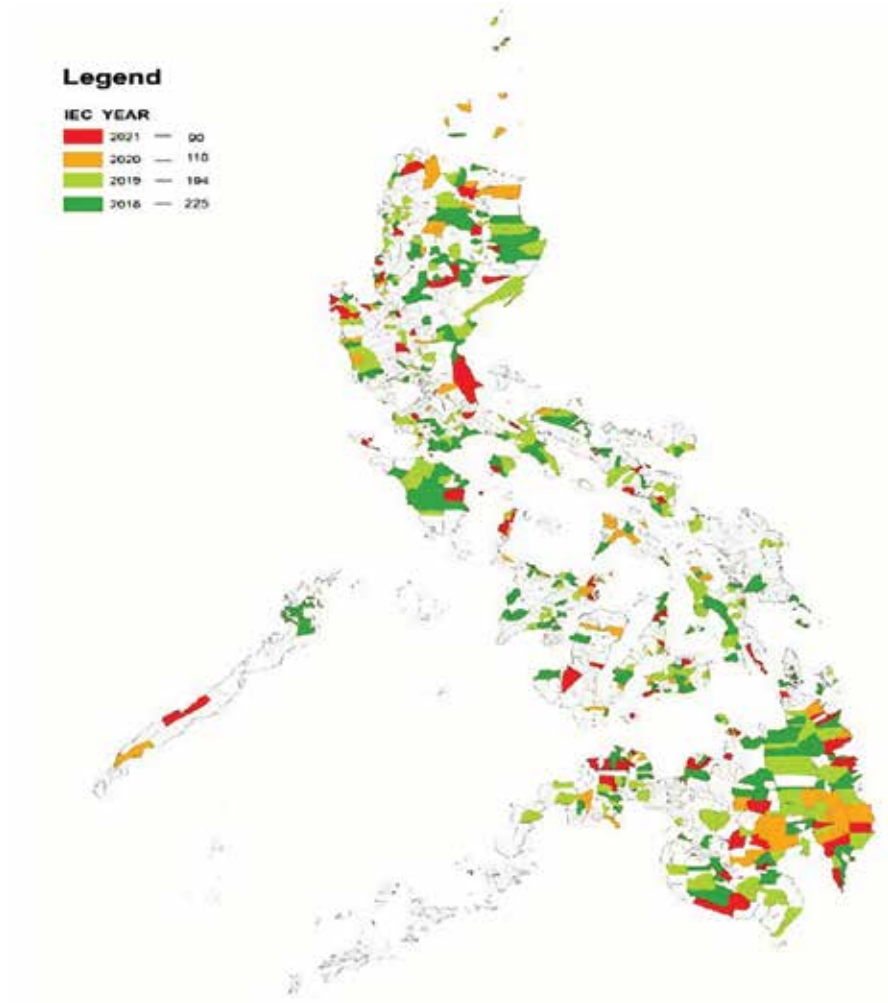
*Groundwater Resource and Vulnerability Assessment*



Vulnerability and Risk Assessment in 2021



Vulnerability and Risk Assessment - Information, Education and Communication Status in 2021



# WAYS FORWARD

1. **Address operational issues in relation to the Implementing Rules and Regulations of EO 130.**
2. **Expedite the processing and approval of applications for mining agreements and permits that have complied with mandatory and other additional requirements.**
3. **Focus on opening of new mines and acquisition of exploration equipment.**
4. **Issue clarificatory guidelines to address the perceived gaps and limitations of DAO No. 2018-19. Similarly, DAO No. 2015-07 shall be amended to require non-metallic mining operations to secure ISO 14001:2015.**
5. **Amend MGB Memorandum Circular No. 2018-02 on monitoring checklists and scorecards for:**
  - » **Mineral Production Sharing Agreements (MPSA) and Financial or Technical Assistance Agreements (FTAA) with integrated mineral processing operations**
  - » **MGB-issued Industrial Sand and Gravel Permit (ISAGP) with integrated crushing plant**
  - » **Mineral Processing Permit (MPP)**
  - » **Care and Maintenance Program (CMP)**
  - » **FMRDP Implementation**
6. **Streamline requirements and guidelines for Minahang Bayan petitions and application for Small-Scale Mining Contracts.**
7. **Prioritize the 24 vulnerable provinces along the eastern seaboard of the Philippines under the Vulnerability and Risk Assessment Project.**
8. **Generate hazard maps using viable methodology that considers the temporal and spatial magnitudes of floods and landslides, with rainfall as the triggering mechanism in the continuation of the National Geohazards Assessment and Mapping Program. At present, MGB Geohazard Maps only consider the spatial aspects of natural hazards. As a way forward, hazard mapping will include the temporal and spatial parameters of landslides and flood occurrences in order to adequately address the devastating effects of these hazards. This shift is necessary to augment the geohazard maps. A shift from susceptibility maps to hazard maps will enable MGB to provide additional information to stakeholders for better preparedness and early warning.**

## WAYS FORWARD

9. Continuously carry out geohazard assessments centered on disaster-affected areas (DAA), and ECAs.
10. Prioritize targets for carbonate areas within the 24 vulnerable provinces under the Karst Subsidence Hazards Assessment Project.
11. Include hybrid and face-to-face training design for the conduct of regular IEC targets, taking into account experiences encountered during the 2021 IEC. This also includes the review of pre- and post-field survey protocols.
12. Strengthen ties with partners in the NDRRMC and other technical agencies such as the Philippine Space Agency that generates high-resolution, satellite-derived data and to institutionalize a responsive feedback mechanism from vital stakeholders and beneficiaries, especially the public.
13. Maintain linkages between MGB and other external and internal organizations.
14. Prioritize the conduct of groundwater resource assessments in municipalities within identified climate vulnerable provinces to provide technical information in the search for sources of clean water.
15. Introduce for the first time under the Groundwater Resource and Vulnerability Assessment Program the conduct of IEC to effectively communicate to relevant water stakeholders salient information on groundwater and the usable completed outputs of the groundwater assessment project.
16. Conduct Advanced Exploration to identify critical minerals which will be used for clean energy technologies to facilitate the country's transition to a low carbon future. In particular, the target areas are the Iron Deposit in Sta. Ines, Rizal and the Diwalwal Mineral Reservation.

# BUILD BACK BETTER

The destruction wrought in rapid succession in 2020 by three typhoons — Quinta, Rolly, and Ulysses in the Bicol Region, the National Capital Region and Cagayan Valley prompted the creation of the Build Back Better Task Force (BBBTF) through the issuance of Executive Order No. 120, series of 2020 signed by President Rodrigo Roa Duterte. It was tasked to speed up rehabilitation and recovery efforts in typhoon-hit areas. DENR and the Department of Public Works and Highways (DPWH) co-chair the entity, with other agencies and those in the regional level as members.

The BBBTF identified six (6) Key Result Areas (KRAs), as follows: 1) Better and Resilient Infrastructure; 2) Stronger Shelter and Resilient Settlements; 3) Improved Systems and Essentials Services; 4) Restored Sustainable Livelihood; 5) Strengthened Governance thru Broad-based Citizen Input; and 6) Intensified Watershed management. These KRAs serve as the nexus of the implementation and monitoring of post-disaster recovery and rehabilitation in typhoon-affected areas in accordance with Recovery and Rehabilitation Planning Guideline (RRPG).

In 2021, the Task Force was able to successfully implement various recovery and rehabilitation programs in the three strategic focus areas of the Cagayan River Basin, Marikina River Basin, and Bicol River Basin. Accomplishments were as follows:

## CAGAYAN RIVER BASIN

- Completed dredging operations in Magapit Narrows, Bangag, Lallo, Cagayan.
- Provided financial assistance amounting to PhP3.8M to 595 beneficiaries in Amulung, Enrile, and Baggao, Ilagan City, Sta. Maria in Isabela and Nueva Vizcaya and Ambaguio in Quezon under the Emergency Housing Assistance Program (EHAP).
- Planted trees on about 820.62 hectares along the Cagayan River through DENR field offices in line with the National Greening Program.

## MARIKINA RIVER BASIN

- Fully completed dredging works in Phase 1 covering three priority sites—Olandes Sewage Treatment Plant, BFCT East Metro Transport Terminal, and SM Marikina. The activities recovered 20m to 30m of Marikina River's width, widening the river from 70m to 90m to 100m, and introducing an additional depth of 2m. River flow rate substantially increased at 3m per second (mps)—now closer to the ideal at 4 mps. Flood-prone communities in Marikina remained flood-free despite heavy downpour during the onslaught of Tropical Cyclone Fabian in July 2021.

- Planted a total of 4,305 bamboo culms covering 4,950 meters.
- Surveyed 578 ISFs and delineated the 20-km Marikina River with built-up areas.
- Completed the construction of 3,554.7 cu m of check dams.
- Constructed gabions at 40% rate.



*MOA signing between DENR, DOLE, DSWD, City LGU and BLGU in the conduct of tree planting activities along Cagayan River*



*Before and after the conduct of the dredging in Cagayan River*



*Former DENR Secretary Cimatu planting bamboo along the Cagayan riverbank*



*Bamboo planting in Bayombong, Nueva Vizcaya*

### BICOL RIVER BASIN

- Removed 60,806 cu.m. of dredge spoils from the River Basin and 705,314.55 cu. m. from rivers around Mt. Mayon.
- Hired 168 Forest Protection Officers.
- Surveyed and assessed 159.92 kilometers of river easement along Bicol and Libmanan-Pulantuna River.



*Before and after the Phase I dredging in Brgy. San Roque, Camaligan, Camarines Sur*

- Planted 580,250 bamboo culms on a total of 1,496.8 hectares.
- Constructed a total of 7,224 cu.m. of gabions and check dams in the priority areas.

# WAYS FORWARD

## A. Bicol River Basin

1. Institutionalization of the Bicol River Basin Development Authority.
2. Adoption of the Agroforestry and Sloping Land Use Technology (SALT) for soil and water conservation.
3. Creation of Agroforestry demonstration and experimental area in partnership with Bicol University (BU) and other interested stakeholders.
4. Installation of Automated Water Level Stations (AWLS) and Automated Weather Stations (AWS) for the creation of an early warning system for flooding and landslides.
5. Investment in the bamboo industry through partnerships with private land owners, LGUs and NGAs.

## B. Marikina River Basin

1. DENR-NCR to continue bamboo propagation and planting activities and the clean up of solid wastes found in waterways.
2. Continue providing assistance to DPWH-NCR until completion of dredging activities in all identified and recommended sites for dredging.
3. DENR NCR to assist the Laguna Lake Development Authority (LLDA) in addressing the proliferation of water hyacinths and in identifying proper engineering interventions to suppress growth.

## WAYS FORWARD

### C. Cagayan River Basin

1. Hiring of forest protection officer, production of bamboo stocks, plantation establishment, and construction of soil conservation measures.
2. Conduct of assessment and planning among members of the RBBTF and strengthen collaboration in support of activities.
3. Coordination with LGUs concerned on affected lots that are subject to easement recovery.
4. Continuous support to LGU Amulung and LGU Baggao in coordination with the DHSUD for the completion of requirements for resettlement areas.
5. Mobilization of LGUs, NGAs, other stakeholders, and residents along Cagayan River for the planting of bamboos and indigenous species.



# FOREIGN-ASSISTED AND SPECIAL PROJECTS

DENR foreign-assisted and special projects (FASPs) are pursued in fulfillment of DENR's mandate in the delivery of priority programs that comply with the provisions of international and regional treaties and agreements where it is a signatory.

FAS projects are partly or wholly funded by Official Development Assistance (ODA) support or through other foreign facilities. Funding is effected through a loan or grant agreement or similar contracts/ instruments entered into between the Government of the Philippines (GOP) and governments/agencies of foreign countries (bilateral) or through international funding institutions (multilateral). FASPs also include locally-funded special projects that fall under agency programs such as the DENR's Special Projects Funds (Fund 101.a.2.d) for the conduct of Special Studies, Design and Development in Support to Forestry, Mining and Environmental Management Operation stipulated in the General Appropriation Act (GAA) of FY 2021.

In CY 2021, the DENR had 29 ongoing foreign-assisted (US\$525.27 million or PhP26.39 billion) and 11 locally-funded projects (US\$0.41 million or PhP20.81 billion), with a total aggregate approved cost of US\$525.68 million or PhP26.41 billion. Of the 29 foreign-assisted projects, two are loan project types with an aggregate project cost of US\$216.52 million or PhP10.88 billion, and 27 grant project type with total project cost of US\$308.75 million or PhP15.51 billion.

*Summary of the Foreign and Locally-Funded Projects and Total Costs*

Project Type	No. of Project	Total Project Cost	
		In (USD)	In (PhP)
Loan	2	216,522,860.00	10,879,840,770.00
Grant	27	308,745,130.00	15,513,825,190.00
Locally-funded Special Project	11	414,170.00	20,811,000.00
<b>Total</b>	<b>40</b>	<b>525,682,160.00</b>	<b>26,414,476,960.00</b>

Note: Conversion Rate: USD1.00=PhP50.248 (based on average BSP Exchange Rate of December 2021)

In support of the rehabilitation of 1.2 million hectares targeted in 2021 under the Duterte Administration in accordance with the updated 2016-2028 Master Plan for Forestry Development, the following activities were undertaken:

Completed the rehabilitation of 115,359 hectares (ha) for the two (2) loan-funded projects: 71,300 ha from the Forestland Management Project (FMP) and 44,059 ha from the Integrated Natural Resources and Environmental Management Project (INREMP). These are located in the seven (7) major river basins: Upper Chico in CAR, Upper Magat and Cagayan Valley in Region 2, Upper Pampanga in Region 3, Jalaur in Region 6, Wahig-Inabanga in Region 7, Upper Bukidnon in Region 10, and Lake Lanao in BARMM. These areas are in various stages of maintenance and protection, and field validation.



*Fuelwood Plantation in Region 2*



*Agroforestry Plantation (LUP 2 mixed citrus trees and other forest trees) in CAR Ifugao*



*Agroforestry Plantation of Kapunongan Sa Mag-uuma sa Remedios (KMARE) in Brgy. Remedios, Danao, Bohol*



*Twenty hectares of Mangium plantation of San Miguel Resource Team (SMART), Brgy. San Miguel, Danao, Bohol*

In support of the provision of opportunities for communities to develop social enterprises, produce sustainable livelihoods, and reduce poverty among upland and lowland poor households and indigenous peoples:

Provided start-up capital amounting to Php100,00.00 to 149 FMP POs to develop and implement identified enterprises.

Scaled up the INREMP livelihood enhancement support (LES) to complete 240 packages consisting of (i) 25 sun drying concrete; (ii) 7 water supply facilities; (iii) 41 small storage facilities (warehouses); (iv) 138 agricultural machinery and milling facilities; and (v) 29 food processing facilities.



*Egg production (enterprise) of Eastern Conversion Christian Farmers Association (ECCFA), Inc. in Nueva Ecija*



*Bakery (enterprise) of Panuran Tasik Upland Farmers Association (PATUFA) Inc. in Iloilo*



*Solar Drying Pavement of Apo Macote Tree Farmers Association, Brgy Apo Macote, Malaybalay, Bukidnon*



*Abaca Decorating Machine of Pugaan Upland Growers Association (PUGA), Brgy. Santa Cruz, Claveria, Misamis Oriental*

- Under the *“Promotion of Vertical Integration in Wood Processing through People’s Organizations in Community-Based Forest Management Areas in the Philippines (AFOCO-VIP)”* Projects in Regions 7 and 13:
  - » Established two (2) operational wood processing facilities with complete machinery and equipment.
  - » Completed timber inventory of harvestable plantations.
- In support of the project, *“Beekeeping as Biodiversity-Friendly Community-Based Enterprise in Mount Hamiguitan Range Wildlife Sanctuary (MHRWS) and Expansion Areas”*:
  - » Identified two (2) suitable sites for beekeeping projects in: a) Barangay Talisay, San Isidro, and b) Barangay Sergio Osmeña, Governor Generoso.
  - » Identified potential sites for expansion in Sto. Rosario, San Isidro and Macambol, City of Mati.
  - » Constructed hives for 80 native bee colonies.
- Implemented PO-managed biodiversity-friendly enterprises (BDFEs) for 11 POs under the *“Strengthening the Marine Protected Area System to Conserve Marine Key Biodiversity Areas (SMART-SEAS)”* Low Value Grants.

In support of the implementation of the Enhanced Biodiversity Conservation Program:

- Facilitated the creation of the National Law Enforcement Coordinating Council Subcommittee on Environment and Natural Resources (NALECC SCENR) through the issuance of Joint Resolution No. 3 s. 2021: A Resolution Against Wildlife Crimes signed on July 16, 2021 under the *“Combating Organized Environmental Crime: Illegal Wildlife Trade (IWT)”* Project.
- Provided support to the following under the *“Biodiversity Finance Initiative (BIOFIN) Phase 2”*:
  - » Technical notes for proposed biodiversity indicators for DILG’s Seal of Good Local Governance.
  - » Budget advocacy for the PHP2 billion national allocation to implement E-NIPAS and provide funds for the Tamaraw Conservation Program in Mount Iglit-Baco.
  - » Facilitated the issuance of BMB Technical Bulletin No. 2021-005: Guide in the Formulation of Local Biodiversity Strategic Action Plan (LBSAP).

- Completed the following under the study titled, *“Research on the Meta-population of Tamaraw in Mindoro”*:
  - » Initial map of likely habitats of the Tamaraw.
  - » Community consultation in six municipalities in Oriental Mindoro to determine the likely habitats of the Tamaraw.
  - » Technical consultations on, and possible methods tested, in estimating Tamaraw abundance.
- Conducted coordination with Subic Ecology Center and DENR Region 3 for the issuance of necessary permits and clearances under the *“Breeding and Nest Site Selection of Cavity-Nesting Birds at Subic Watershed Forest Reserve, Luzon, Philippines”*.

In support of the implementation of Coastal and Marine Ecosystem Program:

- Under the *“Strengthening the Marine Protected Area System to Conserve Marine Key Biodiversity Areas (SMART-SEAS)”*:
  - » Institutionalized management bodies in 95 Marine Protected Areas (MPAs) and three MPA Networks, i.e., (a) 1,000,000 ha in Verde Island Passage; (b) 5,000 ha in Davao Gulf; and (c) 147,238 ha in Lanuza Bay.
  - » Facilitated approval of the DA-DENR-DILG Joint Memorandum Circular (JMC) for the establishment of MPAN covering Verde Island Passage, Davao Gulf and Lanuza Bay.
- Under the *“Sustainable Coastal Protection through Biodiversity Conservation in Coastal Ecosystems Affected by Typhoons in the Philippines (Procoast)”*:
  - » Provided technical assistance to BMB in the formulation of the ICM and Greenbelt Bills.
  - » Retrofitted and improved existing infrastructure; assisted in the improvement of social marketing; conducted capacity-building activities; prepared business plans; and provided equipment, tools, supplies and IEC materials to equip centers in the hosting of trainings and workshops.
- Completed the following activities under the *“Implementing the Strategic Action Plan Programme for the South China Sea (SCS SAP)”*:
  - » Technical assistance to BMB to finalize/update the draft National Implementation Report (NIR) for the components of mangrove, seagrass, corals, and wetlands.
  - » Holding of the First Regional Working Group Meeting for SAP targets under each component and the country’s draft NIR.

In support of the implementation of Intensified Forest Protection and Anti-Illegal Logging Program:

- Conducted forest protection and monitoring of 80,152 ha using the LAWIN system by INREMP PO partners.
- Ongoing development of automated, quick and accurate wood identification tool/device for selected endemic native and exotic species, including imported timber species traded in the Philippines under the “*Forest Law Enforcement and Governance and Trade (FLEGT)*” Project.

In support of the implementation of Intensified Environmental Protection, specifically on Clean Air, Clean Water and Solid Waste Management Program:

- Completed/facilitated the following activities under the “*Demonstration of Best Available Technologies (BAT) and Best Environmental Practices (BEP)*”:
  - » Construction of Plastic Recycling Facility and delivery of necessary equipment in Koronadal City on December 2021.
  - » Approval of the National Solid Waste Management Commission (NSMWC) Resolution No. 1468 Series of 2021 to fully enforce the provisions of RA 9003 on Open Burning of Municipal Solid Wastes including agricultural wastes on November 24, 2021.
  - » Development of Persistent Organic Pollutants (POPs) analysis and sampling methodologies applicable to each regional/national laboratory.
- Completed the following activities under the “*Capacity Development on Improving Solid Waste Management through Advanced/ Innovative Technologies*”:
  - » Gap analysis of the present and required capacity of personnel of EMB Central Laboratory and Air Quality Management Section and the facility for proper monitoring/analysis/quality assurance/quality control of dioxins and furans.
  - » Virtual training on Japanese technologies and practices in solid waste management (SWM) and dioxin analysis including conduct of waste-to-energy (WtE) facility tour from November 15 to December 10, 2021.
  - » Review of the present capacity and work responsibilities (sampling and monitoring by parameters) in environmental monitoring of EMB Central Office personnel, including standard operating procedures in sampling, analysis, quality assurance and control in dioxin and furans, particularly in ambient air and source emission gas.

- Completed/facilitated the following activities under the “*Polychlorinated Biphenyl (PCB) - Waste Electrical and Electronic Equipment (PCB-WEEE)*”
  - » Correlation study of bromine and plastic casings. This served as the basis for the issuance of guidelines on polybrominated diphenyl ether (PBDE) by EMB.
  - » Approval of DAO 2021-14 titled, Amendment of Some Provisions of DAO 2010-06: Guidelines on the Use of Alternative Fuels and Raw Materials in Cement Kilns.
  - » Update of the Manual of Procedures for testing of bromine
  - » Disposal of 503.14 tons of lead (Pb)-containing glass through encapsulation
  - » Procurement and installation of One-unit Gas Chromatograph - Electron Capture Detector (GC-ECD) at the EMB laboratory.
  - » Hauling of 39,610.10 kg of PCBs since re-start of operations in April 2021.
  - » Treatment of 54.6 tons of PCB oil from PCB owners since start of operations in April 2021.

In support of the provision of rural infrastructure facilities for upland communities to improve their access to market, education, health and other social services:

- Completed the following activities under the Forestland Management Project:
  - » Study on valuation of ecosystem services for the 24 sub-watersheds within the three major river basins covering the provinces of Ifugao, Quirino, Nueva Vizcaya, Nueva Ecija, and Iloilo. This enabled the identification of opportunities for income-generating ventures for the communities and LGUs, i.e., eco-tourism, among others.



3.4 km. Baguio Village-Don Mariano Perez Access road in Diffun, Quirino



Ammoweg RCDG Bridge in Brgy Ammoweg, Ambaguio, Nueva Vizcaya



Pimentel Hanging Bridge, Brgy. Pimentel, Diffun, Quirino

## » Constructed the following:

- ◇ 35.703 kms of Farm to Market Roads (FMRs) located in Ifugao (Mayoyao, Hingyon), Nueva Vizcaya (Kayapa, Dupax del Sur, Bambang), Nueva Ecija (Carranglan), bringing the total to 51.933 kms.
- ◇ 11.034 kms of pathways in Nueva Vizcaya (Kayapa) and Iloilo (Calinog and Janiuay)
- ◇ Five (5) units of reinforced concrete (RC) bridges, specifically in Ifugao (Aguinaldo, Asipulo), Nueva Vizcaya (Dupax del Norte, Dupax del Sur), bringing the total to six units RC bridges
- ◇ Nine (9) units of hanging bridges specifically in Nueva Vizcaya (Kayapa), Iloilo (Calinog, Lambunao, Janiuay) bringing the total to 10 units hanging bridges
- ◇ 62.66 kms of irrigation pipelines serving 13 communities in Nueva Vizcaya, Quirino, Nueva Ecija and Iloilo.



*4km Jayubo-Cabatangan Pathway in Ulian-Tagbacan Sub-watershed, Region 6 Iloilo*



*3.2 km Nursery-Capacnan Tire path in Bry. Oyao, Kayapa*



*Irrigation Pipeline System of Ifugao Village Upland Farmers Association (IVUFA), Inc. in Region 2 Quirino*



- Completed the construction of the following activities under the *Integrated Natural Resources and Environmental Management Project*:
  - » 62.66 kms of irrigation pipelines serving 13 communities in Nueva Vizcaya, Quirino, Nueva Ecija and Iloilo.
  - » 78.11 kms of access roads or a total of 120.12 kms of rural access roads
  - » 8,900 linear meters (lms) of foot path; and 10,000 lms of foot trails rehabilitated
  - » Irrigation of additional 65.9 ha of farmlots to add to a cumulative total of 164.5 ha
  - » Installation of seven (7) units of potable Level II spring water supply in the municipalities of Jagna, Duero and Pilar, Bohol benefitting recipient POs/Communities of INREMP



Access Roads in Brgy San Carlos (Proper to Sitio Danao Gamay Access Road) and Brgy. Concepcion (Proper to Sitio Sta. Ana) Danao, Bohol



Apac-apac Footpath at Sadanga, Mountain Province



Communal Irrigation System at Bontoc, Mountain Province

## WAYS FORWARD

1. Complete the remaining facilities of projects with infrastructure component.
2. Upscale and continue support to livelihood/enterprises, and develop sustainability plans with project beneficiaries/stakeholders.
3. Provide continuous maintenance and protection of tree and agroforestry plantations established.
4. Facilitate the adoption and implementation of guidelines, i.e., watershed management cost-sharing mechanism by watershed management bodies, or development of policy briefs by projects.
5. Closely monitor, evaluate and report project activities and expected outputs.
6. Package new projects for bilateral, multilateral and/or local funding to support/complement DENR programs. Provide technical assistance to regional and field offices in developing proposals.
7. Document lessons learned, good practices, innovations and success stories borne out of project implementation from ongoing and completed projects.

# CLIMATE CHANGE AND RISK RESILIENCY PROGRAMS

Rising temperatures, heavy flooding, and wilder weather are among the signs of changing climate. Considering the fact that the Philippines is an archipelago in the Pacific rim of nations, it is one of the most affected by the phenomenon, according to the Global Climate Risk Index.

In line with the two Philippine laws addressing climate change, 1) Climate Change Act of 2009 (Act of Mainstreaming Climate Change Into Government Policy Formulations and Establishing the Framework Strategy and Program on Climate Change), and 2) Philippine Disaster Risk Reduction and Management Act of 2010 (Act Strengthening the Philippine Disaster Risk Reduction and Management System, Providing for the National Disaster Risk Reduction and Management Framework and Institutionalizing the National Disaster Risk Reduction and Management Plan), DENR Administrative Order No. 22 S. 2021 was issued, titled, “Guidelines in Mainstreaming, Cascading and Institutionalization of Climate Change Concerns” that strengthened the Department and set in motion initial strategies to review its plans and 10 priority programs. In 2021, strategic steps taken were as follows:

- Identified 10 climate change-responsive indicators in the 10 ENR priority programs as follows: 1) No. of areas (ha) maintained and protected with at least 85% survival, 2) No. of tons of CO<sub>2</sub>e sequestered or removed from the atmosphere, (Enhanced National Greening Program); 3) No. of hectares of peatlands within protected areas assessed and inventoried, 4) No. of Protected Areas Management Plans (PAMPs), 5) No. of climate-responsive measures on zoonotic transmission and COVID-19 identified and integrated with the Wildlife Safety Protocols, 6) No. of Marine protected area effectively managed, 7) No. of measures on Wildlife Biohazard Management identified (Enhanced Biodiversity Conservation); 8) No. of Marine Protected Area effectively managed (Scaling-Up of Coastal and Marine Ecosystems); 9) No. of vegetative and mechanical measures adopted in priority areas (km); 10) No. of vegetative and mechanical measures adopted in priority areas (km) updated/completed.
- Assisted seven (7) provinces, namely, Ifugao, Masbate, Ilocos Norte, Batangas, Quezon, Bukidnon, and Davao de Oro in updating their Climate and Disaster Resilient Plans (CDRPs), particularly on Forest land Use Plans (FLUPs) and Community Resource Management Framework (CRMF) using the climate responsiveness criteria and rating matrix.

## RISK RESILIENCY PROGRAM

The Risk Resiliency Program (RRP) is the government's convergence program under the Cabinet Cluster on Climate Change Adaptation and Mitigation and Disaster Risk Reduction (CCAM-DRR). The program is designed to strengthen climate change and disaster response in line with CCAM-DRR Roadmap 2018-2022, Philippine Development Plan (PDP) 2017-2022, National Climate Change Action Plan (NCCAP) 2011-2028 and the National Framework Strategy on Climate Change.

The program aims to:

1. Apply program convergence planning and budgeting approach to strengthen the country's actions for CCAM-DRR.
2. Help government optimize the use of its available budget on priority CCAM-DRR programs.
3. Increase the size and quality of CCAM-DRR responsive investments.

Accomplishments under the Program were as follows:

- Assessed the implementation of RRP programs and projects of 14 priority climate-vulnerable provinces namely:
  - » Masbate, Sorsogon, Negros Oriental, Western Samar, Saranggani, Surigao del Norte, Surigao del Sur, Dinagat Islands
  - » Southern Leyte, Eastern Samar, Zamboanga del Norte, Bukidnon, Sultan Kudarat, North Cotabato
- Consolidated and reviewed 143 PAPs amounting to Php515 billion enrolled in by 13 participating agencies (CCC, DOE, DOST, DPWH, DSWD, MMDA, DHSUD, DOTr, DENR, DAR, DOH, DILG and DND-OCD) under the CCAM-DRR Risk Resiliency Program - Program Convergence Budgeting for FY 2022.
- Updated the Investment Portfolio for Risk Resilience (IPRR) of four priority climate-vulnerable provinces, namely: Western Samar, Dinagat Islands, Surigao del Norte, and Surigao del Sur.
- Developed the first Phase of the Online Risk Resiliency Program platform to facilitate the submission of RRP proposals of concerned provincial LGUs and other concerned agencies and offices.

## WAYS FORWARD

1. **Provide technical assistance to the remaining 16 priority climate- vulnerable provinces and four (4) major urban centers in updating/developing their Investment Portfolio for Risk Resilience:**
  - Apayao, Kalinga, Ifugao, Mountain Province, Catanduanes, Siquijor, Southern Leyte, Eastern Samar, Northern Samar, Zamboanga del Norte, Bukidnon, North Cotabato, Sultan Kudarat, Maguindanao, Sulu, Lanao del Sur
  - Metro Manila, Metro Iloilo, Metro Cebu, Metro Davao
2. **Assess the implementation of RRP programs and projects of all the 24 priority climate- vulnerable provinces and four (4) major urban centers:**
  - Apayao, Kalinga, Ifugao, Mountain Province, Masbate, Sorsogon, Catanduanes, Negros Oriental, Siquijor, Western Samar, Southern Leyte, Eastern Samar, Northern Samar, Zamboanga del Norte, Bukidnon, Saranggani, North Cotabato, Sultan Kudarat, Surigao del Norte, Surigao del Sur, Dinagat Islands, Maguindanao, Sulu, Lanao del Sur
  - Metro Manila, Metro Iloilo, Metro Cebu, Metro Davao
3. **Consolidate and review RRP programs, activities, and projects proposed by CCAM-DRR member agencies.**
4. **Develop the Provincial Climate Risk Diagnostic Tool to support the development of provincial IPRRs.**
5. **Implement the Online RRP Platform to facilitate the submission of RRP proposals of concerned provincial LGUs, offices, and agencies**

# COMMUNITY-BASED FOREST MANAGEMENT COMPREHENSIVE AGRARIAN REFORM PROGRAM

The Community-Based Forest Management (CBFM) program is a national strategy that aims to ensure sustainable development of the country's forestlands and its resources through the issuance of Executive Order No. 263, series of 1995. The program further aims to improve the socio-economic condition of people in the uplands, many of who are considered the poorest sector of the Philippine population. The CBFM-People's Organizations mostly consist of upland farmers whose livelihoods heavily depend on the forests. To date, there are 1,958 CBFM-POs recognized as partners of the government that work towards sustainable forest management. For the past 25 years, CBFM-POs have been receiving technical and financial support from different developmental organizations, NGOs and national government agencies through various programs, including the Comprehensive Agrarian Reform Program or CARP.

CBFM implementers and beneficiaries continue to acknowledge and appreciate the contributions made by the Program Beneficiary Development component of CARP not only for the socio-economic well-being of the upland communities, but also for the sustainable development of forestlands and the resources therein. It is highly hoped that the partnership forged between DENR and the Department of Agrarian Reform (DAR) will prosper, enabled by the common vision and mission of transforming program beneficiaries into self-reliant communities, promoting social justice, and uplifting the socio-economic well-being of farmer beneficiaries, and that these endeavors will be strengthened and sustained in the coming years for the betterment of the uplanders, the forests, and the country as a whole.

With the continuing implementation of DENR's mandate under CARP, the Presidential Agrarian Reform Council (PARC) continues to provide funds to support the implementation of two remaining activities: 1) Program Beneficiaries Development (PBD) in CBFM Areas (CBFM-CARP), and 2) Inspection, Verification and Approval (IVAS) of DAR surveys. Beneficiary development in CBFM areas aims to support the implementation of the Agroforestry and Livelihood Development program to further raise the socio-economic condition of the people in the uplands.

Through the PBD component of CARP, agroforestry development, livelihood establishment, and livelihood enhancement projects were provided in 2021 to the CBFM POs. Accomplishments include the following:

- Developed a total of 2,672 hectares of forestland and produced 2,582,038 seedlings benefitting 4,042 CBFM- PO members.

- Produced/procured 564,600 mangrove propagules which is equivalent to 31.8 hectares.

Regions	No. of Projects	Target Area	Accomplishment		No. of Propagules
			Area	%	
<b>Total</b>	<b>5</b>	<b>35</b>	<b>31.8</b>	<b>91%</b>	<b>564,600</b>
<b>R7</b>	<b>3</b>	<b>15</b>	<b>11.8</b>	<b>78.67%</b>	<b>504,600</b>
<b>R9</b>	<b>2</b>	<b>20</b>	<b>20</b>	<b>100%</b>	<b>60,000</b>



*Hauling of seedlings produced by Kinmarin Forest Tree Association*



*Planting of narra seedlings  
in Sto.Nino III. Upland Multipurpose Cooperative*

- Conducted 44 Organizational Skills Training participated in by 2,126 individuals from the DENR regional and field offices and CBFM-POs.
- Conducted 90 Socio-Economic and Environmental Baseline (SEEB) as basis of measuring the project outcomes or results five (5) years after intervention.
- Completed the conduct of impact assessment of 85 CY 2013 CBFM-CARP projects.
- Conducted virtual/blended trainings on: 1) FMB Technical Bulletin No. 36 re: Guide on the conduct of participatory Community-Based Forest Management Agreement (CBFMA) Holder Performance Evaluation as a Requirement for the Renewal of Expiring CBFMAs; and 2) Community Resource Management Framework (CRMF) Formulation.

## WAYS FORWARD

1. **Implementation of 96 Agroforestry and Livelihood Projects.**
2. **Awarding of financial subsidy for the purchase of equipment for ENR-based livelihood/ enterprises to 16 CBFM-POs.**
3. **National Consolidation with Analysis of the CY 2021 Conducted Impact Assessment for CY 2013 CBFM-CARP Projects .**
4. **Conduct of 30 Organizational Development Skills Enhancement trainings.**
5. **Conduct of Impact Assessment of Selected CY 2014 CBFM-CARP Projects through the DENR- Ecosystems Research and Development Bureau (ERDB).**
6. **Updating of the CBFM Strategic Plan.**



# ECOSYSTEMS RESEARCH AND DEVELOPMENT

The Ecosystems Research and Development Bureau (ERDB) is updating the 2017-2022 ENR RDE Framework following the completion of the formulation of the ERDB 10-Year Master Plan in 2021.

The ENR RDE Framework focuses on the three (3) major ecosystems of the Philippines: forests, coastal zones and freshwater, and urban areas. To effectively address the RDE needs of these ecosystems, the six (6) Research, Development, and Extension Centers (RDECs) implement programs, projects and activities on these three major ecosystems. The RDECs are the following: Watershed and Water Resources Research, Development, and Extension Center (WWRRDEC); Toxic and Hazardous Wastes Research, Development, and Extension Center (THWRDEC); Urban and Biodiversity Research, Development, and Extension Center (UBRDEC); Coastal Resources and Ecotourism Research, Development, and Extension Center (CRERDEC); Forest and Wetlands Resource, Development, and Extension Center (FWRDEC); and Agroforestry Research, Development, and Extension Center (ARDEC).

The generation of technology is guided by the three (3) technical divisions of the bureau which include: Forest Ecosystem Research Division (FERD); Coastal Zone and Freshwater Ecosystems Research Division (CZFERD); and Urban Ecosystem Research Division. Projects and activities conducted by the bureau are anchored on three (3) ENR-RDE programs: 1) Forest Ecosystems Resiliency and Sustainability; 2) Promoting Ecosystems Health and Sustainability of Urban Areas; and 3) Ecosystems Dynamics and Sustainable Management of Coastal and Freshwater Ecosystems.

The implementation of programs, projects and activities are supported by programs on Sustainability of Laboratory and Experimental and Demonstration Services and Client-Based Technology Transfer and Extension Services. Thus, in 2021, the following were accomplished:

- Continued to implement 25 RDE projects under the Ecosystems Research, Development, and Extension Services, eight (8) of which were completed, and one (1) vulnerability assessment project under Natural Resources Assessment.
- Implemented the Integrated Pest Management Development in forest plantations in NGP/CBFM areas in Regions 1, 2, 3 and CAR.
- Completed 22 Characterization and Vulnerability Assessments of priority watersheds in the Philippines.

- Completed components 1.) Biophysical Assessment of Selected Pine Forests in Benguet Province and 2.) Population Structure and Regeneration Status of *Pinus kesiya Royle ex Gordon* Forests in the province of Benguet and Pine Characterization in selected disturbed and undisturbed sites of Benguet.

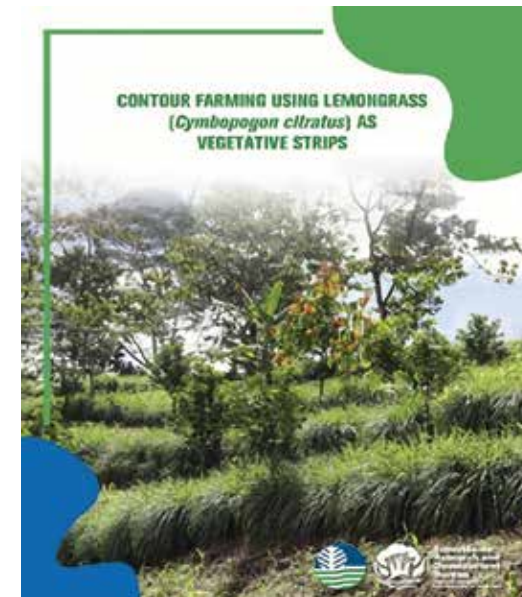
Study sites in Baguio City were as follows:

- Camp John Hay Forest Reserve
- Camp 8 Watershed

In Benguet Province:

- Atok, Benguet
- Bokod, Benguet
- Tublay, Benguet
- Kabayan, Benguet

- Spearheaded the carrying capacity assessment studies of Baguio City; Coron, Palawan; and Puerto Galera, Mindoro.
- Implemented 25 outside-funded projects of which seven (7) were DENR-funded while the rest were funded by various government agencies executed through a Memorandum of Agreement/s (MOA).
- Produced a total of 103,860 quality planting materials (QPMs) under the National Greening Program in the six (6) clonal nurseries and six (6) forest tree seed centers (FTSCs). These seedlings were planted in 120 hectares of indigenous forest tree plantation within the experimental forests of research and development centers.
- Maintained 10 laboratories located in ERDB Main Office and seven (7) laboratories in Research Development and Extension Centers (RDECs).



How-to brochure on contour farming using lemongrass as vegetative strips

- Maintained two (2) Research and Development Demonstration Zones (RDZ) in Los Baños, Laguna, which provide oversight to demonstration areas in various parts of the country.
- Maintained 19 experimental forests in RDECs.
- Disseminated the outputs of the implementation of the Client-Based Technology Transfer and Extension Services for Sustainable Environment and Natural Resources (ENR) Management through capacity building trainings, exhibits, radio guestings, technology forums, focus group discussions (FGDs), stakeholders' meetings, and distribution of various IEC materials.
- Promoted and disseminated technologies to various stakeholders which include:
  - » Bamboo propagation protocols and science-based information on economically important bamboo species;
  - » Ornamental bamboos for watershed rehabilitation and riverbank stabilization adopted by the BLGU of Banengneg, Sablan, Benguet;
  - » Application of mycorrhiza and bamboo propagation technologies adopted by the Sampaloc Bamboo Livelihood Association of Sampaloc, Quezon;
  - » Solid waste management technology promoted in Barangay Talipan, Pagbilao, Quezon;
  - » Floating garden phytoremediation adopted by Barangay Pulang Lupa Uno, Las Piñas City;
  - » Carrying capacity of Malapascua Island disseminated in Cebu;
  - » Microplastic contamination in coastal bodies disseminated in DENR VII, PENRO Bohol and CENRO Talibon;
  - » Falcata technologies promoted to the PO of Macasing, Siayan, Zamboanga del Norte; and
  - » Contour farming using lemon grass as vegetative strips adopted by PO PALMA+ PB, alliance of seven (7) municipalities, namely Pigcawayan, Alamada, Libungan, Midsayap, Aleosan, Pikit and Banisilan in Cotabato Province.

## WAYS FORWARD

1. Continue to implement relevant research, development, and extension programs, projects and activities towards a healthy environment that is sustainable and nature-based.
2. Complete the updating of the ENR RDE Framework to cover years 2023-2028 incorporating new researchable areas including health-related research in response to the recent pandemic.
3. Support DENR priority programs through continuous implementation of activities and special studies in line with the objectives of the ENGP
4. Strengthen linkages and information exchange on environmental research thru memberships in consortium, conduct of projects for external agencies, and the R&D Congress on Urban Parks and Green Cities.
5. Assistance to international organizations/institutions and various multilateral environmental agreements.
6. Enhance the skills and competencies of the workforce in line with the comprehensive human resource development plan.
7. Achieve strong and stable Internet connectivity to allow offices to perform activities despite challenges posed by the COVID-19 pandemic.

# MAPPING AND RESOURCE INFORMATION MANAGEMENT

The rapid changes in land features brought about by increased growth and urbanization, climate change, and natural calamities necessitate that LGUs and NGAs provide readily available and updated topographic base maps and other geographic data for development planning. Topographic maps and geographic data are indispensable tools in the production of thematic maps such as land cover, coastal resource maps, and geohazard maps, among others.

The continued increase in population and massive urban development in major cities and municipalities requires the need to produce large-scale maps on a regular basis to depict detailed features essential for urban planning in addition to the regular production of medium and small-scale maps.

As an archipelagic nation, the Philippines has vast water areas with approximately two (2) Million square kilometers of maritime jurisdiction. These waters need to be mapped and charted to be able to enforce our sovereignty and sovereign rights over these maritime zones in accordance with international laws. With increased maritime traffic, there is also a need for continual updating of charts covering sea lanes, navigational routes, and ports and harbors for safe navigation.

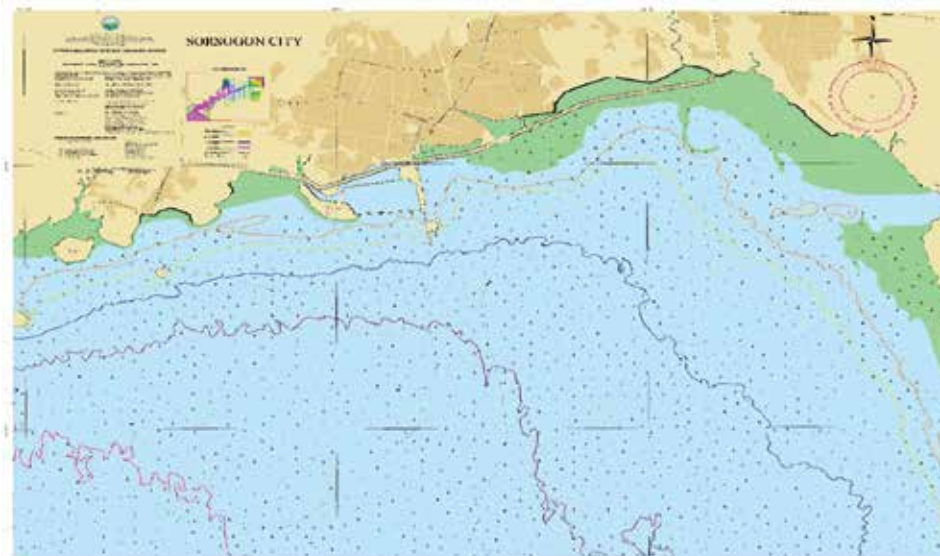
Given the situations above, the Philippines has to improve its capability in the fields of mapping and surveying in tandem with the private sector, for the emergence of a prolific partnership that generates dependable maps, charts and geographic data vital to nation-building.

In other countries, such a robust public-private sector partnership in the fields of mapping and surveying exists. The national mapping agencies of governments provide the necessary technical standards, protocols and regulations for geographic data generation which are farmed out to private companies who invest in modern technology and skills in this regard. However, in the Philippines, with minimal private sector investment in this field, the National Mapping and Resource Information Authority (NAMRIA) has to fill the gap on a limited capacity.

The following notable accomplishments were posted under (1) Hydrography, Oceanography, Charting and Maritime Boundaries Mapping; (2) Topographic Mapping and Geodetic Reference Frame Development and Management; (3) Resource Assessment and Mapping; and (4) Geospatial Information Management:

- Conducted hydrographic surveys of archipelagic waters and major ports and harbors to gather bathymetric data for the updating of existing nautical charts and the compilation of new charts, including Electronic Navigational Charts (ENCs).

- Continued operation and maintenance of the nationwide network of tide stations to gather sea level data which are primarily used for safe navigation and the prediction of tide levels in various ports, harbors and other localities as an important reference for a wide range of maritime activities.
- Continued magnetic surveys through the continuous acquisition of geomagnetic data at the Muntinlupa Magnetic Observatory and Magnetic Repeat Stations.
- Produced updated topographic and administrative maps on different scales to depict updated information on topography, vegetation, drainage systems and infrastructure such as road networks, major landmarks, and other land features.



*Smooth Sheet of Sorsogon Bay Approach and Ports at 1:5,000 scale*

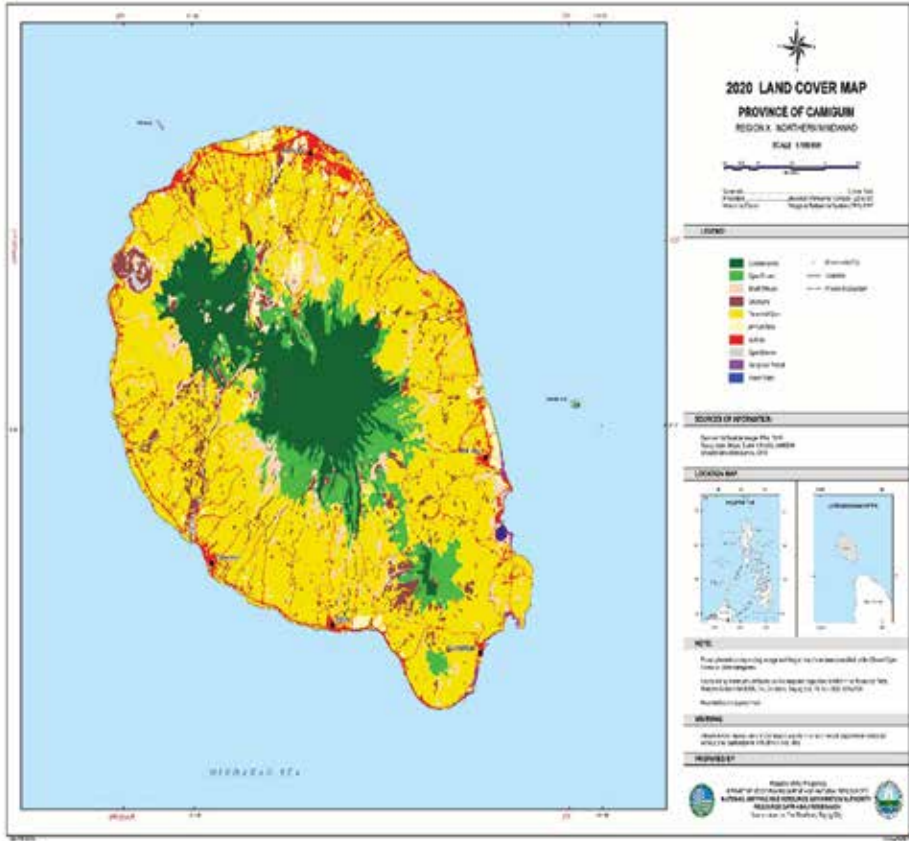
- Continued to provide information on classification of lands of public domain, as well as technical assistance to the DENR and stakeholders on the delineation of forestland boundaries to support legislations by Congress on the limits of forestlands and national parks.
- Continued to update land cover and coastal resources maps to serve as reference in the management of the country's land and coastal resources, consistent with the principles of sustainable development.

### **POLICY ISSUED**

- Memorandum Order No. 003, series of 2021, *“Adoption and Implementation of the 2021-2028 NAMRIA Strategic Plan”*.



Updated Medium-scale, 1:50,000 Topographic Map of Malay, Province of Aklan



2020 Land Cover Map of the Province of Camiguin at 1:100,000 scale

# WAYS FORWARD

- 1. Hydrography, Oceanography, Charting, and Maritime Zones Boundary Mapping**
  - » **Upgrading of the survey vessels and their technical and scientific equipment for hydrographic surveys**
  - » **Relocation of and Modernization of the Magnetic Observatory**
- 2. Topographic Mapping and Geodetic Reference Framework Development and Management**
  - » **Updating of the Philippine Active Geodetic Network (PageNET)**
- 3. Resource Mapping and Assessment**
  - » **Classification of the remaining Unclassified Public Forest (UPF)**
  - » **Replotting of Land Classification (LC) Maps**
  - » **Updating of the Forestland Population Data**
  - » **Mapping of Safe Open Safe Spaces (SOS) for Greater Metro Manila Area (GMMA)**
- 4. Policy Reforms**
  - » **Policy Reform on the Philippine Geocentric Datum of 2020 (PGD2020)**
  - » **Technical Guidelines on the Delineation of Vertical Datums**



# WATER RESOURCES MANAGEMENT

In 2021, the critical importance of water has once again been given international cynosure by the ongoing Covid-19 pandemic due to its intensified use as a hygiene and sanitation resource. In the face of increasing demand and issues over long-term sustainability, water supply remains a challenge in the country. The looming scarcity of water resources could even worsen, beset by the El Niño phenomenon and climate change. The JICA study on the water-constrained cities of Metro Manila, Metro Cebu, Davao City, Cagayan de Oro City, Iloilo City, Bacolod City, Zamboanga City, Angeles City and Baguio City predicts the possibility of future water shortages. Whereas the pandemic initially halted and restricted personnel mobilization, program operations, field work and interaction vital to the accomplishment of the agency's program targets, 2021 has been a year of adaptation. Workscapes were altered by adapting alternative work schemes to ensure efficient and effective delivery of public service.

To manage impending water issues, the activities that focused on supply, operation, and regulation for the purpose of improving and equitably managing groundwater resources were planned and implemented. The desired results are to craft a tool for evaluating the effectiveness of policies and management interventions that are implemented, which will serve as a basis for appropriate groundwater protection and conservation efforts.

Comprehensive Water Resources Assessment (CWRA) was conducted for major river basins. The Groundwater Management Plan (GMP) was developed to guide the conduct of basic groundwater assessment and the updating of groundwater availability situations, considering IWRM and future impacts of climate change. The purpose is to recommend appropriate water policies and management strategies.

Another project implemented was the monitoring of groundwater wells under construction for the purpose of the long-term monitoring of situations in groundwater-constrained areas. This is done through the conduct of periodic groundwater level monitoring to validate assessment results, gauge the effectiveness of existing groundwater policies in the area (e.g. moratorium on the granting of water permits) and provide a basis for appropriate protection and conservation interventions. Some wells are being installed with telemetry for real time data collection and monitoring. Currently, there are six (6) CWRA's and 11 GMP's. As to groundwater monitoring wells, 56 were already installed.

In water supply, Angat Reservoir operations are subject to regulations issued by NWRB. These include the determination of allowable water releases and allocations based on the Reservoir Operation Guidelines.

In 2020, the Angat Dam elevation was only 202.80 meters, which was 9.20 meters below the Normal High-Water Level of 212 meters. The ideal water level of 212 meters was not met due to limited rainfall received in Central Luzon.

Optimization of the utilization of water supply from Angat Reservoir is monitored by a Technical Working Group (TWG) for Angat Dam Operation and Management composed of members from the National Power Corporation (NPC), Angat Hydropower Corporation (AHC), National Irrigation Administration (NIA), Metropolitan Waterworks and Sewerage System (MWSS), Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA).

Water level and inflows were monitored regularly to effect the equitable allocation and optimum utilization of water. Water requirements for municipal use, irrigation, and power generation for the whole year were satisfied.

The accomplishments were as follows:

- Issued a total of 1,490 Conditional Water Permits, of which 493 were approved as Water Permit.
- Disposed/resolved 156 cases, including some water use conflicts that were received in the previous years; 1,188 cases are still under various stages of investigation.
- Granted permits to 372 individuals; no person is allowed to drill any well for the extraction of groundwater or to make alterations to any existing wells without securing permits from the Board.
- Approved/granted 35 Certificates of Public Convenience (CPC) applications.
- Inspected 6,211 water sources for industrial, commercial, municipal/domestic and other purposes.
- Issued five (5) closure orders to the owners of abandoned/non-operational sources.
- Conducted ocular inspection and verifications to 237 CPC grantees and non-CPC grantees.
- Conducted inspection, testing and sealing of 76,251 water meters of 14 water service providers, namely: Basic Water Enterprises Inc., Breezewoods Water Corporation, Calsons Development Corporation, Centennial Water Resources, Filinvest Land Inc., First Streamline Waterworks, Happy Well, Hiyas Water Resources, Inicbulan WMPC, Metro Asia Corporation, Teresa Waterworks, Town and Country, Tubig Pilipinas and Villages Water Supply.
- Conducted nine (9) Virtual Education Campaigns through the Zoom platform.

- Issued Certificates of Water Availability and Clearances, as required by the Philippine Economic Zone Authority (PEZA), to the following:



*Ocular Inspection of MWC Water Services in Dela Costa So. Curayan, Brgy. Burgos, Rodriguez, Rizal*



*Temporary sealing of well located at 13-A, Navy Base Road, St. Joseph Village, Baguio City*

- » Philtai Central Luzon Industrial Park, Mabalacat, Pampanga
- » New Ventures Realty, Limay, Bataan
- » Cebu Industrial Park, Balamban, Cebu
- » Majestic Corporation in Gen. Trias, Cavite
- » Science Park of the Philippines in Sto. Tomas, Batangas
- » Science Park of the Philippines in Malvar, Batangas
- » Science Park of the Philippines in Hermosa, Bataan
- » Eton Properties in Makati City
- » Majestic Corporation in Gen. Trias, Cavite
- » Philtai Central Luzon Industrial Park, Mabalacat, Pampanga
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- » Eton Properties in Makati City

- » Majestic Corporation in Gen. Trias, Cavite
  - » Philippine Mining Development Corporation in Monkayo, Davao de Oro
  - » KIST Park in Catanduanes State University in Virac, Catanduanes
- Conducted four (4) micro water resource assessments on groundwater availability in various sites located in Quirino Province, Zambales, Nueva Vizcaya and La Union.

### **POLICIES ISSUED**

- Amendment on the Extension of Validity of Provisional Authority for CPC During the State of Public Health Emergency with NWRB Board Resolution No. 02-0320-B dated January 20, 2021.
- Extension of Time in the Submission of Annual Report and Payment of Supervision and Regulation Fees During the State of Public Health Emergency with NWRB Board Resolution No. 05-0221 dated February 17, 2021
- Granting of Authority to Executive Director and/or Deputy Executive Director to Represent NWRB in All Civil and Administrative Cases with NWRB Board Resolution No. 14-0821, dated August 25, 2021
- Standard Rules and Regulations in the Operation of Waterworks Systems, as Revised 2021 with NWRB Board Resolution No. 14-0921 dated September 22, 2021.
- Further Amending Policy Guidelines on the Processing and Issuance of Water Permits and Conditional Water Permits with NWRB Board Resolution No. 15-0921 dated September 22, 2021.
- Continuous and Enhanced Water Supply Services in All Areas of Operation under Enhanced Community Quarantine (ECQ) with Memorandum Order No. 2021-02 dated August 4, 2021.
- Addendum to Memorandum Order No. 2021-02 under Memorandum 2021-02A dated August 23, 2021.
- Extension of Time for the Payment of Annual Water Charge and Well Driller Registration with Memorandum 2021-03 dated August 5, 2021.
- Monthly Water Allocation for Irrigation and Municipal Water Supply from the Angat Dam.

## WAYS FORWARD

1. **Ensure adequate water supply with constant monitoring of the Angat Dam and come up with agreed Mitigation Measures between NIA and MWSS. Formulate national policy and guidelines on Water Demand Management (WDM) to ensure that sufficient water is available to support hygiene activities and sanitation protocols while considering water sustainability during the COVID-19 pandemic.**
2. **Continue building partnerships with other agencies through the provision of technical expertise, data/technology sharing, capacity building, policy development and joint research activities.**
3. **Continuously implement additional projects for GMP, CWRA and to monitor groundwater wells in other locations for the sufficiency of groundwater-constrained areas.**
4. **Capacitate all water service providers (water districts, LGU-run, water cooperatives and small WSPs, etc.) on Tariff Setting and formulation of Business Plans.**
5. **Develop and implement communication strategies for water demand management and wastewater management.**
6. **Conduct resource assessment and recommend areas capable of shifting from groundwater to surface water sources.**
7. **Formulate research and development (R&D) agenda based on priority needs of key partner agencies and stakeholders, to include technologies on lowering energy costs and increasing water efficiency as well as sanitation technology options for challenging contexts (i.e., high water table, flood prone areas, etc.), low cost and decentralized septage systems, and policies on raw water pricing and tradeable water regimes.**
8. **Formulate national policies and guidelines on Water Demand Management in collaboration with other NGAs and institutions.**
9. **Identify groundwater critical areas requiring moratorium on GW development to avoid further degradation and facilitate the shift from GW to surface water use.**

# SUSTAINABLE DEVELOPMENT OF PALAWAN

To carry out provisions of RA No. 7611 or An Act Adopting the Strategic Environmental Plan (SEP) for Palawan and other mandatory laws in Palawan, several programs were implemented to ensure the protection of Palawan's natural capital, the delivery of ecosystem goods and services, the growth of Palawan's economy and the quality of life the communities. The accomplishments were the following:

- Updated and ground-validated five (5) Environmentally Critical Areas Network (ECAN) maps for a total of 19 out of 24 LGUs, ensuring the attainment of balanced economic development and sound environmental management.
- Issued 90 ECAN Zoning Certifications for Category C projects or those that were determined to have minimal environmental impacts that are considered non-pollutive and/or non-extractive and are exempted from securing SEP Clearance.
- Issued 82 Strategic Environmental Plan (SEP) Clearances, 5,366 wildlife-related permits, and 636 chainsaw-related permits.
- Fully implemented the Biodiversity Resource Access Information Network (BRAIN) online permitting system.
- Spearheaded 66 information, education and communication (IEC) campaigns to communities, schools and other groups in Palawan.
- Monitored 24 major river systems in the Palawan mainland; 12 seawater monitoring stations in San Vicente, Taytay and El Nido; 12 newly established seawater quality monitoring sites in Roxas and Quezon; and two (2) World Heritage Sites, namely the Puerto Princesa Subterranean River National Park (PPSRNP) and the Tubbataha Reefs Natural Park (TRNP).



*River monitoring in Sabsaban Falls, Brooke's Point  
and coastal waters monitoring  
in Long Beach, San Vicente*

- Organized the first virtual International Conference on Biosphere and Sustainability with the theme, "Protecting and Sustaining the Biosphere Our Global Goal" where 47 researches were presented and showcased.



*Banner of the 2021 International Conference on Biosphere and Sustainability*

- Conducted a total of 176 enforcement operations with other law enforcement groups, including confiscation, rescue and turnover of wildlife with an aggregate estimated market value of Php308-320 million. These operations led to the filing of 23 administrative cases before the PCSD Adjudication Board (PAB) and seven (7) criminal cases before the Provincial Prosecutor's Office.



*Fossilized Giant Clam shells in Green Island, Barangay Tumarbong, Roxas, Palawan*



*Confiscation of chainsaw and other tools in Maranan, Barangay, Calategas, Narra, Palawan*

- Facilitated the adoption, endorsement and implementation of the Strategic Development Plan for the Kalayaan Island Group (SDP-KIG) in collaboration with the Municipality of Kalayaan, Provincial Government of Palawan, MIMAROPA Regional Development Council, and Inter-Agency Technical Working Committee of the National Task Force-West Philippine Sea (NTF-West).

- Facilitated partnerships with the following local and international organizations to mobilize financing and take on development opportunities:
  - » United States Agency for International Development (USAID) on (1) Philippines Sustainable Interventions for Biodiversity, Oceans, and Landscapes (SIBOL) Project, (2) Safe Water Project and the (3) FishRight Program
  - » United Nations Environmental Programme-Global Environment Facility (UNEP-GEF) for the (1) South China Sea and the Gulf of Thailand focusing on Wetlands and Mangroves, and the (2) Reef Rescue Project, and Natural Capital Accounting (NCA) Project
  - » Asian Development Bank (ADB) (1) Tourism Development Project in El Nido and Coron and (2) Reef Insurance Project
  - » Conservation International (CI)
  - » World Wildlife Fund (WWF)-Philippines
  - » Forest Foundation Philippines (FFP)
  - » Energy Development Corporation (EDC)
  - » Landbank of the Philippines
  - » Club Agutaya
  - » Pilandok Rescue Conservation Center
  - » Blue Finance

### **POLICIES ISSUED**

- Suspension of the implementation of the closed season of the Live-Reef-Fish-for-Food (LRFF) for 2021 (PCSD Resolution No. 21-765)
- Amending PCSD Resolution No. 06-270 to prohibit the use of Core Zones for Eco-Tourism activities (PCSD Resolution 21-766)
- Approving the amendments to the ECAN Zones Maps of various municipalities (PCSD Resolution Nos. 21-758, 21-764, 21-774, 21-775)



## WAYS FORWARD

1. Tap onsite partners for possible collaborations and synchronized initiatives.
2. Focus the thrust and priorities of PCSDS on its convergence with relevant operating agencies in Palawan.
3. Intensify implementation of the ECAN strategy and its support mechanisms to contribute substantially to national security in the context of sustainable development.

# ENVIRONMENTAL LAW ENFORCEMENT AND PROTECTION

In compliance with DENR Administrative Order (DAO) 2021-28 dated 9 August, 2021 that created the Environmental Law Enforcement and Protection Service (ELEPS), this Office was given the responsibility to promote the efficient and effective enforcement of environmental and natural resources (ENR) laws, rules and regulations through the conduct of law enforcement activities, delineation of authorities and functions, establishment of strong coordinative and collaborative mechanisms, and the strengthening and professionalizing of law enforcement units.

In 2021, the Office was able to accomplish its targets in the following projects, plans and programs, namely: Environmental Law Enforcement Operations, Structural Reforms of the Enforcement Process in DENR, ENR Enforcement Capacity Development, ICT Integration in ENR Enforcement, Strong Collaboration with Law Enforcement Agencies including support to the National Law Enforcement Coordinating Committee (NALECC) and other inter-agencies with environmental law enforcement activities. These activities are detailed as follows:

## **CONDUCT OF VARIOUS OPERATIONS AGAINST ENR VIOLATORS BY THE ENVIRONMENTAL PROTECTION AND ENFORCEMENT TASK FORCE (EPETF) QUICK RESPONSE TEAM (QRT):**

- Closure of an open dumpsite landfill in Sahud Ulan, Tanza Cavite on January 14, 2021.
- Apprehension of illegal quarry in Barangay Balanak, Magdalena, Laguna on March 11, 2021, for violation of Section 3 of RA 3019 and RA 7942 and the Philippine Mining Act of 1995 resulting in the arrest of a barangay chairman and four other persons.
- Illegal mining operation in Balanac, Magdalena in violation of Section 103 of RA 7942, the Philippine Mining Act of 1995, and RA 3019, the Anti-Graft and Corrupt Practices Act.
- Confiscation of 16 heads of bearded dragons in Pandacan, Manila on April 22, 2021 which led to the arrest of two (2) persons.
- Interception of two (2) pairs of endangered umbrella cockatoos and one (1) critically endangered black palm cockatoo on April 18, 2021, with the assistance of the Sta. Mesa Police Community Precinct.
- Apprehension of illegal possession of two (2) endangered Umbrella Cockatoos and trading and possession of wildlife in Waterwood, Baliwag, Bulacan on May 3, 2021.

- Arrest of six (6) suspects on April 24, 2021 due to violation of Section 103 of the Philippine Mining Act of 1995 and theft of minerals in Lian, Batangas.
- Inspection of illegal waste disposal practices of poultry farms in Minalin, Pampanga on July 14, 2021.
- Conduct of a technical conference on July 28, 2021 at the Sangguniang Panlalawigan, Pampanga to discuss issues pertaining to violations of poultry farms in the municipalities of Santo Tomas and Minalin, Pampanga; issuance of a Notice of Violation has been directed.
- Confiscation of one (1) Acacia log and one (1) chainsaw in Kalinga, Apayao (CAR) on October 4, 2021 in partnership with the National Bureau of Investigation (NBI), resulting in the arrest of three (3) illegal loggers; inquest was carried out for violations of PD 705 and RA 9175.
- Serving of closure order of a sanitary landfill/open dumpsite in Urdaneta City, Pangasinan on October 7, 2021 in compliance with the decision of the Pollution Adjudication Board (PAB).
- Confiscation of an estimated volume of 500 board feet (bd/ft) of Narra, Kamagong and Guijo tree species and one (1) unit of conveyance in Barangay San Andres, Tanay, Rizal due to violation of Illegal Collection of Forest products under PD 705, as amended.
- Confiscation of 244,615.19 bd/ft of wood products from endangered Mangkono trees on October 12 to 23, 2021 in Loreto, Agusan Del Sur with a total amount of PhP73,222,474.66 including the actual value, forest charges, surcharges and environmental fee.
- Clearing and dismantling operations of 32 illegal Sapra Structures on November 4 to 6, 2021 in Cavite City.
- Apprehension of 13,847.77 bd.ft. of assorted species including dipterocarps in Cantilan and Lianga in Region 13 on November 16 to 19, 2021 amounting to PhP4,782,580.94 including forest charges, environmental fees and surcharges.
- Confiscation of 215 pcs of round logs/half-moon on November 17 to 18, 2021 along Magnac River in Barangays Maligaya and Canaway in Real, Quezon with an estimated volume of 108 cu. m.
- Arrest of eight (8) suspects on November 24, 2021 for violating Section 103 of the Philippine Mining Act of 1995 and PD 705 in Barangay Poblacion 5, Talisay, Batangas.
- Anti-illegal quarrying surveillance operations in Regions 9, 10, and 11 from November 30 to December 3, 2021.
- Closure of an illegal quarrying operation and apprehension of 21 conveyances and other implements in Barangay Waan, Davao City from December 2 to 11, 2021 resulting in the arrest of 15 persons, including the area manager.



Confiscation of 244,615.19 bd ft. of wood products made of Mankono trees



Operation against illegal quarrying in Magdalena, Laguna in March 2021



A buy-bust operation on suspected illegal trade of Agarwood (Lapnisan) on June 15, 2021



Confiscation of 608 logs during the anti-illegal logging operation in Agusan del Sur



Joint operation of ELEPS, CENRO Talisay, MGB 4A and NBI-EnCD on a case of illegal mining and illegal construction in Taal Volcano Protected Landscape on November 24, 2021.



Entrapment operation against illegal trading in Sta. Mesa on April 28, 2021

- Supervised the security arrangements at the Manila Bay Dolomite Beach to ensure the safety of visitors.
- Assessed/inspected the following mining corporations:
  - » Berong Nickel Corporation (BNC) in Sitio Badlisan, Barangay Quezon, Palawan
  - » Citinickel Mines and Development Corporation (CMDIC) in Narra, Palawan
  - » Rio Tuba Nickel Mining Corporation (RTNMC) in Barangay Rio Tuba, Bataraza, Palawan
  - » Rapu-Rapu Mineral Inc. in Barangay Pagcolbon, Rapu-Rapu, Albay
  - » Filminera Resources Corp. in Puro, Aroroy, Masbate

## WAYS FORWARD

1. Continued support for the Manila Bay Rehabilitation Program.
2. Finalization of the ELEPS Operational Guidelines.
3. Creation of a Technical Working Group and conduct of writeshops for the crafting of the ELEPS Manual of Operations.
4. Continued advocacies for the passage of a bill on the Environmental Protection and Enforcement Bureau (EPEB).
5. Continued support and cooperation with concerned offices/agencies in law enforcement and protection of Philippine environment and natural resources.
6. Continued capacity building through the conduct of the Specialized Course on Environmental Law Enforcement (SC-ELE).
7. Conduct of workshops on Enforcement Processes for Frontline Units within DENR regions.

# TAYO ANG KALIKASAN

Task Force Tayo ang Kalikasan (TFTAK) was created through Special Order 2017-974 as an information branding campaign of advocates of DENR and of the social mobilization of various citizens' groups. It is envisioned to be a "collaborative effort" between the government and its citizens to ensure the sustainable development of our natural resources and the restoration, rehabilitation and development of the environment. TFTAK aims to start an environmental stewardship movement by rallying citizens to support and participate in programs of the DENR. In 2021, the following initiatives were taken:

- Created the Tayo Ang Kalikasan social media platform Facebook page which now has 23,000 followers and 21,000 page likes. It highlighted best practices in the conservation and protection of the environment and provided a venue for interaction with the public.
- Supported through funding "Project Urban Tanim - Tayo Ang Kalikasan Masaganang Ani Para sa Mamamayan," a synchronized program of the Quezon provincial government and the Provincial Environment and Natural Resources Office of Quezon.
- Launched an edible garden competition which sought to ensure food security during the pandemic and reduce solid waste generation. This event is the second edition of the successful SRAC (Sustainable Regreening and Art of Composting), a project of PENRO Quezon and Task Force Tayo Ang Kalikasan in 2020.
- Conducted the first webinar titled, "ENR Ambassadors: Shaping Tomorrow's Green Campaigners" as part of the 2021 Earth Day Celebration participated in by 30 students from different schools in Region 6 mentored by environmental advocates from Greenducation Ph.
- Conducted capacity building training for ENR Ambassadors from the Polytechnic University of the Philippines from October 14 to 15, 2021. They attended a series of lectures on mobile journalism, content production and social media management on proper waste segregation and disposal of medical waste.
- Participated in the celebration of International Coastal Cleanup in Bulan, Sorsogon with the attendance of Bulan Mayor Romeo Gordola, municipal councilors, office personnel from the MENRO, the Philippine Coast Guard, barangay officials, NGOs and environment advocate groups.
- Installed one (1) 12-meter long floating trash trap at the Buaya Creek in Barangay Quirino 3A, Quezon City which prevents an average of 20 sacks of assorted trash from floating downstream daily, particularly towards Barangay Quirino 2A where another trash trap is installed.



*Participation of PENRO Sorsogon in the celebration of the ICC*

- Donated used fishing nets to Barangay Quirino 3A for the fabrication of a floating trash trap, courtesy of the Rotary Club of Diliman, in line with the MOA on Adopt-an-Estero/Waterbody Program between the DENR and Rotary International District 3780 signed in 2019.
- Made available more than 2,000 bamboo planting materials for outplanting in Sitio Karugo in support to the implementation of ENGP and Save Our Watershed, courtesy of the combined districts of Rotary International District 3780 and District 3830.
- Conducted seven (7) batches of learning events on “Kalikasan and Kalusugan and Tayo Ang Kalikasan Messaging” that re-oriented employees of DENR on the department’s mission and vision and on the projects and priority programs of the agency, in particular, Tayo Ang Kalikasan as the agency’s branding campaign.



Installation of floating trash trap in Buaya Creek in Brgy. Quirino 3A, Diliman, Quezon City



Establishment of bamboo nursery in So. Karugo on January 23, 2021 with Rotary International District 3780 and on July 11, 2021 with Rotary International District 3830 (L to R)





Training on Community-Based Bamboo Production and Tayo ang Kalikasan Orientation for the Tribal Council Association of Puray Inc. with the Philippine Bamboo Industry Development Council on December 4-5, 2021



Learning event on "Kalikasan , Kalusugan and Tayo Ang Kalikasan Messaging"

## WAYS FORWARD

1. Expand the network of partners and stakeholders through wider participation of the private sector, particularly civic organizations, in the programs of the department for the protection and conservation of the environment and natural resources.
2. Create and undertake sustainable projects in collaboration with environment advocates and tap resources outside the department.

# GENDER AND DEVELOPMENT

The DENR, along with its line and staff bureaus and attached agencies, has continually advocated Gender and Development (GAD). In fact, it is one of the Philippines' pioneer agencies to implement provisions of the Magna Carta of Women, and has gained recognition from the Philippine Commission on Women for establishing the DENR Day Care Center which was duplicated in field offices.

To help cope with the devastating effects of climate change and natural disasters, DENR implements relief programs to build disaster-resilient and infrastructure, prescribe sustainable climate change adaptation measures, and design risk reduction strategies to limit negative impacts on people's lives and livelihoods. When the pandemic struck, lectures and meetings were done thru online platforms to address the immediate needs of women and their families.

The DENR is steadfast in its commitment to achieve gender equality and promote women empowerment by addressing gender issues and concerns through the proper implementation of the Magna Carta of Women. Relatedly, in compliance with other laws on gender, national agencies formulated laws and regulations such as Joint Circular 99-4 issued by the National Economic and Development Authority (NEDA), the DBM and NCRFW, and guidelines for the implementation of GAD-related programs, projects and activities.

The DENR National Gender and Development Focal Point System (GADFPS) was conceived to aid the review of the agency's six-year strategic plan for proposed enrichments to align planned programs and activities of the environment and natural resources (ENR) sector with the current state of the country as it continues to face the effects of climate change, health, and gender issues. Various sectors such as biodiversity, forestry, solid waste and hazardous wastes, air quality, water, land, and mineral resources development focused on pursuing and prioritizing responsive programs. Mainstreaming gender into priority programs of the DENR revealed the potential of women as "game changers" and "active stakeholders".

In accordance with the Philippine Plan for Gender-Responsive Development (PPGD), 1995-2025, DENR's GAD programs seek to ensure "full participation of women in the promotion of sustainable development and that women shall equally enjoy and benefit from the fruits of ENR development and management" (*Source: DENR GAD Strategic Plan for 2020-2025*)

GAD's organization-focused activities work towards enhancing gender mainstreaming in policies, plans and programs and enhancing the knowledge management, the GAD system and institutionalized GAD mechanisms of DENR services, bureaus, attached agencies, and regional offices that could serve as role models to other organizations.

The theme for the 2021 Women's Month Celebration was, "Women Can Make Change amidst Climate Crisis and Covid-19." This highlighted women's participation in battling the pandemic including discussing gender issues exacerbated by the pandemic. An increasing number of mental health issues was brought about by the prolonged lockdown, anxiety, fear of job loss, and the uncertain future. Mental health

promotion can prevent mental illness, but there are existing obstacles to mental health treatment that cause stigma and discrimination. Thus, in 2021, the following steps were taken to protect women from the effects of climate change, disasters, and the pandemic:

- Launched the “Mga Kwentong KLIMA-likasan ng Kababaihan at Kalalakihan Tungo sa Katatagan: A Climate and Disaster Resiliency Recognition Awards and the Kwela sa Online Eskwela (DENR Day Care Online Sessions)” and the exhibit of entrees from the 2020 “Mga Kwentong KLIMA-likasan: A Photoblog Competition.
- Conducted a learning event on Sexual Orientation, Gender Identity and Expression (SOGIE) participated in by 107 individuals (47 men and 60 women) composed of the BMB GAD Focal Point System, BMB officials and employees.
- Celebrated various Women’s Month activities through the conduct of the following:
  - a. Lectures on mental health and wellness to strengthen mental health and awareness particularly during this pandemic (Regions 6, 10 and 12).
  - b. Cleanup activities at Mount Palay-Palay and Mataas na Gulod Protected Landscape to advocate for the protection of the environment (Regions CALABARZON, CAR and 12).
  - c. Planting of 1,000 mangrove propagules at the Bakhawan Nature Study and Eco-Park, Barangay New Buswang, Kalibo, Aklan in celebration of “A Day for Mangrove Planting”.
  - d. Production of about 20,000 seedlings of Agoho (Region 6).
  - e. Tree planting in Koronadal City (Region 12).
  - f. Holding of GAD Wizard (GADWIZ) through digital platforms and boost their morale despite the pandemic (Region 9).
  - g. Participation in the Virtual GAD Quiz Bee which sought to emphasize the importance of having knowledge about women concerns and GAD as a whole, conducted by the Regional Development Council 10 on March 30, 2021 (Region 10).
  - h. Blood-letting activity at the KCC Mall in Koronadal City on March 24, 2021 in partnership with the Bureau of Fire Protection (BFP) in South Cotabato. (Region 12).

### CAPACITATION OF GAD FOCAL POINT SYSTEM (GFPS) AND GAD AWARENESS

- Conducted the following learning events to enhance the capacity of GFPS members to facilitate gender mainstreaming:
  - » Gender Sensitivity Training for newly-hired employees (NCR, Regions 3, MIMAROPA, 6 and 7)
  - » Writeshop on Technical Writing using Gender Fair Language (BMB, NCR, Region 1)
  - » Lectures on Committee on Office Decorum and Investigation (CODI), Magna Carta of Women (MCW), Anti-Violence Act Against Women and Children and Safe Places Act (Regions 5, 11, 13, NCR, BMB)

### GENDER ANALYSIS AND GAD MAINSTREAMING

- Gender Analysis using the Enhanced Gender Mainstreaming Evaluation Framework (GMEF) and Harmonized Gender and Development Guidelines (HGDG) (all Regions)



*Ribbon cutting with Undersecretary Juan Miguel Cuna, Atty. Analiza Rebuelta-Teh, Director Elenida Basug, and Climate Change Commissioner Rachel Herrera*

### GENERATION AND MAINTENANCE OF SEX-DISAGGREGATED DATA IN COMPLIANCE WITH THE MAGNA CARTA OF WOMEN, SECTION 36 (C)

- Generated and maintained the sex disaggregated database (SDD) on patent issuance to gauge the level of awareness on equal rights of men and women on land titling.
- Maintained and updated the SDD on LAMS for an improved land records management.

### CLIENT FOCUS

Accomplishments in line with these goals were:

- Holding of gender-responsive activity titled, “Search for Climate and Disaster Resiliency Awards” known as the “Kwentong Klima-likasan Tungo sa Katatagan”, in which 10 men/women/groups were awarded, including three (3) major prizes and seven (7) special citations:
  - » First Prize winner was from LGU Botolan, Zambales with the entry titled, “Women Leadership, Trailblazers of Environmental Sustainability.”
  - » Second Prize winner was from Zamboanga City with the entry titled, “Greenhouse Gas Emission Reduction: Zamboanga City Initiatives for Climate Change Mitigation”.
  - » Third Prize winner was from LGU Bayabas, Surigao del Sur with the entry titled, “Sagip-Wakatan Program: Kwentong KLIMA-likasan ng Bayabas, Surigao del Sur”.



*Virtual awarding of Kwentong Klima-likasan*



*Outreach activity conducted last March 26, 2021 in Lingoy, Barlig, Mountain Province*

### **GAD OUTREACH PROGRAMS**

- Provided hygiene kits, food, basic medicine kits, and health care providers at the Regional Health Units for the conduct of free medical check-ups in selected barangays or identified people's organizations, and conduct of trainings on alternative livelihood (CAR).
- Conducted an outreach activity on March 26, 2021 by giving food packs, with the Philippine Island Kids International Foundation, Inc. (PIKIFI) as the recipient, to support communities exposed to the hazards of improper garbage disposal.

### **STRENGTHEN GENDER MAINSTREAMING**

- Conducted the Orientation on Climate Change Adaptation and its Adaptive Measures and Resiliency on September 30 to October 1, 2021 via Zoom (all Regions).
- Provided capacity building and logistics support essential to forest law enforcement for 16 women and 35 men (Region 7).
- Provided capacity building on Alternative Livelihood and Financial Literacy for People's Organizations for 20 PO chairpersons/representatives at the MIFAMCO Hostel, Pagadian City on August 18, 2021 (Region 9).
- Conducted the following lectures in Region 12:
  - » Climate Mitigation and Adaptation Actions and Human Health at the Ancestral Domain of Dulangan Manobo in the Municipality of Ninoy Aquino, Sultan Kudarat
  - » Reskilling and Upskilling of Women Affected by Economic Fall-out due to COVID-19 Pandemic - A Balik Probinsya, Bagong Pag-asa Program Intervention at Purok Tambis, Barangay Salaman, Lebak, Sultan Kudarat
  - » Upskilling of Resource Dependent Women of Maasim Council of Women (MCW) on the Basic of Sewing: A start-up livelihood program at Poblacion, Maasim, Sarangani Province and Organizing Community Pantry in PENRO South Cotabato.
- Conducted a lecture on Climate Change and Water Conservation in support of the annual celebration of the National Climate Change Consciousness Week for CY 2021 on November 23, 2021 at the Barangay Hall, Upper Bicutan, Taguig City.

## WAYS FORWARD

The DENR will continue to strengthen and embrace the concept of mainstreaming GAD activities for the purpose of educating people, empowering women, achieving gender equality and ensuring that all relevant gender issues are addressed, especially during the pandemic.

1. Continue the establishment of relevant databases for gender responsive formulation and implementation of programs, projects, and activities.
2. Continue educating women stakeholders on the impacts of climate change and disasters through environmental awareness and social mobilization.
3. In coordination with FMB, develop the Gender Mainstreaming Guide for Climate Change Adaptation and Mitigation.

# GENERAL ADMINISTRATION AND SUPPORT TO OPERATIONS

## PLANNING ACTIVITIES

- Approved 99 Work and Financial Plans for CY 2021, covering all activities of the central office, regional offices, and staff bureaus.
- Formulated and disseminated Budget Proposal and Planning Guidelines to all regional and central offices.
- Established and maintained the Policy Feedback Mechanism.
- Maintained and updated three (3) databases on approved policies: Policy Proposals Summary, Sectoral Policy Proposals and Bills Repository.
- Distributed 16 soft copies of issued ENR policies.
- Prepared 166 ENR-related matters and 34 DENR comments/positions on regional and international agreements and, which include House and Senate bills, etc., under the Intra-and Inter-Agency Coordination activity.
- Submitted 168 reports which include matters relevant to the Association of Southeast Asian Nation (ASEAN), Asia-Pacific Economic Cooperation (APEC), Inter-Agency on Trade-Related, Philippine Council for Sustainable Development, Biosafety and Sub-Committee on Land Degradation and Desertification.

## MONITORING AND EVALUATION

- Completed the draft DENR Memorandum Order on the Integrated DENR Monitoring and Evaluation (M&E) System. The objective of the proposed M&E System is to rationalize and harmonize systems currently practiced by the various units of the Department to achieve economy, efficiency, and effectiveness in the management and execution of the mandates of the Department.
- Conducted the In-House Review and Evaluation utilizing output indicators to obtain accurate and updated knowledge and information on the status of program implementation included in the CY 2021 Performance-Based Incentive System-Performance-Based Bonus (PBIS-PBB), as well as to identify operational issues and concerns in the implementation of said programs and projects.



- Conducted Performance Assessment of Regional Executive Director, Regional Directors for Mines and Environment, Supervising and Implementing Provincial Environment and Natural Resources Officers (PENROs), and Community and Natural Resources Officer for the second “Environmental Awards for Governance and Leadership Excellence (EAGLE)” Awards.



(L to R, front row) Imelda Casiwan of Cordillera Administrative Region (CAR) - Pinukpuk as Top Performing CENRO; Merlyn Dumalahay of Region 10 - Camiguin as Top Performing Implementing PENRO; Mario Ancheta of Region 2 as the Top Performing MGB Regional Director; Forester Arleigh Adorable of Region 10 as the Top Performing Regional Executive Director; Ma. Victoria Abrera of Cordillera Administrative Region (CAR) as the Top Performing EMB Regional Director; and Delia Benitez of Region 8 - Eastern Samar as the Top Supervising PENRO (L to R, second row) Asec Marcial Amaro, Jr., Usec. Ernesto Adobo, Jr., Usec. Rodolfo Garcia, Usec Jonas Leones, DENR Sec. Roy Cimatu, Usec. Juan Miguel Cuna, Usec Benito de Leon, and Usec Benny Antiporda

## **DATA MANAGEMENT INCLUDING SYSTEMS DEVELOPMENT AND MAINTENANCE**

- Maintained the network hardware of all offices concerned with an average of 98.98% uptime.
- Provided 70 monitoring and technical assistance during the East Asian Seas (EAS) Congress, Yearend Employees General Assembly, ENR Academy Graduation rites, Budget Bicameral Meeting, and others, through the installation/configuration of ICT equipment to DENR offices, bureaus and field offices.

## LEGAL SERVICES

- Resolved 53 administrative complaints/cases.
- Conducted the annual inventory/update of pending cases: 391 ENR cases, 151 ageing cases, and 45 re-evaluated cases.
- Resolved 71 ageing cases, 45 turned-over cases, and 179 ENR cases.
- Issued 216 legal opinions and reviewed 88 contracts/MOAs/MOUs/Deeds of Conveyance.
- Conducted seven (7) investigations. This activity was affected by the COVID-19 situation due to investigators were prohibited from conducting field work. Most of the request for investigations were referred to the regions and bureaus.
- Filed in court 190 pleadings.
- General Santos City Reversion and Cancellation Team (GRT) strengthened its coordination with CENRO General Santos City to maintain contact with the regional trial courts, the city government of General Santos, the ROD, and other partners and stakeholders. The team also introduced measures such as the scanning of case records to be sent to handlings lawyers with work-from-home schedules.
- Utilized the Alternative Dispute Resolution Monitoring and Results System (ADR-MRS) to gauge compliance with the implementation of the ADR mechanism as well as to determine the cases that were referred to and handled by ADR officers for processing.
- Trained 106 prospective ADROs to be accredited as third party neutrals. To date, a total of 358 third party neutrals were accredited nationwide. However, only 293 of them are actively serving the department to date. This will ensure that all field offices have accredited third-party neutrals who can handle the ADR process.
- Printed and disseminated 3,000 copies of the ADR primer containing ADR policies and other information materials to all ROs, PENR offices, CENR offices and at the Central Office; supported the celebration of the National ADR Day through a blended set-up at the Heritage Hotel, through Zoom and FB Live on Dec. 16, 2021; held awarding ceremonies for the best pool of ADROs in Regions 2, 5, 6, 10 and CAR; rolled out the guidelines for the DENR virtual process and the adoption of ADR-MRS and user manual; conducted consultations with the regions via Zoom for the establishment of the Regional Pool of ADROs; and institutionalized and promoted the ADR System.
- Conducted reassessments of 40 cases for investigation to determine if there were other ways to resolve the cases without need for investigation by the Zero Backlog Task Force (ZBTF).

- Resolved 40 administrative cases and 200 ENR cases under ZBTF.
- Conducted several conferences/workshops to discuss issues involving illegally titles in Laoag, Boracay and Baguio by the Anti-Illegal Land Titling Committee (AILTC).

### INFORMATION, EDUCATION AND COMMUNICATION (IEC)

- Produced 59,484 IEC print and promotional materials that were distributed to DENR Offices, partners and stakeholders. These included posters, mousepads, bamboo tumblers, body bags, tote bags, leatherette pouches, cutlery sets, etc.



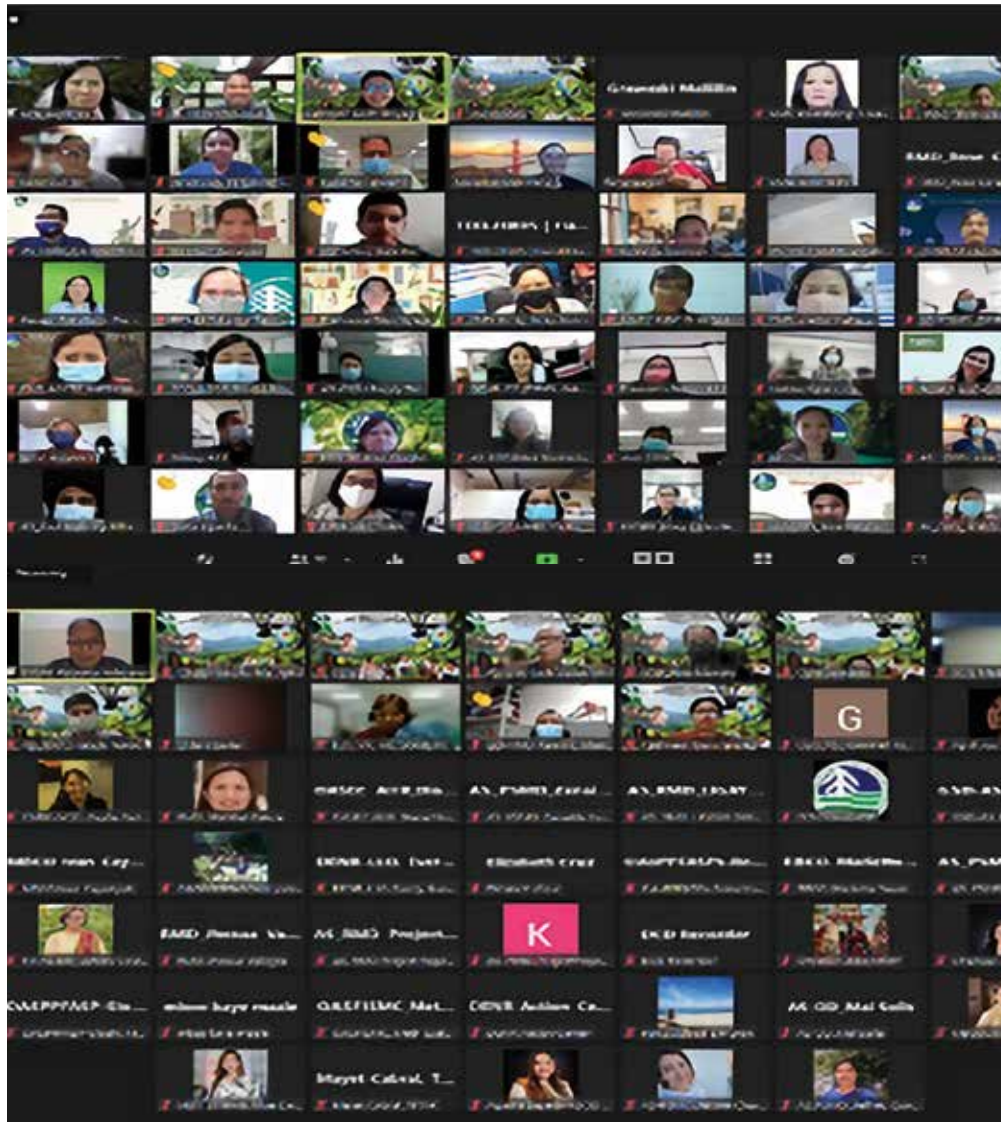
*Print and promotional materials for production and distribution*

- Produced 70 audio-visual materials in support of the department programs and activities, including the “DENR 2020 in Review: In the Face of Challenges”, “DENR COVID-19 Vaccination”, and “DENR Padayon Program”, among others.



*Audio-visual materials*

- Conducted environmental lectures titled, “Kalikasan at Kalusugan Tayo ang Kalikasan Messaging” per Special Order No. 2021-583 designed to turn the DENR workforce into agents of change by being reminded or re-oriented on the department’s mandate, mission, vision, and 10 priority programs; being aware of health protocols and practices to observe at all times; and more importantly, of recognizing their roles as primary advocates of “Tayo ang Kalikasan.”



Environmental Lecture on  
“Kalikasan at Kalusugan, and Tayo ang Kalikasan Messaging”

- Developed and enhanced the DENR Branding and Style Manual, Third Edition, which shall serve as a guide to ensure the up-to-date and relevant branding and style of the department, especially at this time when social media platforms are being used for information dissemination. Some additional topics discussed in the DENR Branding and Style Manual, Third Edition include:
  - » Locator Chart
  - » The Logo in social media & Web
  - » Standard Placement of DENR logo/Official logo in Partnership events/Inter-agency meetings
  - » Protocol on Printing and Placement of the Official Photo of the President of the Philippines and the DENR Secretary
  - » Protocol on Using the Official Photo of the DENR Secretary on Welcome Banners;
  - » Protocol on Printing and Proper Placement of Portrait of a DENR Official
  - » Protocol on Using an Official Folder for Document Signing Events;
  - » Protocol on Using an Official Folder for Internal Documents for Signature
  - » Protocol on Using a DENR Official Flag
  - » Protocol on Using the DENR Logo on Partnership Launching Events Featuring Murals, Paintings, Sculptures, Monuments, etc.
  - » The Logo & PowerPoint Presentation
  - » The DENR Quality Management System Logo and PowerPoint Presentation Template Design
  - » Released for information Memorandum Circular No. 2021-09 or Social Media Guidelines for DENR Regional Offices, Staff and Line Bureaus, and Attached Agencies on August 2, 2021.
  - » Produced 2,893 web materials which include press and photo releases, press statements



Production of some feature articles

## LEARNING EVENTS FOR PERSONS WITH DISABILITIES (PWD), SENIOR CITIZENS AND YOUTH

- Managed the conduct of four (4) learning events for Persons with Disabilities and Senior Citizens (PWD-SC) and nine (9) activities for the youth regarding biodiversity concepts, ecological niche, and zoonotic diseases such as COVID-19, celebration of Months of the Ocean and Earth, organizing of online webinars on journalistic and creative writing, promotion of gender equality advocates and their participation in environmental causes, as well as the holding of other learning events aimed at increasing awareness of event participants toward the protection, conservation, and management of the environment and natural resources. Also, the learning event on Strengthening Partnership with the Deaf and Blind Community highlighted the launching of the Department's IEC materials which were enhanced through the inclusion of the Filipino Sign Language and Braille interpretation.

## GENERAL ADMINISTRATION AND SUPPORT SERVICES

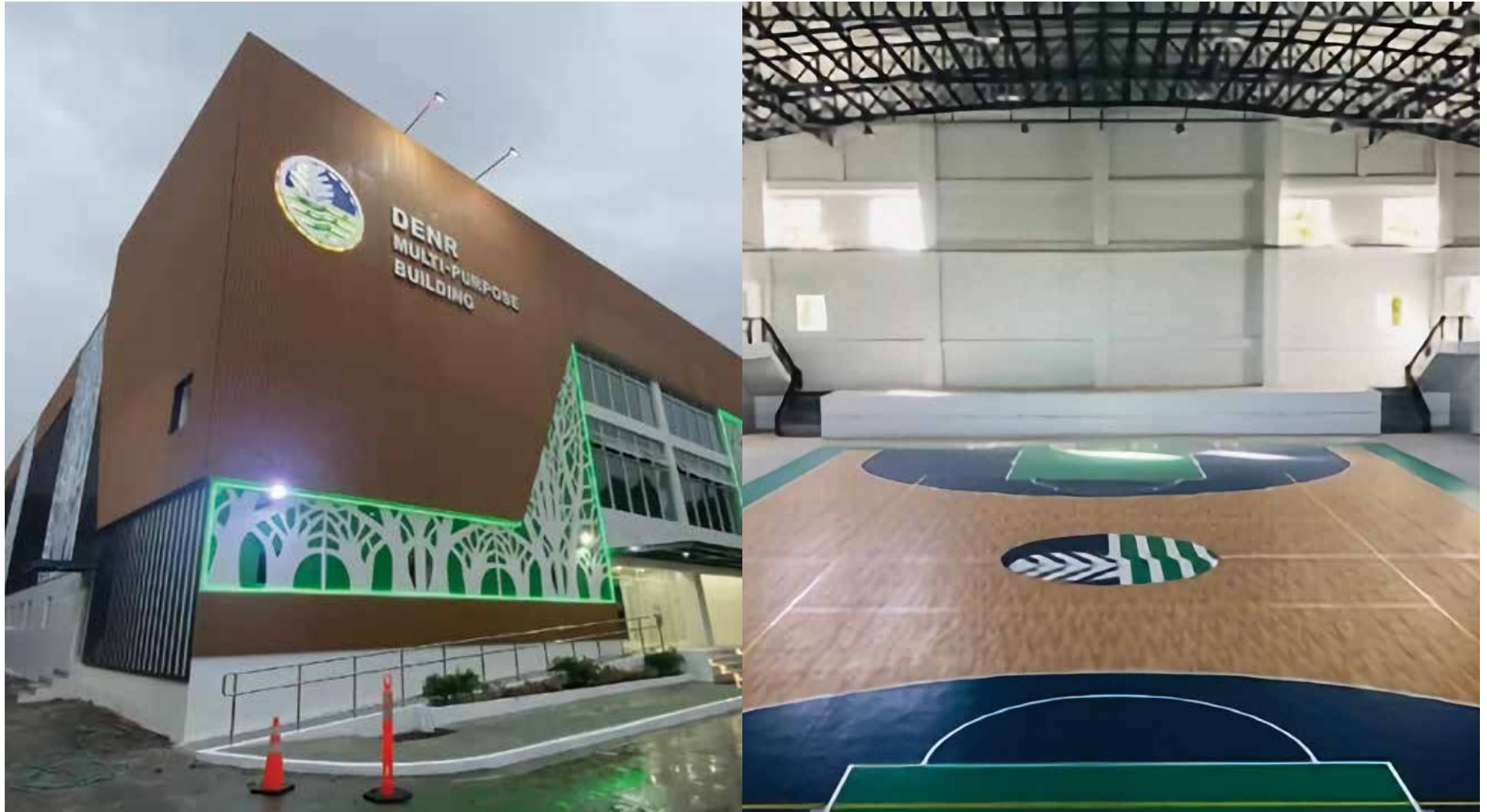
- Awarded 3,046 housing units and released 202 signed Deeds of Absolute Sales of fully-paid awardees and collected PhP14,888,158.44.
- Efficient processing of goods and services through public bidding or alternative modes of procurement, and development of policies related to procurement management.



Webinar and launching of Strengthening ENR Partnership with the deaf and blind community on November 16, 2021

## INFRASTRUCTURE IMPROVEMENT AND DEVELOPMENT

- Completed the construction of the 2,568 square meters DENR Multipurpose Building that will serve as venue of ceremonies during anniversaries, graduation rites, and yearend programs, among others.



*DENR Multipurpose Building*

- Repaired/constructed five (5) buildings in Regions 2, 10, 11 and MIMAROPA.

# FINANCIAL PERFORMANCE

For CY 2021, the entire DENR was allocated a total budget of PhP28,252,040,000 based on the approved General Appropriations Act (GAA) to support all operational programs, projects, and activities inclusive of the Office of the Secretary, Staff and Line Bureaus and Attached Agencies.

The largest chunk of the budget for priority programs of the Department was provided to the Enhanced National Greening Program with PhP3.310B followed by the Manila Bay Rehabilitation Program with PhP2.608B, Solid Waste Management Program (PhP1.503B); Clean Water Program (PhP215.820M); and Clean Air Program (PhP182.748M).

On fund utilization, the Department was able to achieve an overall obligation rate of 96.74% and a disbursement rate of 89.29%.

For revenue generation, the DENR was able to collect PhP4.63B indicating an overall 73.70% excess over the full year target of PhP2.67B for FY 2021.

*Revenue Generation of the Agencies*

Agency	Amount (in thousand PhP)
OSEC	1,460,476
EMB	412,905
MGB	2,542,542
NAMRIA	4,999
NWRB	201,196
PCSDS	16,425
<b>Total</b>	<b>4,638,543</b>







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Pasig River Coordinating and Management Office  
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Environmental Law Enforcement and Protection Service  
Provincial Task Force Naboc River  
Build Back Better Task Force  
Task Force Tayo ang Kalikasan  
CARP National Coordinating Office  
Laguna Lake Development Authority  
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