

PhilSA, DENR launch nationwide mangrove mapping project

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Two government agencies partner for environmental management through nationwide mangrove mapping with the use of satellite images and space data.

The Philippine Space Agency (PhilSA) and Department of Environment and Natural Resources (DENR) recently launched the Nationwide Mangrove Mapping initiative at the Social Hall of the DENR Central Office in Quezon City, PhilSA announced.

PhilSA, in partnership with the DENR, produced the Nationwide Mangrove Map using remotely-sensed images from Sentinel-2 and Alos Palsar2.

The map will undergo a validation process to enhance the reliability and applicability of data to support coastal management, conservation efforts, and scientific research.

With the development of the satellite-derived mangrove extent map and commencement of the ground validation phase for the nationwide mangrove mapping, PhilSA Director General Joel Joseph Marciano Jr. highlighted the importance of this initiative in environmental management.

"Using satellite imagery and spaceborne data, we can develop the methodologies and algorithms to make more frequent and timely monitoring possible, and ultimately this should be directed toward supporting more sound decision making and policies," Marciano said in his keynote speech.

"We are given the ability to view remote and inaccessible areas from the vantage point of outer space, and again, we hope that this contributes science-based solutions. We are also happy to be given the opportunity to build the capacities of fellow Filipinos in space science and technology, which we hope will build our local industry and important space downstream sectors," he added.

PhilSA remains committed to supporting the enhancement of DENR's monitoring systems through satellite remote sensing, machine learning, artificial intelligence, and geographic information systems.

The Agency also looks forward to expanding its contributions to include other DENR priority sectors.

Environment Secretary Ma. Antonia Yulo-Loyzaga highlighted the importance of synergies between the two agencies.

"The use of space-based technologies in national development cannot be underestimated and the [PhilSA] under the current leadership of Doctor Marciano has been an invaluable help to the [DENR] in quantifying and measuring what we treasure as a nation."

As the collaborative effort represents a significant stride toward effective mangrove conservation and rehabilitation, Yulo-Loyzaga added, "With the help of our partner agencies and academic community, and nongovernment organizations [NGOs], we reiterate the DENR's firm commitment to establish

natural capital accounts which equals integrating key ecosystems like mangrove forests into building a sustainable and thriving blue economy for the country. The launching of the mangrove map is a major milestone for us to accomplish this goal.”

A hands-on session for data validation was conducted and facilitated by Engr. Kristine Bantay, Senior Science Research Specialist from the PhilSA Space Data Mobilization and Applications Division.

Bantay also presented how the mangrove map may be validated through the utilization of ODK, a free application for data collection.

Through ODK, local DENR offices, NGOs, and academe partners will be mobilized to acquire and contribute data, such as image and location of various mangrove areas in the country for ground validation.

These efforts will also be complemented by aerial images using drone technology, which are expected to further enhance the nationwide mangrove extent map.

Upon completion of the validation activity, the data will be used to enhance PhilSA’s mangrove mapping algorithm using machine learning.

The validated map can be used for conservation and resource management efforts.

Present during the event were the Global Mangrove Alliance, De La Salle University, University of Sto. Tomas, National Mapping and Resource Information Authority, DENR-Biodiversity Management Bureau, and representatives from non-governmental organizations (NGOs) involved in environmental conservation and advocacy.

This endeavor was a result of the PhilSA and DENR MOA signed in February 2023.

A key component of the project is the establishment of a geospatial database of the country’s natural resources to be developed for the National Resource Accounting Program starting with the Nationwide Mangrove Map, PhilSA said.