

Biodiversity and ecosystem observations by Asia Pacific Biodiversity Observation Network (APBON)

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The Asia-Pacific (AP) Region encompasses 28 million square kilometers of land area, which is approximately 22 percent of the total global land area, across over different climatic conditions, rich natural resources, and diverse culture. Also, the region contains some of the longest rivers and extensive deltas in the World, the majority of continental and oceanic islands, various coastal ecosystems including mangroves and coral reefs, and large portions of the Pacific Ocean and the Indian Ocean (IPBES 2018). The region account for approximately 54% of global population (UNEP 2016) and hosts 13 of the total 35 biodiversity hotspots and accounts for nearly one third of all the threatened species in the world (CEPF 2015). Having entered the “Asian Millennium,” many countries in AP region are now rapidly growing their economies and social infrastructures. This development is causing the rapid loss of Asian biodiversity, and thus prompting work toward achieving a more sustainable balance between development and conservation is a highly urgent task in the region (IPBES 2018). These circumstances call for interactions and partnerships that will integrate available information, appropriately document those that are being discovered and promote the exchange and use of such information in biodiversity conservation and policy development. Asia is now regarded by many scientists as the most biotically threatened part of the planet, yet to mediate this loss further data is needed to develop baselines on biodiversity and assay patterns of diversity and threat. Science is expected to play a leading role in the area of biodiversity, including characterizing the biodiversity of various areas, clarifying ecosystem services supplied to society, quantifying how rapidly biodiversity is being lost, and justifying needs and identifying possibilities for conservation and sustainable use of biodiversity.

The AP Biodiversity Observation Network (APBON) was established in order to network institutions and research groups in AP region that contribute to and utilize a knowledge resource base for decision making and policy for the conservation of biodiversity and ecosystems. It was launched in 2009, by responding to Biodiversity Observation Network under the Group on Earth Observations (GEO BON) in 2008. Since then, APBON aimed at promoting biodiversity monitoring and contribution to sound decision-making based on scientific knowledge. To do so, APBON facilitates the organization of and periodically convenes a regional network of biodiversity observation institutions to maintain a knowledge base that will support biodiversity conservation. APBON focuses on terrestrial, freshwater and marine systems to develop the observations and ecosystem service assessment.

In this paper we review how APBON has achieved developing networks; we have facilitated the communication and interaction opportunities inter-/intra- researchers and stakeholders through workshops and publications. APBON successfully developed as a network of biodiversity scientists belonging to many institutes of AP region (Yahara et al. 2014). APBON has also contributed to networking biodiversity-related bodies and programs including CBD, GBIF, IUCN, International Long-Term Ecological Research–East Asia–Pacific Regional Network (ILTER-EAP) and Asia Oceania GEO (AOGEO). The multidisciplinary efforts in APBON also contributed to develop a strategy for the Earth observation for biodiversity monitoring by connecting in-situ and satellite observations. We also developed tools for data

collection, sharing, analysis, and synthesis for further observations and capacity building. Contributions to carrying out assessments such as IPBES, which contributed to improving ecosystem management and sustainable use of biodiversity, are also highlighted.

Keywords: biodiversity, climate change, ecosystem services, forest loss, landuse change