The ASEAN Clearing House Mechanism

ASEAN CENTRE FOR BIODIVERSITY

Biodiversity Information Sharing Service
(ASEAN Clearing House Mechanism)

CHM

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AMS CHM Websites

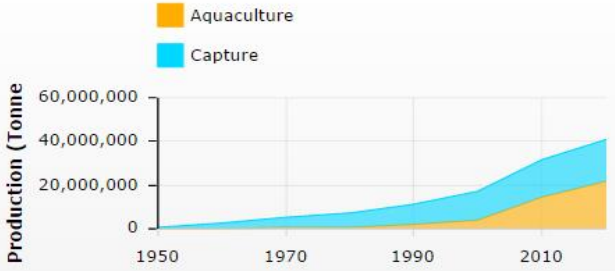
- Brunei Darussalam
- Cambodia
- Lao PDR
- Indonesia
- Malaysia
- Myanmar
- Philippines
- Singapore
- Thailand
- Viet Nam

- Biodiversity in the ASEAN Region
- Priority Areas for Conservation
- Biodiversity Conservation Initiatives
- Improving Capacities for Biodiversity Conservation
- Who's Who in ASEAN Biodiversity
- Biodiversity Resources

ASEAN Biodiversity Assessment

- Ecosystems
- Drivers of Biodiversity Loss in the ASEAN Region
- Graphs and Trends
- Map Overlays
- Special Reports
- Moving Towards the Aichi Targets

Fisheries production in the ASEAN region, 1950-2013



ASEAN CENTRE FOR BIODIVERSITY
3F ERDB Building Forestry Campus, College, Laguna, Philippines 4031

Biodiversity Information Sources and Uses

Stakeholders

- Academe
- Government
- NGOs / Private Sector
- PA Mgrs
- NR Users

Repositories & Publishing

- Personal
- Institutional
- Global Databases
- CHMs

Process

- Biodiversity
- Threatened Species
- Trends
- D.Maps

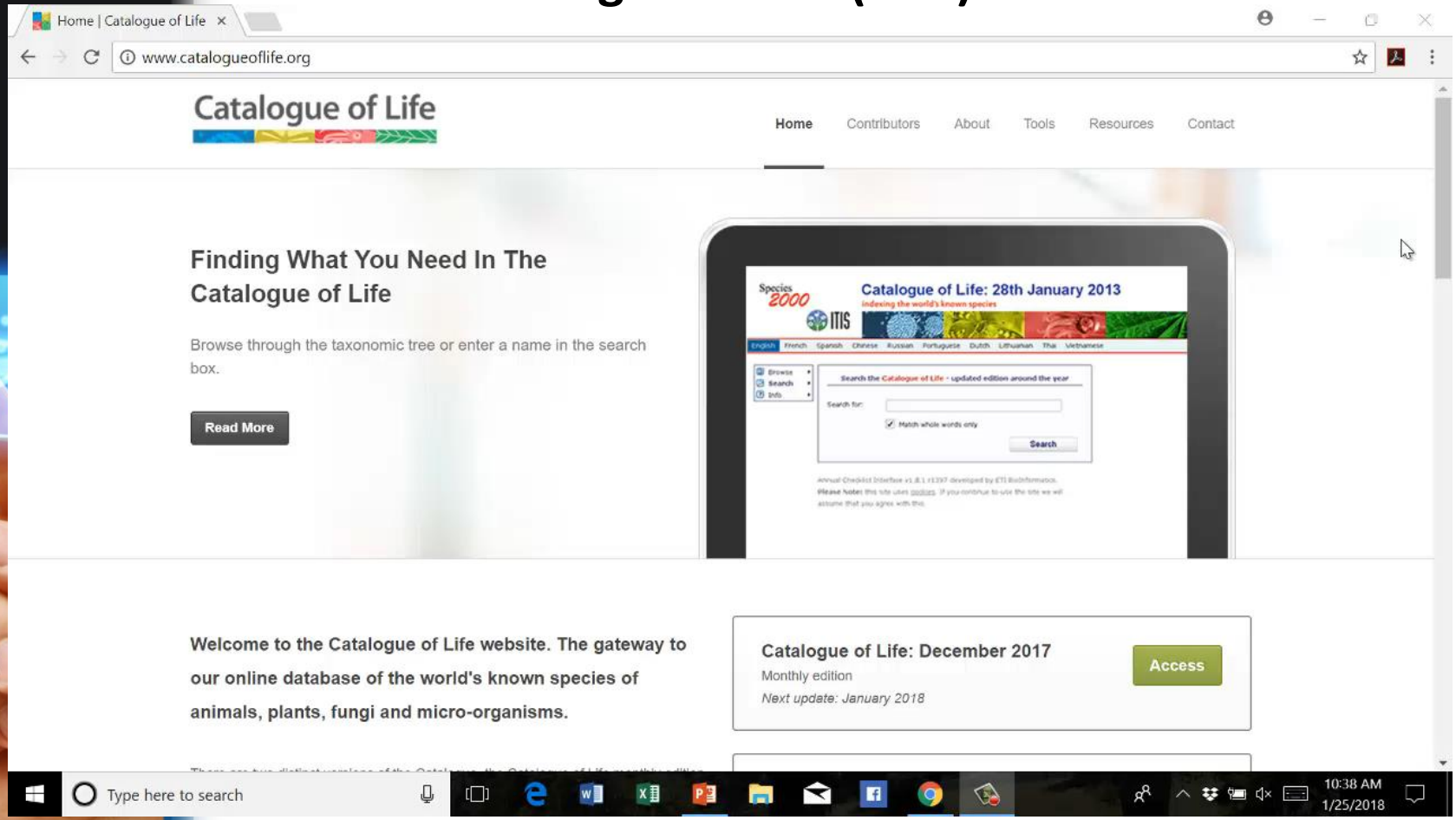
Decision Support System Policy Development

Challenges in Establishing the ASEAN CHM?

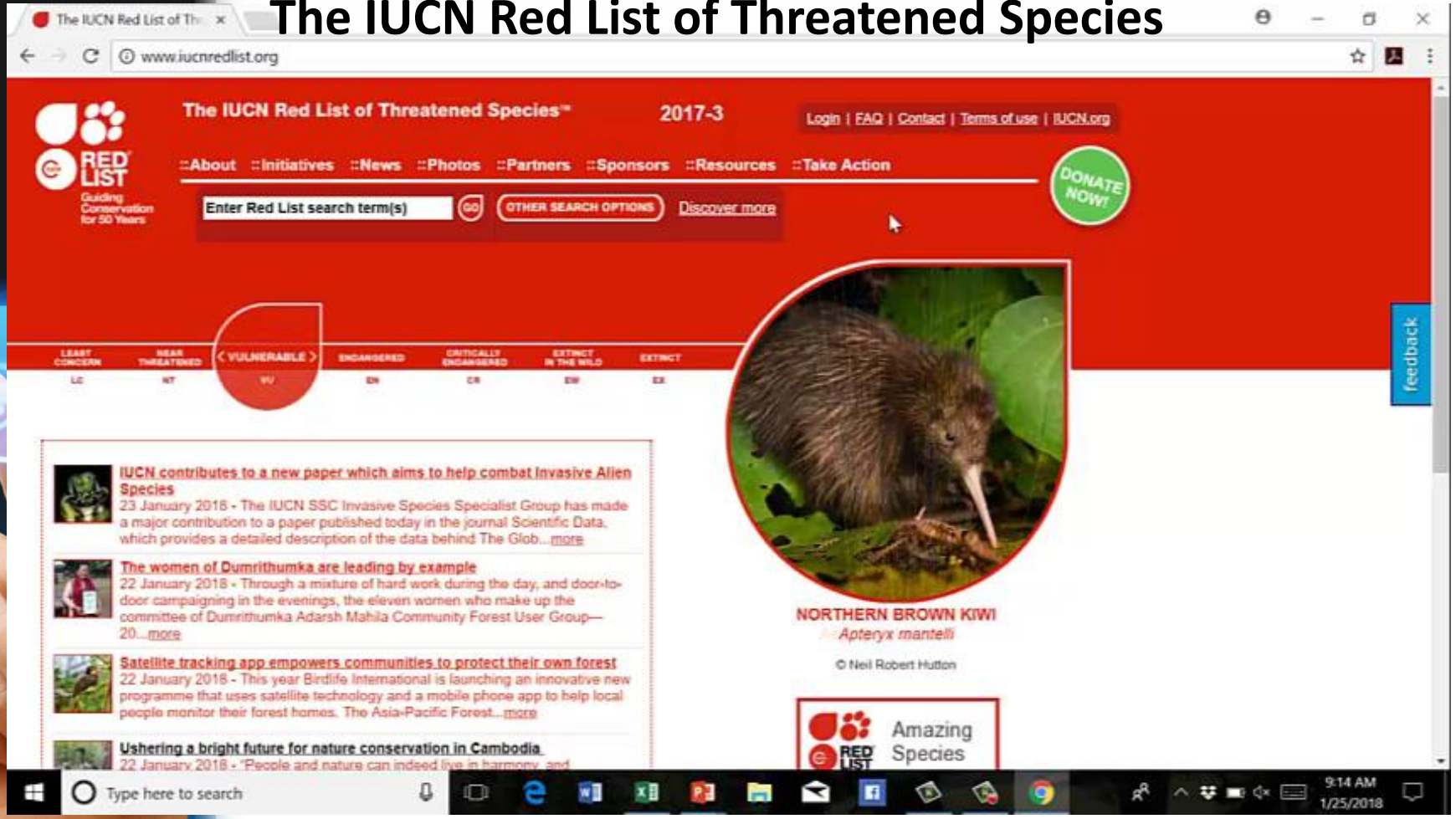
- Slow uptake of a culture of information sharing in the region
- Changing CHM focal points
- Low priority of CHM-related activities
  - Human resources
  - Funding, Equipment
  - Regular allocation
- Gaps in
  - Interoperability
  - Discoverability
  - Updating
  - Deliberate connection to NRs

Populating the ASEAN CHM from Online Species Data of Global Data Holders

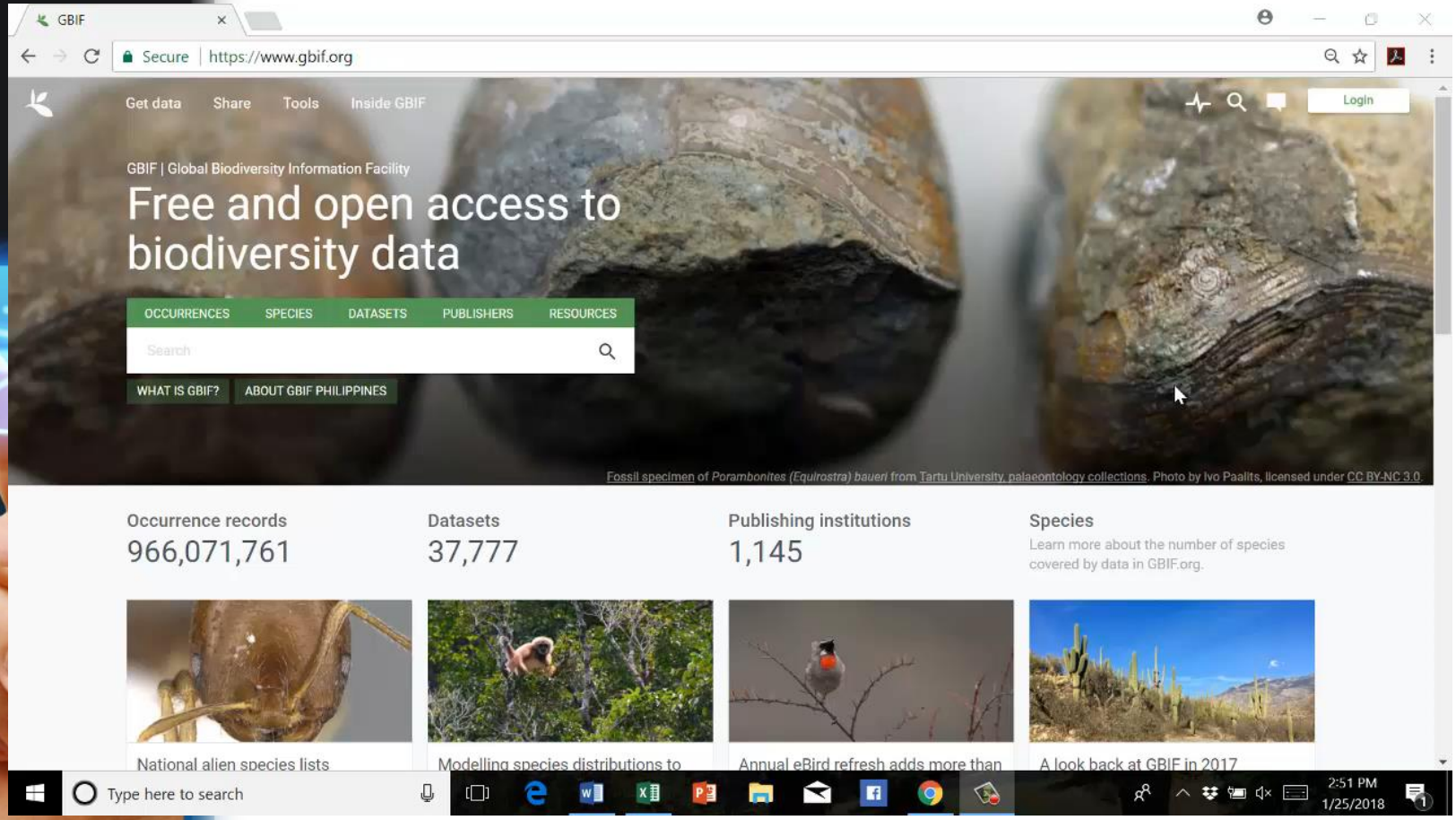
Catalogue of Life (COL)



The IUCN Red List of Threatened Species



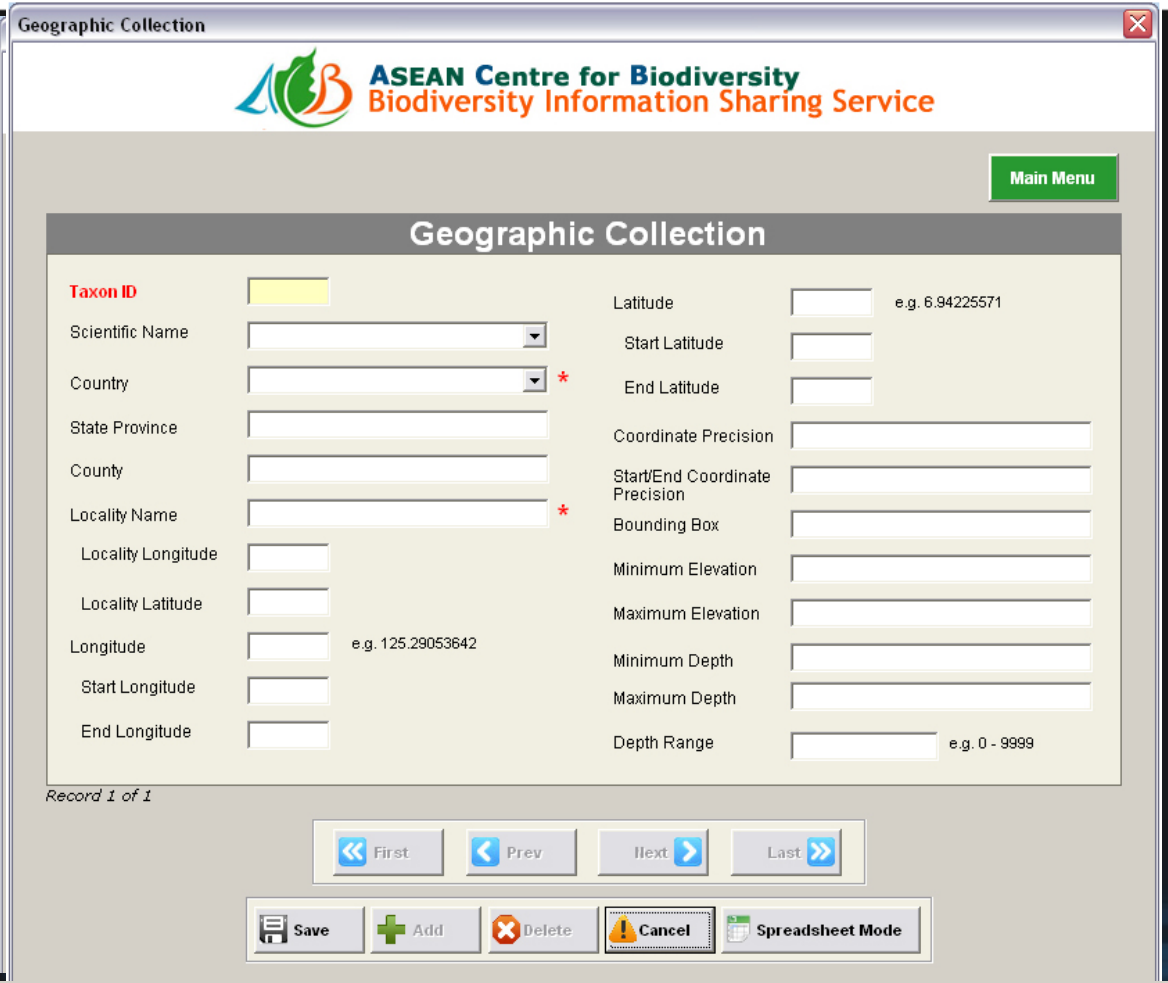
Global Biodiversity Information Facility (GBIF)

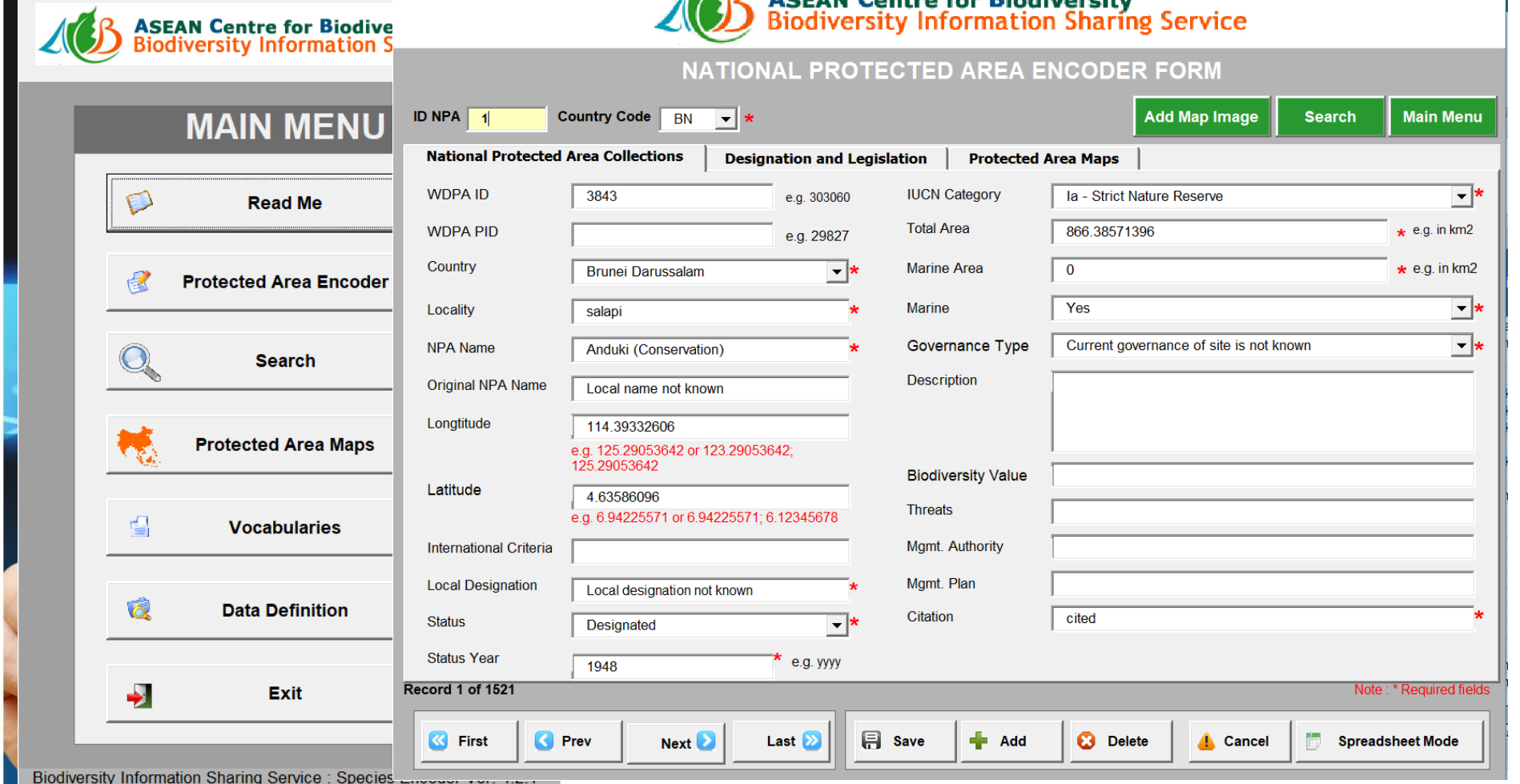


Other Online Biodiversity Data Resources

- Online Checklists
- CITES
- IUCN Redlist
- National Redlists
- Global Invasive Species Database
- FishBase
- GBIF
- Encyclopedia of Life (EOL)
- iNaturalist
- Species in Arkive
- Ocean Biogeographic Information System (OBIS)

Off-line Species and Protected Areas encoders




ASEAN Centre for Biodiversity
Biodiversity Information Sharing Service
NATIONAL PROTECTED AREA ENCODER FORM
MAIN MENU
Read Me
Protected Area Encoder
Search
Protected Area Maps
Vocabularies
Data Definition
Exit
ID NPA 1
Country Code BN
Add Map Image
Search
Main Menu
National Protected Area Collections
Designation and Legislation
Protected Area Maps
WDPA ID 3843 e.g. 303060
WDPA PID e.g. 29827
Country Brunei Darussalam
Locality salapi
NPA Name Anduki (Conservation)
Original NPA Name Local name not known
Longtitude 114.39332606
e.g. 125.29053642 or 123.29053642; 125.29053642
Latitude 4.63586096
e.g. 6.94225571 or 6.94225571; 6.12345678
International Criteria
Local Designation Local designation not known
Status Designated
Status Year 1948 e.g. yyyy
IUCN Category Ia - Strict Nature Reserve
Total Area 866.38571396 e.g. in km2
Marine Area 0 e.g. in km2
Marine Yes
Governance Type Current governance of site is not known
Description
Biodiversity Value
Threats
Mgmt. Authority
Mgmt. Plan
Citation cited
Record 1 of 1521
Note : * Required fields
First
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Next
Last
Save
Add
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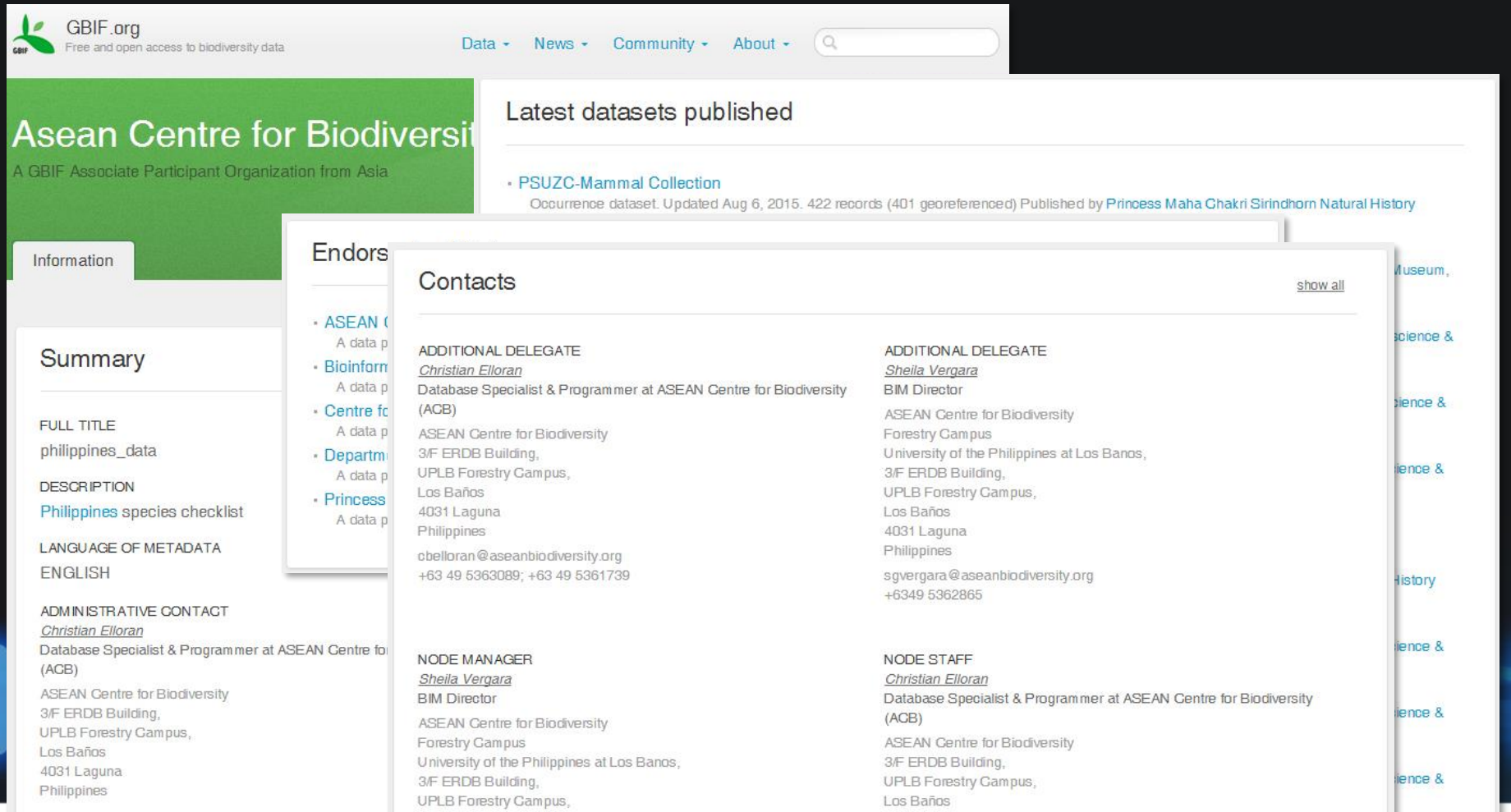
Spreadsheet Mode
Biodiversity Information Sharing Service : Species

GBIF Integrated Publishing Toolkit (IPT Version 2.2.1-r5193)



GBIF.org
Free and open access to biodiversity data

Data News Community About

Asean Centre for Biodiversit
A GBIF Associate Participant Organization from Asia

Information

Latest datasets published

- PSUZC-Mammal Collection
  Occurrence dataset. Updated Aug 6, 2015. 422 records (401 georeferenced) Published by Princess Maha Chakri Sirindhorn Natural History

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- Princess
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Summary

FULL TITLE
philippines_data

DESCRIPTION
Philippines species checklist

LANGUAGE OF METADATA
ENGLISH

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Knowledge Products & Tools

Focus of ACB's KM

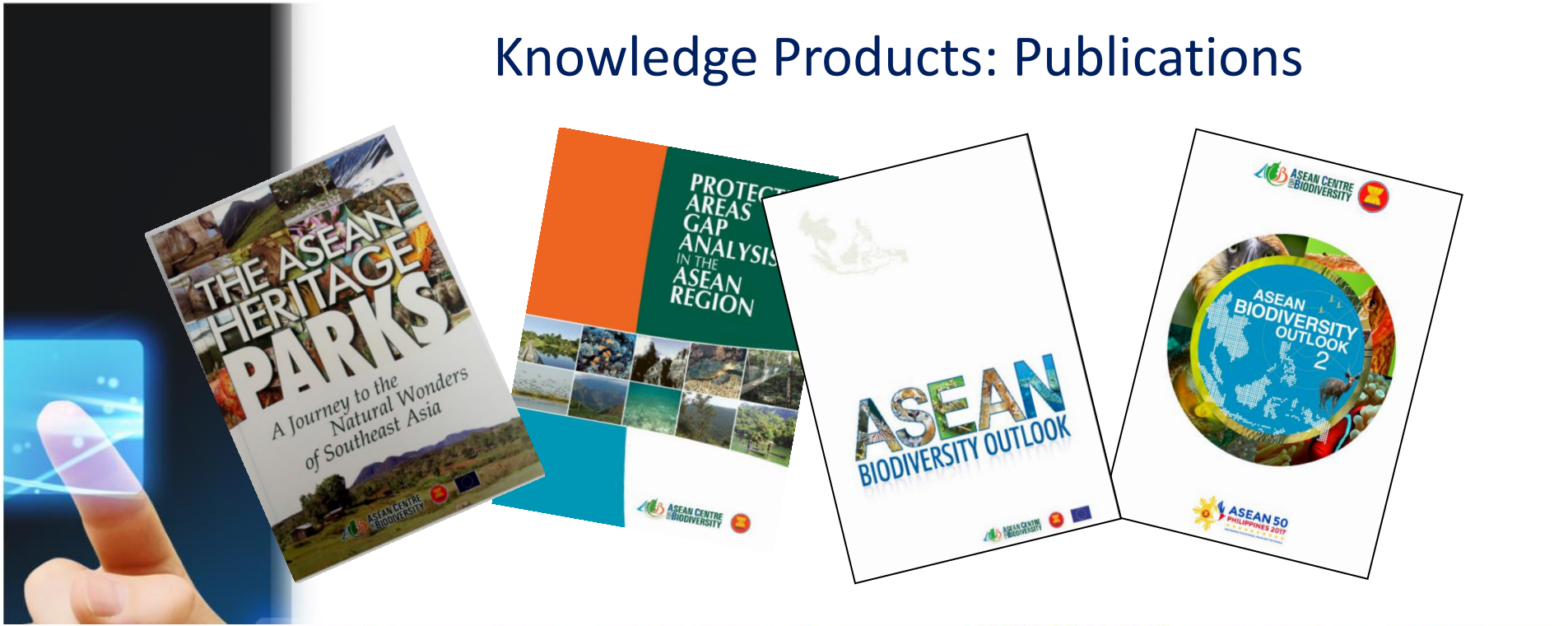
- **Acquiring** relevant knowledge relating to biodiversity
- **Creative use** of this knowledge
- Creating new knowledge from existing resources
- **Sharing** of knowledge resources
- Service the needs of AMS, partners and other ASEAN stakeholders

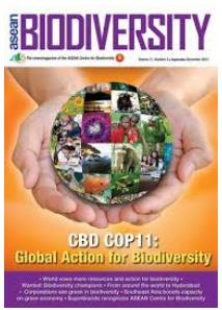
ACB KM products aim to:

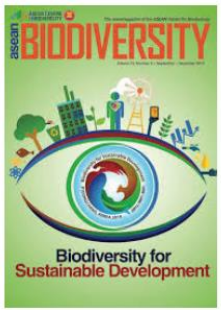
- Create awareness and better understanding on cross-cutting biodiversity concerns among target audiences in the ASEAN region.

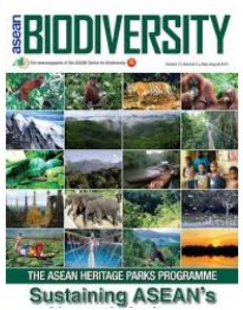
- **Target audiences**:
  - ASEAN Member States
  - Academic/Research Institutions & Museums/ Scientific Institutions
  - Partners and Donors
  - Private/Business Sector
  - Media

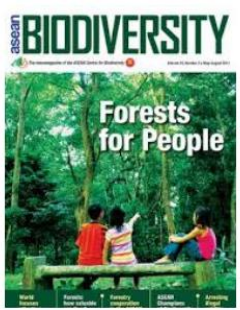
Knowledge Products: Publications

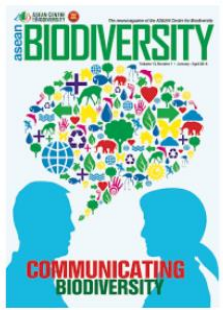


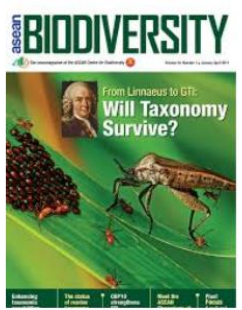


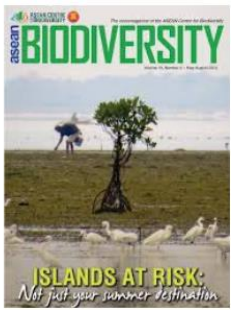




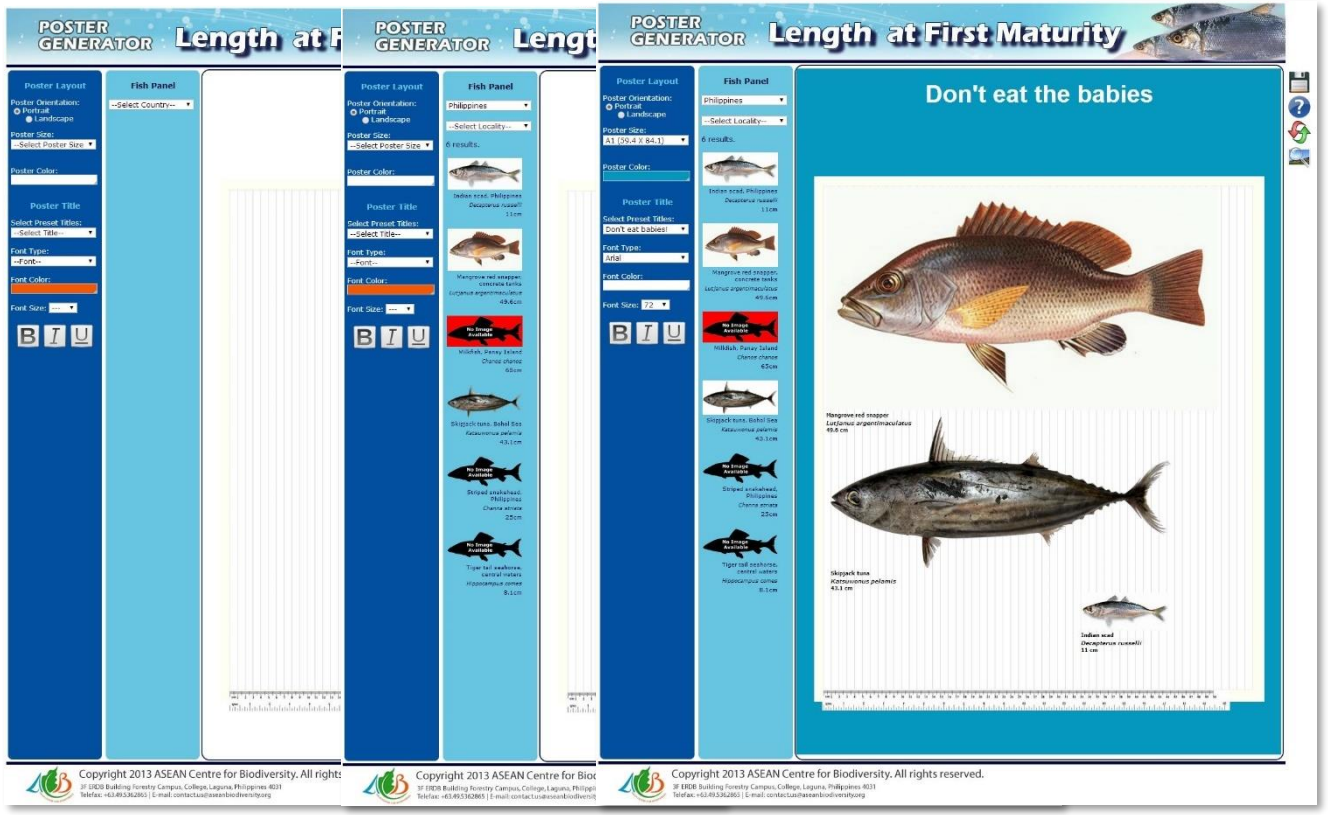






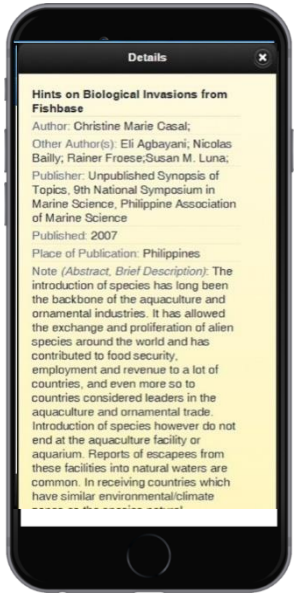


Right – sizing harvests using LFM data



Mobile apps

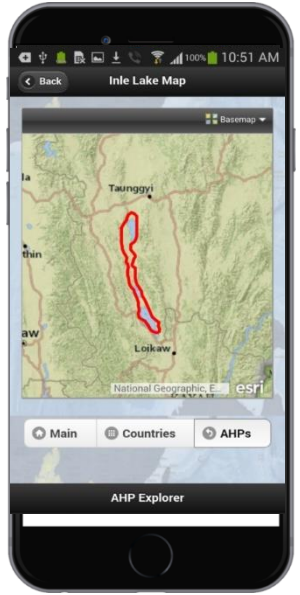
E-Library



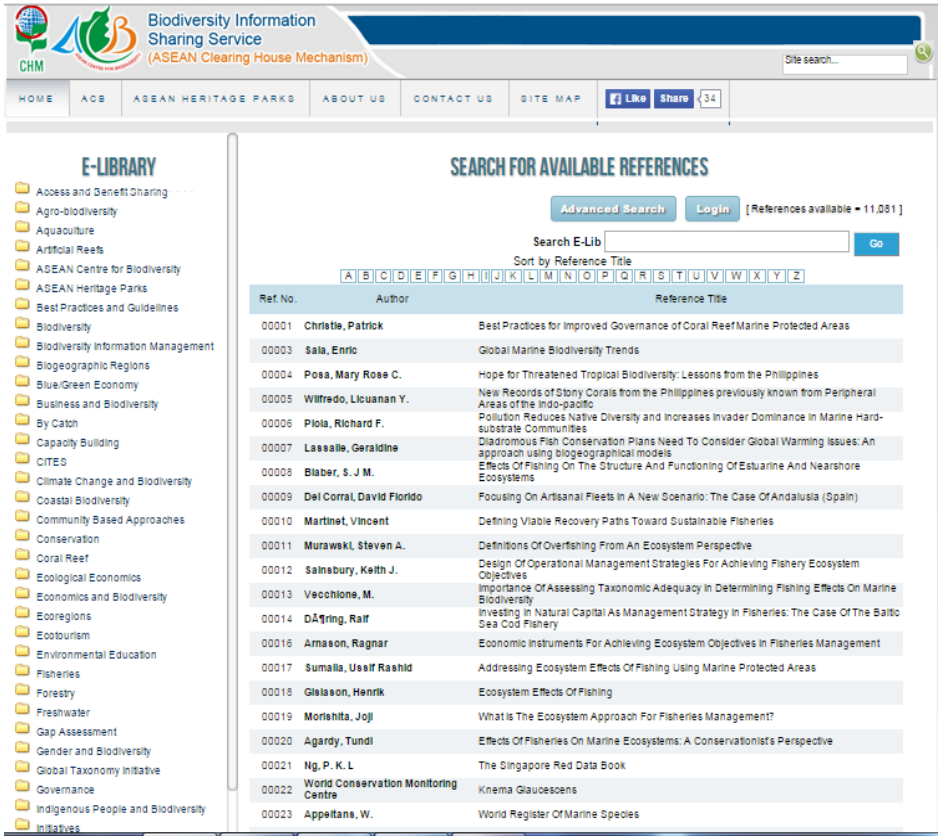
The E-Library holds copies of more than 11,000 references (journals, researches and articles) in various conservation and biodiversity related topics

The AHP App is a pocket reference version of the AHP book that ACB has published. It displays live and interactive maps of the ASEAN Heritage Parks.

ASEAN Heritage Parks



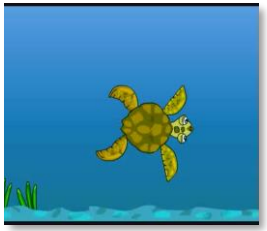
E- library



Contains over 11,000 biodiversity related references and journals

Videos

Coastal and Marine

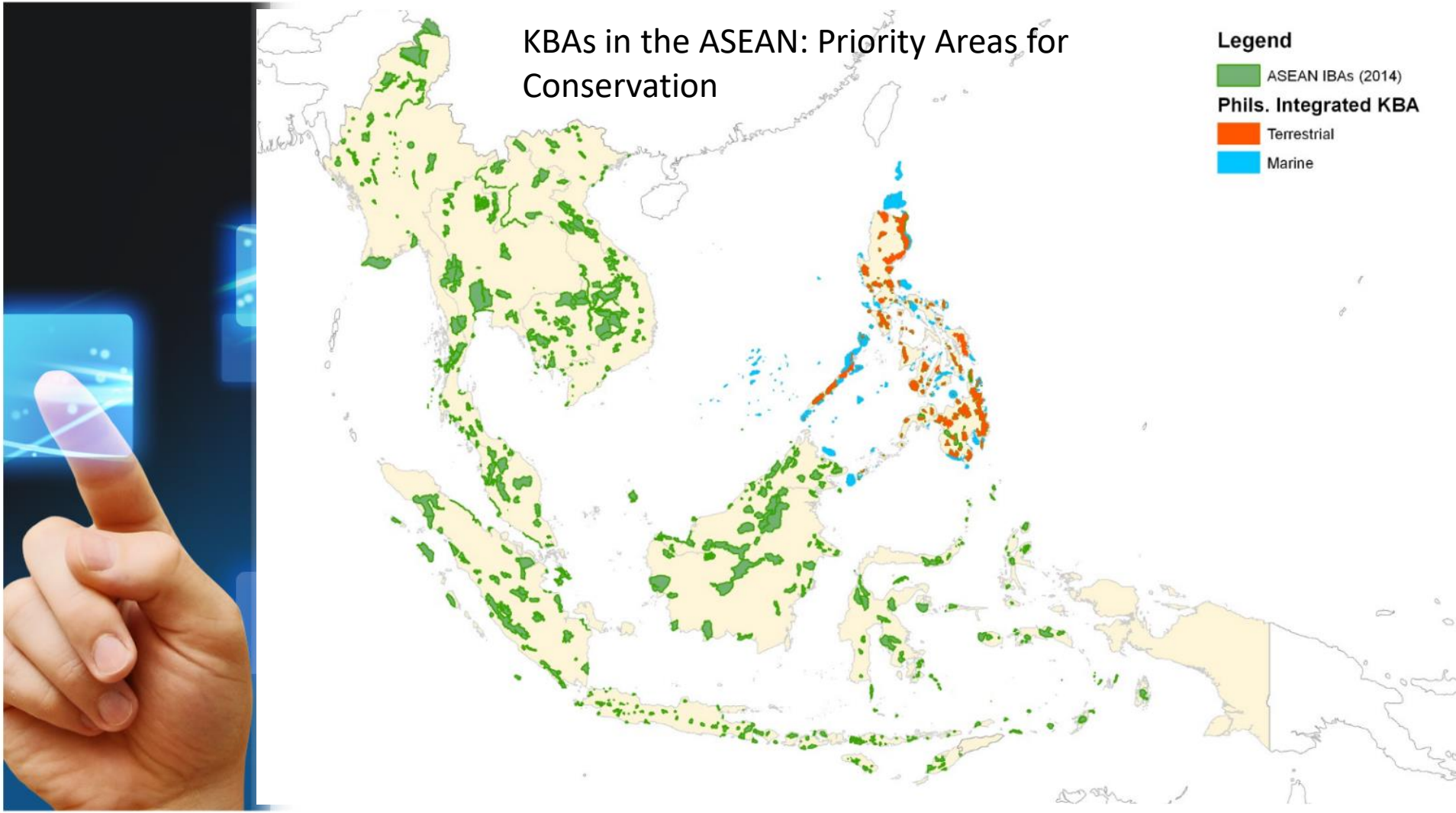


Endangered Species

ASEAN CHM

Invasive Alien Species

How the ASEAN is faring

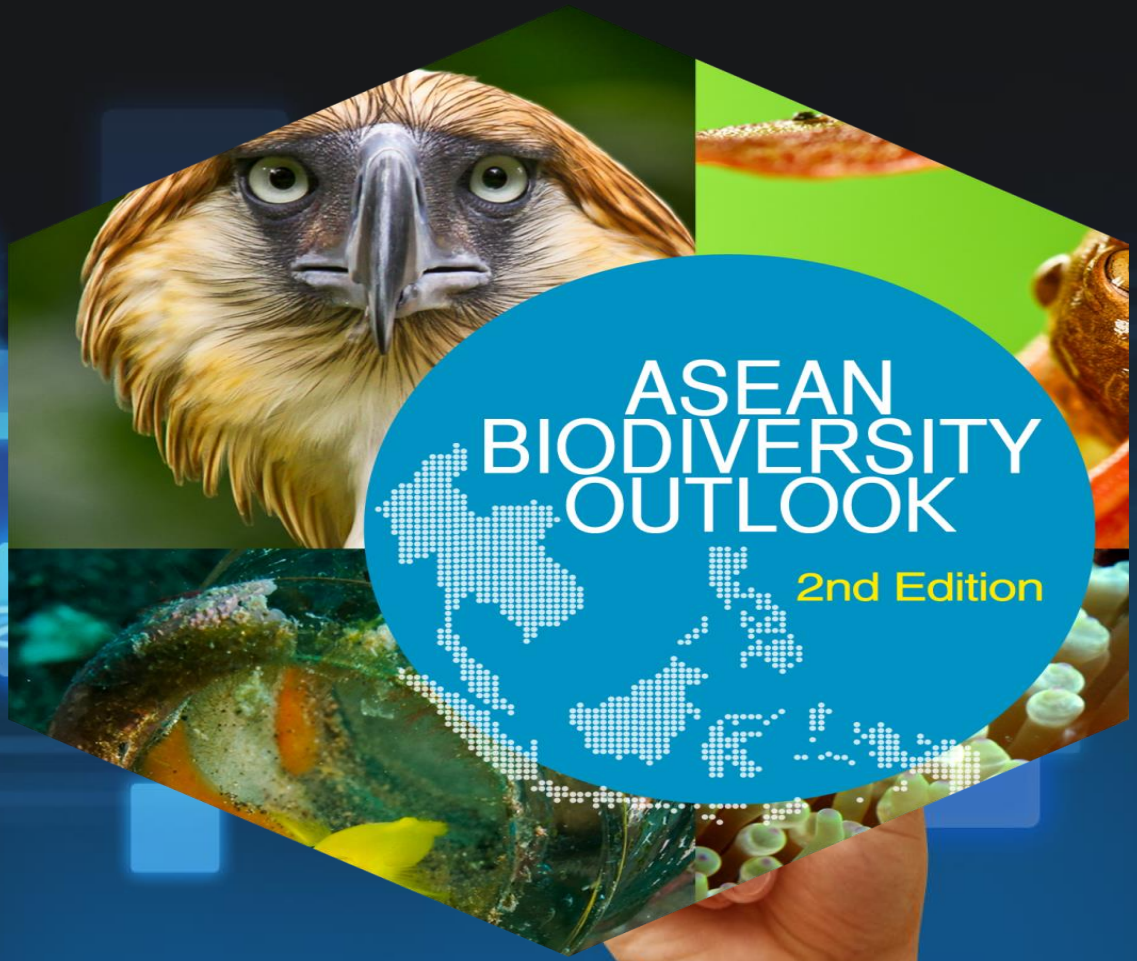

KBAs in the ASEAN: Priority Areas for Conservation
Legend
ASEAN IBAs (2014)
Phils. Integrated KBA
Terrestrial
Marine

Pipeline publications of threatened species

- Plants
- Molluscs
- Coelenterates
- Crustaceans

Other Services

- Policies
- Friends of Biodiversity
- Lessons Learned
- KBA Maps per country
- Aichi Targets Explorer



ASEAN CENTRE FOR BIODIVERSITY

The ABO 2 is the flagship publication of the ASEAN Centre for Biodiversity (ACB).

It showcases progress and lessons learned on biodiversity conservation in the ASEAN region for the period 2010-2015

Referred from 5th National Reports and other relevant information derived from CHMs

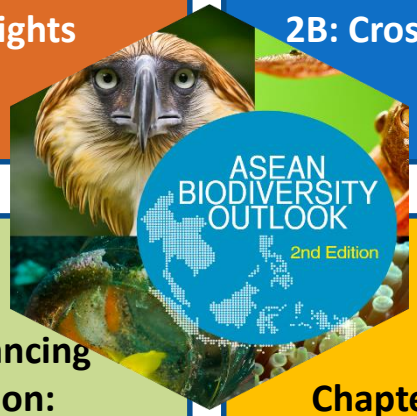
The pressure-response-way forward framework was used to develop the ABO 2.

The ABO 2 was reviewed by

- the AWGNCB,
- ACB Governing Board,
- members of the Scientific Advisory Committee,
- AMS selected experts and
- the ABO 2 peer review group

Chapter 1. Progress in ASEAN's Efforts Towards Achieving the Aichi Targets: 5 NRs , Aichi Targets Taffic Lights

Chapter 2. ASEAN Biodiversity in a Changing Environment
2A:State of Ecosystems
2B: Crosscutting concerns



Chapter 3. Enhancing Implementation: ASEAN's Priority Actions to Achieve the Aichi Targets

Chapter 4. The ASEAN Biodiversity Outlook: 2020 and Beyond

- Infographics of 5th National Reports highlight the key achievements of AMS in efforts to achieve the Aichi Biodiversity Targets
- Summary of how AMS have mainstreamed biodiversity through communication, policy, sectoral development and master plans, national greening, conservation and rehabilitation programs, among others
- Aichi Targets Traffic Lights: Progress of the implementation of the Strategic Plan for Biodiversity 2011 – 2020 in the ASEAN Region
- Overcoming challenges to achieving the Aichi Biodiversity Targets

Source: Brunei Darussalam Fifth National Report to the CBD

Progress in ASEAN's Efforts

Source: Indonesia Fifth National Report to the CBD

Lao PD

Environmental awareness has been promoted through outreach activities, media training and environmental journalism, development of an environmental curriculum, and capacity building for government staff.

Biodiversity values have been integrated into policies on urban and land use planning, disaster and climate change, compensation and resettlement, natural resources and environmental management, human resources, and tourism. Biodiversity values have also been integrated in the revised National Strategy on Environmental and Climate Change Education and Awareness 2016–2030; Decree on Strategic Environment Assessment (SEA); environmental compliance certificates; National Master Land Use Plan; and criteria for sustainable cities.

Legislation and agreements on environmental and forest conservation and timber harvesting are being revised. Initiatives are in place to promote the conservation and sustainable use of biodiversity. Payment for Ecosystem Services, Village Forest Management Agreements; support livelihood and community development; engage local people in biodiversity monitoring; and advance efforts in Reducing Emissions from Deforestation and Forest Degradation.

Organic farmers' markets ha
Lao Certification Body and p
certification have been estab
Steering Committee for fores
been implemented. There ha
in mining legislation and licen
villager generated quotas for
products (NTFPs) extraction; a
aquifer recharge.

Village forest management and community forest programs are being implemented and promoted. There is ongoing re-delineation of forest areas. An improved Participatory Forest and Land Use Planning, Allocation and Planning Process is being implemented to stabilize upland and use, prevent habitat loss, and rejuvenate lost habitat. The Forest Law Enforcement Governance and Trade process has been established and Provincial Law Enforcement Action Plan has been officially endorsed. 15 of 24 national protected areas now have management plans and two Ramsar sites have been established.

The Aquatic Resources Law has been developed. Programs continue to improve fishery management practices, prevent fishery declines, and support breeding and distribution of indigenous fish species. Fish conservation zones and regulations and appropriate aquaculture systems have been established and improved.

Control measures have been developed for invasive plant and animal species. Improved regulations protect crops and livestock in priority areas. The Biotechnology Safety Law has created opportunities to train government staff, while addressing Biosafety issues.

Integrated Water Management Plans have been developed for 10 priority river basins. The revised Water Law provides guidelines for preventing negative socio-economic and environmental impacts. Research priorities for water bodies, watersheds, and aquifer recharge areas have been identified and a centralized pollution database covering solid waste, hazardous material, soil pollution, air and noise emissions, and wastewater has been made for six targeted cities. Research projects that focus on risks and impacts of pesticide use in agriculture in northern Lao PDR are being developed.

Improved forest management plans, community-based patrolling, agreements on co-management of protected areas, and management effective assessments have been implemented. Law enforcement, zoning, and SMART system training have been conducted. There are increasing efforts in capacity building and education of protected area staff. State forest lands are being re-delineated to improve management and representativeness of ecosystems.

The Biotechnology Safety Law has been approved and the National Policy on Rice Production for Food Security has been drafted. Research has been conducted on relevant taxa including wild mushrooms, medicinal plants and orchids, indigenous rice varieties, and fungi diversity. The Biotechnology and Ecology Institute has been established. Demonstration gardens and ethno-botanical plots serve as repositories for *ex situ* conservation. Various activities promote agrobiodiversity.

Herbicide awareness and management programs, establishment of fish conservation zones, and incentives to link local livelihoods with ecosystem health have been implemented. The Forest and Land Use Planning, Allocation and Management (FALUPAM) program was established for sustainable ecosystem management.

A range of awareness, information sharing, and capacity building activities have been undertaken to promote the Nagoya Protocol and the National Access and Benefit Sharing Framework.

The Carbon Fund Emission Reduction Programme was established to restore forest lands.

The National Biodiversity Strategy and Action Plan (NBSAP) 2016–2025 is being finalized. Technical groups monitor NBSAP activities, and a National Steering Group for the Convention on Biological Diversity has been created. A Sub-Sector Working Group on Agrobiodiversity has been established.

The forest and land use planning process incorporates traditional knowledge and management of upland landscapes reflect customary use of natural resources. Village and District Conservation Areas have been established for non-timber forest products while other projects have been developed based on the local management of agro-biodiversity resources. Hin Nam No National Protected Area incorporates traditional knowledge in decision-making processes. The PA has been divided into management blocks based on customary rights from 18 guardian villages, and villagers have management responsibilities, and access and use rights.

Source: Lao PDR Fifth N

Progress in ASEAN's Efforts towards achieving the Aichi Bi

Malaysia

Awareness and education are integrated in the implementation of multilateral environmental agreements.

The National Green Technology Policy was developed to accelerate an economy that promotes sustainable development.

The Sustainable Consumption and Policy (SCP) Support Malaysia Project 2012–2016 aims to provide inputs to the Malaysia Plan 2016–2020 and the SCP Blueprint.

The Central Forest Spine Master Plan ensures maintenance of ecosystem services. More areas continue to be set aside for conservation.

The Heart of Borneo Initiative and National Strategies and Action Plans on Agricultural Biodiversity

Conservation and Sustainable Utilization 2012 are among the strategies developed for the sustainable management of agriculture, aquaculture, and forestry areas.

The Environmental Quality Act 1974 regulates soil and water pollution and other prohibitions.

The National Action Plan on the Prevention, Eradication, and Containment of Invasive Alien Species is the key framework for addressing IAS issues.

The National Plan of Action for the Coral Triangle Initiative and other plans maintain the integrity of marine ecosystems.

Malaysia works with the International Maritime Organization and other countries on the designation of Particularly Sensitive Sea Areas, which require special protection because of recognized ecological, socioeconomic, or scientific attributes and vulnerability to damage by international shipping activities.

Accession to the International Treaty on Plant Genetic Resources for Food and Agriculture helps ensure the protection of local plant varieties.

Master plans for the protection of various sites in the country contribute to restoration and protection of important ecosystems and services.

The National Policy on Biological Diversity 2015–2025 provides policy directions for biodiversity conservation.

The Malaysia Clearing-House Mechanism has an interactive and interoperable species database and is frequently updated.

Malaysia is a member of the Biodiversity Finance Initiative and has allocated funds for various biodiversity conservation projects.

Source: Malaysia Fifth National Report to the CBD

12 ASEAN Biodiversity Outlook 2

Myanmar

Awareness and education campaigns on biodiversity conservation, protected areas, solid waste management, food security, biosafety, and other issues are being implemented and promoted.

Participatory approaches for community-based resource management and Environment Impact Assessments are implemented to strengthen understanding of biodiversity values.

Organic farming, ecotourism, and other livelihood options provide incentives to biodiversity conservation.

Various laws and programs monitor timber, forest, fishery, and agriculture management to ensure sustainability.

The government aims to adopt an integrated land use plan, establish a Land Use Commission, conduct environmental impact assessments, and rehabilitate mining and degraded forest areas to prevent further habitat loss.

Government aims to reduce environmental damage to coastal areas and ban destructive fishing practices.

Implementation and monitoring of management plans, stronger law enforcement, improved buffer zone management, bans on illegal and unsustainable harvesting practices, biodiversity surveys and research aim to improve sustainable management of agriculture, aquaculture, and forestry resources.

Pollution will be addressed through environmental impact assessments; efficient sewage and wastewater treatment systems; monitoring of air, water, and soil quality; capacity building among relevant personnel; education and awareness campaigns on pollution issues; and collaboration with international organizations on the development of clean technologies.

Myanmar aims to collaborate with other countries to monitor impacts and management of invasive alien species.

Measures to protect coral reefs include a ban on destructive fishing practices; regular patrols and effective law enforcement; community-based fisheries management; establishment of coastal and marine research centers; and promotion of sustainable fisheries management.

Biodiversity surveys, studies of priority species, and support of local communities will increase protection of critical and vulnerable ecosystems.

Survival of vulnerable species requires surveys of biodiversity status and studies of priority species; effective law enforcement; increased *ex situ* programs; effective implementation and monitoring of biodiversity plans; and collaboration with multiple stakeholders.

Stronger *ex situ* programs; extension services on sustainable food production; promotion and certification of organic farming; capacity building; development of gene banks and greater conservation will aid the conservation of the genetic diversity of crops and livestock.

Multi-stakeholder support; benefit-sharing mechanisms; buffer zone management; ecotourism; and livelihood options will benefit local communities and enhance environmental protection.

Sustainable forest management; rehabilitation and protection of critical watersheds; land use planning; sustainable agriculture; and reclamation of mining areas will help increase carbon storage and strengthen ecosystem resilience.

The National Biodiversity Strategy and Action Plan is being implemented with the participation of multiple stakeholders.

Local and indigenous communities will benefit from participation in buffer zone management in protected areas; benefit sharing programs; and legislative support.

Myanmar is monitoring the progress of the implementation of the country's Clearing-House Mechanism.

The International Union for Conservation of Nature is assisting the updating of the National Biodiversity Strategy and Action Plan with provisions on sustainable financing.

Source: Myanmar Fifth National Report to the CBD

Progress in ASEAN's Efforts towards achieving the Aichi Biodiversity Targets 13

Philippine

Special attention has been paid to balancing con and the economic needs of local communities. Assessments of biodiversity-friendly livelihoods were conducted under the Partnerships for Biod Project. The United Nations Development Progr Global Environment Facility, Foundation for the Environment, Philippine Tropical Forest Conserv Foundation and other partners provide support sustainable livelihood initiatives.

68 Protected Area Community-based Management Agreements occupying a total area of 391.38 sq km has benefited 5,457 households and 15,568 individuals in 21 protected areas.

Majority of these households engage in agricultural activities.

Pollution a impacts on various ecosystems addressed various environme programs.

Legislation has been implemented to protect islands and island passages that are considered vulnerable and critical outposts for biodiversity including Mindoro, Palawan, Verde Island Passage Marine Corridor, and Sulu Sulawesi Marine Ecoregion. Under Executive Order 79 (2012), island ecosystems are among the "No-Go-Zones," which are considered closed to mineral contracts, concessions and agreements.

202 areas spanning 25,673.18 sq km are under the National Integrated Protected Areas System (NIPAS), which is comple Indigenous Community C Areas. Measures are being u to address a 2013 ma effectiveness assessment st ranking of 2

Various programs focus on ensuring the protection, conservation and sustainable use of watersheds, including the Department of Environment and Natural Resources-River Basin Control Office-led preparation of river basin master plans of 18 major river basins. The National Convergence Initiative of various government departments aims to improve, conserve, protect and rehabilitate natural resources and targets 100 watersheds, many of which are outside priority river basins.

The National Clima Action Plan seeks to the adaptive capac communities and t resilience of natura ecosystems to clim with initiatives beir implemented in co with the Global Gre Growth Institute, U Asian Development

The Indigenous People's Rights Act of 1997 (IPs the rights to cultural identity; full overe and protection of their cultural and intelle rights; and restitution of any cultural, intell religious, and spiritual property that have t taken without consent (Sec. 32). Free Prio Informed Consent is required for activities may affect spiritual and religious traditions customs, and ceremonies including the co research on Indigenous Knowledge System Practices.

Source: Philippines Fifth National Report to the CBD

In Singapore, many different organizations and nature interest groups have been conducting outreach activities targeted at the community. These include guided walks, seminars, workshops, exhibitions and competitions to engage the public and increase appreciation of biodiversity among Singaporeans. Some examples include:

- Community in Nature Initiative – a National Parks Board, Singapore (NParks) initiated movement to engage different groups in the community to conserve Singapore's biodiversity by bringing together all of NParks' nature-related events, activities, and programs under a single umbrella.
- Festival of Biodiversity – an annual signature community outreach event organized by the Biodiversity Roundtable (a group of stakeholders within the nature community, including NParks) for the conservation of Singapore's Natural Heritage.

The vision of mold the highest levels, enhance greenery Detailed land use p impact assessment recognized under t planning as having possible). The Sust national vision and and incorporates t environmental pro

One of Singapore's strategies in the Numerous measures have been taken t to increase habitat connectivity. So recent addition of two new Nature A Pulau Ubin/Beting Bronok) and the de Park announced in July 2014; measures the Eco-Link@BKE, Nature Ways, Roun and the Rail Corridor. Finally, refo habitat enhancement in parks such a Green, Sungei Pandan and Pu

Various species in place, such as clam restocking Sisters' Island M in 2014, which is as a protecte programs. Singa Urban Coastal N Partnerships in E of East Asia to en coastal environm

Under the Species Recovery programmatic thrust of NParks' Nature Conservation Master Plan, threatened species are identified and prioritised based on endemism, conservation status and habitat range. This will help to guide actions towards increasing populations of the species identified. Various species conservation and recovery programs are in place, such as the giant clam restocking program and the freshwater crab conservation working group, for the conservation of the critically endangered Singapore freshwater crab (*Johora singaporensis*). NParks also propagates rare native plants for reintroduction into their natural habitats.

Singapore has made great effo intact, and to restore co enhance ecosystem services. Vu the target are not reliant on broo Singapore. The initiatives that co 5 and 11 also contribute to t

Ongoing reforestati to improve their re also contributes to various tree plantin also contribute to t restoration efforts Green and also Sing Ways and Southwe Mion Tree Plantin greening urban infr rooftop gardens as increases the capac change mitigation.

Access and Benefit Sharing processes for non-commercial research is well established, and the policy for commercial research is currently being reviewed. Singapore is not yet a Party to the Nagoya Protocol, but national consultations are currently ongoing to consider if Singapore should accede to the Protocol.

Singapore's NBSAP currently undergo review and nation targets are being developed. In add Mandai Nature Conservation Mas Plan is intended to support the implementation o Singapore's NBSAP

Thailan

Biodiversity value assessment has been conducted through the Payment for Ecosystem Services project.

The Royal Forest Department established the Model Comm Award, which recognizes the l application of local wisdom o community forests. The Green recognizes outstanding enviro conservation projects.

With forest cover at 31.57% of the total land area in 2013, the Master Plan on National Forest Resources Protection aims to allocate 40% of the total land areas to forests by 2024.

Sustainable fisheries strategies include control measures for particular gear during the spawning season; prohibition on trawling within 3,000 meters seaward; preservation zones for aquatic animals; introduction of community-based coastal governance; Memorandum of Understanding with fish processors to prevent purchase of raw materials from fishing vessels during the breeding season; and increase in fishnet mesh sizes to 4 cm.

The national list of invasive alien species has been updated with measures for their control. Invasive alien species used for commercial purposes is a major concern.

Germplasm of plant resources, particularly of rare plants, are collected by the Plant Genetic Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn.

At least 20% of and coastal are been design protecte There are 22 national parks Rams

Efforts to maint include the colle germplasm of na certification of t native rice variet Agricultural Deve of the 11th Natio Social Developm 2016, which stre climate-resilient the Global Enviro Facility helped st biodiversity cons measures.

About 12 species of fauna in Thailand have become extinct and many more are on the brink of extinction. An ongoing campaign protects the rosewood, which is threatened due to its high market value. Other measures to protect species include collaborations with international organizations on wildlife trafficking; a Memorandum of Agreement with the Convention on Migratory Species to protect the dugong; protection of the Irrawaddy dolphin under the patronage of Queen Sirikit; and the "Return Wildlife to Heal the Forest" project, which raises 31 species of wild animals in breeding stations in 29 conserved forests.

Various strategies promote reforestation and forest rehabilitation such as the Master Plan on Water Resources Management 2013-2017 and ASEAN Forest Project and Mangrove Forest Strategic Plan 2014 – 2018. Other programs that promote climate resiliency are the Low Carbon Municipality, Green City and pollution - free and sustainable city projects.

Although Thailand has yet to ratify the Nagoya Protocol, mechanisms are being set for its implementation.

Upd plan Nati Stra Plan the Mas Inte Mar 201

The government recognizes traditional knowledge, innovation, and practices of local communities; has developed a database on traditional knowledge; and encourages community participation in natural resource management.

The Thailand Cl Mechanism is n http://chm-thai the NBSAP has on research and biodiversity.

Source: Thailand Fifth National Report to the CBD

Viet Nam

The government aims to strengthen inter-sectoral coordination between the environmental police, market management, customs, rangers, and fisheries authorities; community participation; and media particularly in wildlife law enforcement.

Legal documents, plans and policies and institutional structures will be reviewed to ensure the integration of biodiversity values.

Positive incentives for biodiversity conservation are being developed particularly to expand the protected area system.

There are ongoing awareness programs to prevent the use and consumption of wildlife products and eliminate wildlife trafficking in cooperation with organizations such as the ASEAN Wildlife Enforcement Network and Interpol.

Regulations to control commercial logging have been issued to reduce the loss of natural habitats.

There are increasing efforts to strengthen sustainable fisheries management to counter pressures to coastal and marine resources.

Sustainable economic development models are being developed to protect agriculture, aquaculture, and forestry areas.

Wastewater treatment systems and solid waste management programs are being monitored to reduce pollution from unsustainable agriculture, aquaculture, and other industrial practices.

The government aims to implement a program to prevent and control invasive alien species up to 2020.

Sustainable management measures have to be developed and implemented to address alarming declines in the health and coverage of coral reef, seagrass, and mangrove ecosystems.

The protected area system has to be reviewed to address gaps in coverage and effective management.

Urgent measures must be undertaken to protect species due to increased pressures from habitat loss and fragmentation, wildlife trafficking, pollution, poor law enforcement, and other threats.

If not addressed, over exploitation, natural disasters, outdated agricultural practices, population growth and urbanization, climate change, and other pressures will undermine the genetic diversity of crop varieties and livestock breeds.

Payment for Ecosystem Services; models for protected area management; access and benefit-sharing mechanisms; and other measures are being established to maintain ecosystem

Viet Nam recognizes its vulnerability to climate change and is stepping up programs to develop climate resilient communities.

Biodiversity strategies are being studied to address overlaps in responsibilities and regulations between key agencies and a fragmented approach to law enforcement.

Alternative livelihoods for indigenous communities are under study to reduce pressures on natural resources.

There is a need to have systematic surveys on biodiversity; develop a national biodiversity database; and create formal mechanisms for information sharing. The National Clearing-House Mechanism is not maintained. Viet Nam is currently working with the Japan International Cooperation Agency on establishing a database for selected protected areas.

The National Biodiversity Strategy and Action Plan will include a priority to increase state investments in baseline resources for conservation to include biodiversity inventories, monitoring systems to track biodiversity changes, database systems for information sharing and exchange, capacity building for technical staff, and other biodiversity conservation activities.

Source: Viet Nam Fifth National Report to the CBD

Aichi Targets Traffic Lights

Progress of the implementation of the Strategic Plan for Biodiversity 2011–2020 in the ASEAN region

Status of AMS Progress vis-à-vis the Aichi Targets

- 🟢 Most, if not all of the ASEAN Member States (AMS) have taken the necessary actions towards the achievement of this target, as part of national and local plans and programmes and have registered positive outcomes in the 5th National Reports (5NR) to the Convention on Biological Diversity (CBD).
- 🟡 At least half of AMS report that they have mobilized necessary actions towards the achievement of this target.
- 🔴 Less than half of the ASEAN Member States have mobilized initiatives leading towards the achievement of this Aichi Target and have not demonstrated related positive impacts.

The ASEAN Region supports globally significant terrestrial and marine biodiversity. It has the most diverse coral reefs in the world and is home to the megadiverse countries of Indonesia, Malaysia and the Philippines. The region also spans several unique bio-geographical units such as Indo-Burma, Malesia, Sundaland and Wallacea. As an intergovernmental regional organization, ACB facilitates cooperation and coordination among the 10 ASEAN Member States (Brunei Darussalam, Kingdom of Cambodia, Republic of Indonesia, Lao People's Democratic Republic, Government of Malaysia, The Republic of the Union of Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) and with relevant national governments, regional and international organizations on the conservation and sustainable use of biological diversity, and the fair and equitable sharing of benefits arising from the use of such biodiversity in the ASEAN region.

Acronym	
AMS	ASEAN Member States
ASEAN	Association of Southeast Asian Nations
CBD	Convention on Biological Diversity
CEPA	Communication, Education and Public Awareness
CHMs	Clearing House Mechanisms
ILCs	Indigenous and Local Communities
IUU	Illegal, Unreported and Unregulated
NISSAP	National Invasive Species Strategic Action Plan
PAs	Protected Areas

With information derived from key sources such as the Fifth National Reports, ASEAN State of the Environment Report, and publications from international and regional conservation organizations, ABO2 paints a regional picture on the progress of achieving the Aichi Targets in the ASEAN Region. The assessment of the implementation of each of the Aichi Targets is viewed through a regional looking glass while acknowledging the contributions of each of the AMS. These traffic lights endeavor to express a fair presentation of the state of the implementation of the Aichi Targets, demonstrate the links between targets, and suggest a means forward. They likewise present the challenges, which the region needs to overcome on the road to 2020.

A

1 🟡 Various types of campaigns promote awareness and understanding of biodiversity targeting the youth, government and non-government organizations and the private sector. Conflict of resource use and other threats reflect the lack of understanding of some sectors who remain uninformed and unconvinced. A regional CEPA strategy directed at a wider stakeholdership needs to be operationalized and champions for each of the Aichi targets need to be mobilized in each AMS.

2 🟡 Half of the AMS have now recognized biodiversity values in their national development plans and other AMS are in various stages of reviewing national frameworks, polices and international treaties to consider the necessary alignments. There is need to expedite this process as several other Aichi Targets depend on the integration of biodiversity into national and local development plans and strategies.

3 🟡 Incentives for biodiversity-friendly performance recognize exemplary environmental performance of private corporations, for dedication, innovation and commitment of park staff, for model communities, and outstanding projects. Incentives have been incorporated into policy and in the implementation of projects. There is need to consider a review of subsidies harmful to biodiversity and scale up the utility of incentives to pursue the attainment of other Aichi Targets and reforms in policy to favor biodiversity friendly technology in agriculture and accelerate the region's transformation towards the sustainable energy era.

4 🔴 Projects and policies are reducing impacts on forests, demonstrated through sustainable use strategies and certifications, investments in enforcement of policies, reducing pressures through the diversification of livelihoods and promoting the concepts and practice of shared environmental care. The increase in population of the region has driven the increase of areas allocated to food, timber and natural resource production - imposing corresponding increases in harmful inputs and misuse of technology, indicating that the ASEAN region is overexploiting its natural resources. It is imperative that policies are reformed to make sure that all technology in the region is sustainable in the near future.

AMS have embarked on various campaigns to raise awareness of biodiversity among all stakeholders including the youth, media, business, indigenous peoples and local communities, academic and scientific groups, non-government organizations, and policy makers to generate greater participation in conservation.

Half of AMS have mainstreamed biodiversity in development plans across sectors while others are reviewing policies and frameworks to integrate biodiversity in sustainable development. Incentive programmes and recognition awards are on the rise to enhance environmental performance in conservation and industry. In relation to sustainable consumption and production, plans are in place across the region. There is a need, however, to strengthen efforts given the rising demand for resources that have substantial impacts on biodiversity in the region.

B

5 🔴 In aggregate, ASEAN forests continue to fragment and deplete, despite positive net changes attributed to reforestation efforts of some AMS. Challenges and illegal activities remain unresolved. Floods have become a reminder that natural resource extraction has exceeded its capacity to avert disasters. Despite upscaled efforts, forest cover continue to decline at the regional level indicating that current actions are inadequate to respond at the scale at which pressures and illegal activities persist. Enforcement capacities have to be significantly improved, monitoring and reporting systems enhanced and implemented with a renewed commitment, and extra-regional threats addressed in sync with Aichi Biodiversity Target 1.

6 🔴 National policies on gear and seasonal catch controls, conservation partnerships, and integrated land and sea use plans have been mobilized but IUU fishing is still prevalent in the region. Aquaculture appears to pick up the slack in marine capture fisheries but with significant environmental tradeoffs. The development of an ASEAN-wide strategy on sustainable fishing practices may be a means to address this.

7 🟡 Forest encroachment, agricultural land conversion and heavy reliance on chemical production inputs threaten ecosystem services essential to the conduct of agriculture in the ASEAN region. Areas allocated to oil palm and rubber continue to increase and the proportion of agricultural land to total land area declines as the urban population of the region increases. There is a need to support and promote agro-ecological farming practices and pursue sustainable agricultural farm practices that employ farm certification schemes.

8 🟡 Despite legislation and actions being put in place, AMS report on the persistence of pollution. Biodiversity in inland aquatic, coastal and marine ecosystems at the receiving end are most at risk. A region-wide value change that promotes minimum waste, shared technologies from industry partners outside the region should be sustainable and wastes should not be exported to AMS for disposal.

9 🟡 AMS are aware of the existence of invasive alien species but there is a need to identify the pathways of their introduction, plans to prevent their establishment and agreed actions towards their planned eradication. NISSAPs are in place in Cambodia, Philippines and Indonesia; Malaysia has operationalized its National Action Plan for Prevention, Eradication, Containment and Control of IAS since 2008 and a strong legal regulation system on biological import and export is in place in Viet Nam.

10 🔴 AMS have reported modest improvements in the condition of coral reefs and gains in mangrove reforestation but in some areas declining coral reef cover and seagrass habitat health related to gaps in governance, land based sources of stress (sedimentation, unsustainable fishing practices, excess agricultural inputs), coral harvesting and exporting, and issues related to conflicts in coastal and marine area use (aquaculture, infrastructure) have been reported. Land-based sources of threats, destructive fishing practices and increasing coastal populations that drive the loss of coastal and marine biodiversity, have not abated.

Increasing demand for food, settlements, overexploitation and illegal activities facilitate habitat loss and degradation despite increasing reforestation efforts in the region. Increasing demand on all fronts—national, regional and international—on fishery resources has severely stressed sustainable use of marine resources.

AMS have mobilized more biodiversity-friendly agriculture, aquaculture, and forestry technologies and approaches, but natural areas continue to be threatened by urbanization and expansion of plantations dedicated to oil palm and rubber. Recognizing the dangers of invasive alien species, more AMS are establishing IAS strategies and ensuring control on imports and exports of species in collaboration with international organizations. AMS need to exert efforts to control pollution as well as conserve coral reefs and ecosystems that are vulnerable to a number of threats, which are exacerbated by impacts from climate change.

C

11 🟢 The AMS have collectively established protection for 14 percent of terrestrial and 2.3 percent of coastal and marine areas under AMS jurisdictions. There is need to exert more effort to align conservation action with the second part of Aichi Target 11, which is to "manage their PAs effectively and equitably through ecologically representative and well-connected systems of PAs and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes". There is also a need to expedite action to cover representative examples of the diversity of habitats in the ASEAN region and increase coverage for marine protected areas.

12 🔴 The ASEAN region bears the burden of heavy wildlife traffic. Despite the dismantling of some criminal organizations and the confiscation of tons of illegal cargo, trafficking remains rampant. A number of species have gone extinct. This threat is real and the relief of such pressures cannot and will not be abated if actions only come from within the region. The market demands for wildlife from other countries and regions of the world have to stop.

13 🔴 *In-situ* and *ex-situ* efforts are in place to conserve native and wild varieties of crops and livestock. Several gene banks have been established for important crops and livestock species. Out of 7.4 million accessions of plant genetic resources for food and agriculture maintained globally, eight percent are safely stored in gene banks in the ASEAN region. Moreover, evaluation and characterization of these accessions are also being done. There is a need to, establish an interoperable database platform ensure the safety of these genetic resources and regularly monitor storage facilities.

AMS have collectively established protection for 14 percent of terrestrial and 2.3 percent of coastal and marine areas.

As a region of great wealth in biodiversity, ASEAN suffers heavily from wildlife traffic; thus, leading to near extinction of many of the region's most iconic species. In terms of genetic biodiversity, in situ and ex situ efforts are in place to conserve indigenous crop varieties and livestock breeds. More has to be done, however, in the establishment of gene banks across the region.

D

14 🔴 Critical ecosystem services in the ASEAN region are taken for granted, undervalued and fail to reflect in market prices. The sustainable management of marine and coastal resources in ASEAN is necessary to support the livelihood of 600 million people who are dependent on this ecosystem. Actions towards achieving related Aichi Targets (4-15) should consider maintaining ecosystem services and restoration of ecosystems. AMS may learn from pro-active approaches such as the "Healthy Parks, Healthy People" (Parks Victoria - http://parkweb.vic.gov.au/) approach that underscore the links between a healthy environment to human health.

15 🟡 AMS have responded by developing climate-smart policies, strategic plans, and made commitments to reduce emissions, reduce vulnerability to climate change impacts, increase awareness, improve the capacity of agencies and increase resilience of ecosystems. There is a need to focus efforts in the restoration of ecosystems with greater CO_2 sequestration value, such as mangrove forests, to attain a better value for effort. AMS should expedite the transition towards sustainable energy through policies that remove incentives to use fossil fuels, enable the consideration of its externalities in the market system and favor a clean energy future for the ASEAN region.

16 🟡 Six AMS have ratified / acceded to the Nagoya Protocol on access and benefit sharing (ABS). Regional capacity building activities on the development of draft national ABS frameworks and enhancement of AMS' regulatory and institutional frameworks on ABS have been conducted. Regional cooperation on capacity building activities for AMS to develop and implement national measures on ABS will be sustained.

to pay greater attention to biodiversity as the provider of vital ecosystem services as these continue to be undervalued in the region

Food from marine and coastal resources and safe drinking water, which are vital to a growing ASEAN population, continue to be undermined by poor resource valuation, pollution, and poor management. AMS have been more responsive to climate change issues with the development of climate-smart policies, commitments to reduce emissions, and efforts to reduce vulnerability to climate change impacts. On the Nagoya Protocol on access and benefit sharing (ABS), two AMS have ratified and four have acceded. Moreover, regional capacity building measures on the development of national ABS frameworks and capacity enhancement on ABS related to regulatory and institutional frameworks have been conducted.

E

17 🟡 Nine out of ten AMS have developed and submitted their respective NBSAPs to the CBD. All of these nine submissions have undergone revisions and updating and two have submitted post-2010 versions that take the Strategic Plan for Biodiversity (2011-2020) into account. All AMS have submitted their Fifth National Reports to the CBD.

18 🟡 True endangerment of traditional knowledge and customary use may be felt in two AMS, based on the index of linguistic diversity. The change from the use of geographically restricted languages to more cosmopolitan forms threatens the existence of traditional knowledge associated with local languages. Efforts of ILCs in protecting biodiversity through "holy forests and watersheds" have been duly recognized.

19 🟡 Half of the AMS have taken initiatives to utilize their National CHMs as biodiversity information repositories and the rest are in various stages of organizing their CHMs towards full functionality. A regional CHM was developed to provide an interoperable framework and the means to share and analyze data at the regional level.

20 🟡 Recognition of the importance of biodiversity conservation has spurred financial allocations for various activities from local to the national level, although not always in an organized fashion nor streamlined with National Plans and Programmes and the Strategic Plan for Biodiversity.

Most AMS have prepared their National Biodiversity Strategies and Action Plans.

Two countries in the region have post-2010 versions and all have submitted their 5th National Reports to the CBD. While there is increasing recognition of the role of indigenous peoples across the region and their traditional knowledge in biodiversity conservation, there remain hindrances to their inclusive participation. Five AMS have taken initiatives to use their national Clearing-House Mechanisms (CHMs) as biodiversity information repositories while others are in varying stages of developing CHMs. ACB has developed a regional CHM to share and analyze data at the regional level. AMS have recognized the importance of sustainable financing and are taking measures to seek funding beyond national budget allocations.

ASEAN Centre for Biodiversity

Convention on Biological Diversity

2011-2020 United Nations Decade on Biodiversity

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Aichi Targets Traffic Lights:

Progress of the implementation of the Strategic Plan for Biodiversity 2011– 2020 in the ASEAN Region

Most, if not all of the ASEAN Member States (AMS) have taken the necessary actions towards the achievement of this target, as part of national and local plans and programmes and have registered positive outcomes in the 5th National Reports (5NR) to the Convention on Biological Diversity (CBD).

At least half of AMS report that they have mobilized necessary actions towards the achievement of this target.

Less than half of the ASEAN Member States have mobilized initiatives leading towards the achievement of this Aichi Target and have not demonstrated related positive impacts.

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Awareness of biodiversity values: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

ASEAN Member States are undertaking various types of campaigns to promote awareness and understanding of biodiversity, its values and the actions that people can take to conserve it. Several campaigns focus on the youth sector. Other target audiences identified in the AMS' 5NRs include the government, local governments, non-government organizations, and the private sector.

Poaching, pollution in various forms and sources, conflict of resource use e.g. mining and protected areas, and other threats to biodiversity in the region, continue to be reported and reflect the lack of understanding of some sectors that remain uninformed and unconvinced of the need for biodiversity conservation. AMS need to institutionalize their national CEPA strategies through multi-sectoral approaches that involve a wider stakeholdership, including countries and regions outside of the ASEAN region, that need to be made aware of the global implications of biodiversity loss in the ASEAN. Champions for each of the Aichi Biodiversity Targets need to be mobilized in each AMS.

Integration of biodiversity values: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Half of the AMS have now recognized biodiversity values in their national development plans. Other AMS are in various stages of reviewing national frameworks, polices, and international treaties to consider the necessary alignments. There is a need to expedite this process as several other Aichi Biodiversity Targets depend on the integration of biodiversity into national and local development plans and strategies.

Incentives: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives and safeguards for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Incentives for biodiversity-friendly performance are demonstrated in a variety of forms and for different stakeholder groups. These include recognition and awards for exemplary environmental performance of private corporations; dedication, innovation, and commitment of park staff; model communities; and outstanding projects. Some AMS have incorporated incentives into policy and in the implementation of projects. However, certain concessions and auxiliary rights afforded to some sectors of industry (industrial forests and mining) need to be re-examined. AMS should consider a review of subsidies harmful to biodiversity. It is important to note that there is a need to scale up the utility of incentives to pursue the attainment of other Aichi Biodiversity Targets, such as 4, 7 and 15, as these call for reforms in policy to favor biodiversity-friendly technology in agriculture and accelerate the region's transformation towards the

Sustainable production and consumption: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

AMS report that projects and policies are reducing impacts on forests, demonstrated through sustainable use strategies and certifications, investments in enforcement of policies against trafficking of threatened species, reducing pressures through the diversification of livelihoods, and promoting the concepts and practice of shared environmental care.

Steps taken towards sustainable production and consumption include the development of policies such as the Sustainable Consumption and Production Policy Support of Malaysia. Other AMS promote sustainability as a shared responsibility among government and business and monitor the harvest and use of forest, aquatic, and agricultural products.

On the other hand, the population of ASEAN has increased by 72 percent since 1980, and this has prompted the increase in areas allocated to food, timber, and natural resource production, as well as the acquisition of technologies to improve agricultural efficiency. Such demands impose corresponding increases in inputs such as pesticides and herbicides that impact adjacent habitats. The introduction of genetically modified varieties in the region has to be further evaluated against trends in fertilizer, herbicide, and pesticide inputs. It is imperative that policies are reformed to make sure that all technology in the region is sustainable in the near future. Business as usual will result in the failure of the region to achieve this Target.

Strategic Goal B: Reduce t

Habitat loss, fragmentation and degradation: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

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Sustainable exploitation of marine resources:

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Biodiversity-friendly agriculture, forestry and aquaculture:

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

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Pollution reduction:

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

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Control of invasive alien species

By 2020, By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

AMS are aware of the existence of IAS through information from academic institutions and readily available materials made accessible by: International Union for Conservation of Nature-Invasive Species Specialist Group (IUCN-ISSG), Centre for Agriculture and Biosciences International (CABI) (global resources), and the ASEAN Clearing-House Mechanism (regional resource). Knowing the existence of such threats partly addresses the requirements of Target 9. There is, however, a need to identify the pathways of their introduction, plans to prevent their establishment, and agreed actions towards their planned eradication. Cambodia, Philippines, and Indonesia have drafted their National Invasive Species Strategy and Action Plan (NISSAP). Malaysia has operationalized its National Action Plan for Prevention, Eradication, Containment and Control of IAS since 2008. Thailand has established a list of IAS and developed national IAS control measures. A strong legal regulation system on biological import and export is in place in Viet Nam.

Coral reefs and other vulnerable ecosystems:

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Target 10 is interpreted to cover coastal habitat building species including coral reefs, seagrass meadows, mangrove forests, and associated marine habitats. Annual economic benefits from these resources are estimated to exceed USD 2 billion per year. There is large-scale acknowledgement of the importance of these vulnerable ecosystems and efforts for their integrated and collaborative conservation are underway. Some AMS have reported modest improvements in the condition of coral reefs and gains in mangrove reforestation. Island ecosystems are now given special consideration through policy and acknowledged in the operationalization of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security, to which four AMS have signed on to. However, some AMS reported declining coral reef cover and seagrass habitat health related to gaps in governance, land based sources of stress (sedimentation, unsustainable fishing practices, excess agricultural inputs), coral harvesting and exporting, and issues related to conflicts in coastal and marine area use (aquaculture, infrastructure). The 5NRs indicate that land-based sources of threats, destructive fishing practices, and increasing coastal populations, that drive the loss of coastal and marine biodiversity, have not abated. To minimize these threats and complex factors, achieving Target 10 requires making coastal communities aware of the values of vulnerable ecosystems (Target 1). Recommendations to further decrease pressures on vulnerable ecosystems include integrating costs of maintaining coastal and marine ecosystems in resource management, establishing proper incentives and penalty systems, and reducing land-based sources of pollution and sedimentation.

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Protected areas:

By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

The AMS have collectively established protection for 13 percent of terrestrial and 2 percent of coastal and marine areas under AMS jurisdictions. Some AMS have exceeded the 2020 targets for percent coverage and several others have committed to conserve areas beyond the percentages suggested by Target 11. Within the context of the ASEAN Heritage Parks Programme, a number of AMS have taken steps to improve site management by updating and revising management plans to broaden the scope and integrate other important issues such as climate

Genetic diversity of socio-economically and culturally valuable species:

By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

In livestock, eight percent of endemic pig, chicken, and cattle are critically endangered, five percent have gone extinct. *In situ* and *ex situ* efforts are in place to conserve native and wild varieties of crops and livestock. Several gene banks have been established for important crops and livestock species. Out of 7.4 million accessions of plant genetic resources for food and agriculture maintained globally, eight percent are safely stored in gene banks in the ASEAN region. Moreover, evaluation and characterization of these accessions are also being done. There is a need to ensure the safety of these genetic resources and regularly monitor storage facilities. Furthermore, there is a need to establish an interoperable database platform that can access all the information and data available for both plant and animal genetic resources in ASEAN. Likewise, there is a need to document and disseminate best *in situ* practices of farmers in the region. To date, only one AMS has joined the FAO initiative on Globally Important Agricultural Heritage Sites (GIAHS). Nine potential GIAHS in four AMS have been identified. Seven AMS are Parties to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

Avoiding Extinctions:

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

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includes elimination of threats within national jurisdictions, among AMS, and other regions of the world. The approach needs to be augmented with active conservation action both *in situ* and *ex situ* and considered in the delivery of other Aichi Biodiversity Targets.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services

Ecosystem services:

By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Critical ecosystem services in the ASEAN region, such as access to and availability of fresh water, coastal and marine capacity to support livelihoods, and food for a growing population, are taken for granted, undervalued and fail to reflect in market prices. On water supply, the annual per capita water resources of 12,980 cubic meters in the region are close to double that of the world average. However, this resource is threatened by lack of access to safe drinking water, poor sanitation, chemical pollution, sea-level rise, and gaps in proper resource valuation in policy and practice. Some AMS have engaged in massive reforestation actions, region-wide campaigns, and management approaches deemed necessary to ensure a continuing supply in the

Access and Benefit Sharing:

By 2015, the Nagoya Protocol on ABS is in force and operational, consistent with national legislation.

Two AMS have ratified and four have acceded to the Nagoya Protocol on access and benefit-sharing (ABS). Regional capacity building activities on the development of draft national ABS frameworks and enhancement of AMS' regulatory and institutional frameworks on ABS have been conducted. Regional cooperation on capacity building activities for AMS to develop and implement national measures on ABS will be sustained.

Climate change and resilience:

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 percent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

developing climate-smart policies, strategic plans, and made commitments to reduce emissions, reduce vulnerability to climate change impacts, increase awareness, improve the capacity of agencies, and increase resilience of ecosystems.

Restoration efforts in the form of large scale reforestation are in the midst of implementation in at least three AMS. There is a need to focus efforts in the restoration of ecosystems with greater CO_2 sequestration value, such as mangrove forests, to attain a better value for effort. The need for energy in the region will continue indefinitely but dependence on fossil fuels and other non-sustainable sources of energy should no longer be considered. AMS should expedite the transition towards sustainable energy through policies that remove incentives to use fossil fuels, enable the consideration of its externalities in the market system, and favor a clean energy future for the ASEAN region.

Strategic G

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Biodiversity knowledge improvement and transfer:

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Half of the AMS have taken initiatives to utilize their National Clearing-House Mechanisms (CHMs) as biodiversity information repositories and the rest are in various stages of organizing their CHMs towards full functionality. The AMS collect biodiversity knowledge for a number of purposes and document these in variable formats. They are thus not available in interoperable forms that ease sharing and use for regional and global analyses. A regional CHM was developed to provide an interoperable framework and the means to share and analyze data at the regional level.

AMS should avail of regional partnerships that promote biodiversity information management, increase regional capacity, and optimize the use of national CHMs as knowledge platforms.

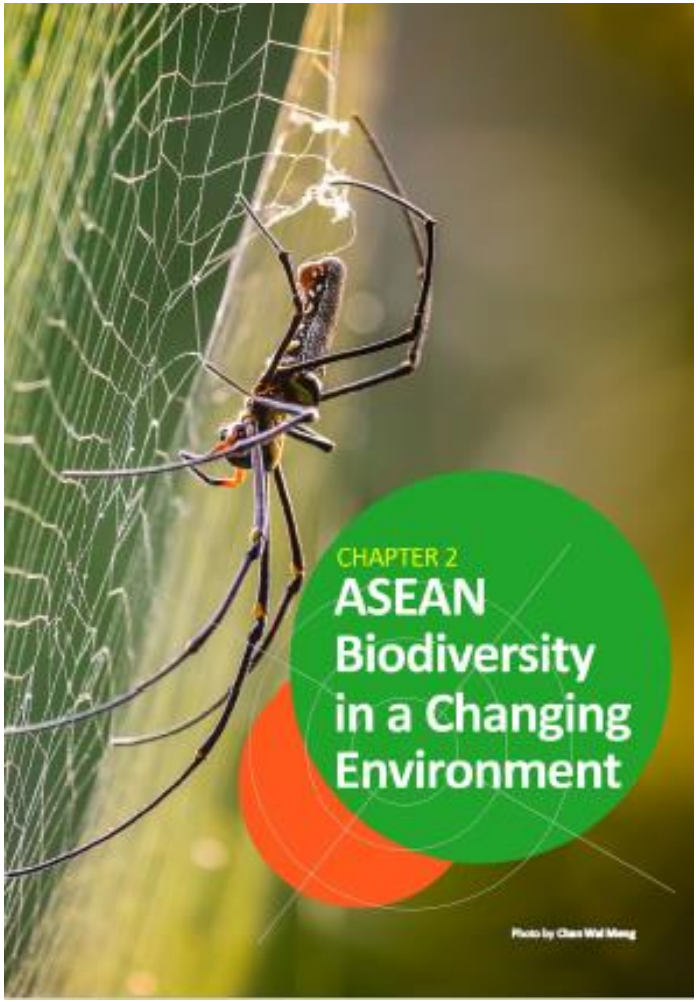
Resources in support of the Convention: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

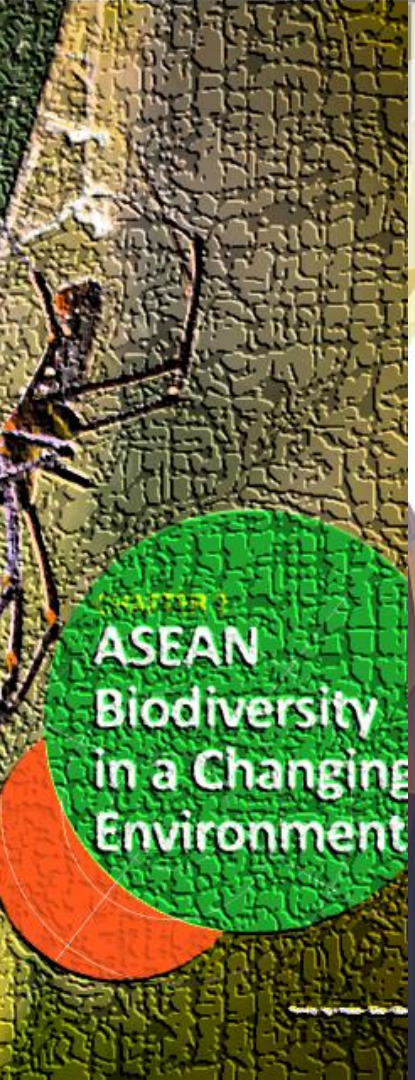
Recognition of the importance of biodiversity conservation has spurred financial allocations for various activities from local to the national level, although not always in an organized fashion nor streamlined with National Plans and Programs and the Strategic Plan for Biodiversity 2011–2020.

As a positive action towards this target, Viet Nam has identified a range of options to finance biodiversity conservation that includes PES, Carbon Finance, Reducing Emissions from Deforestation and Forest Degradation (REDD+), biodiversity offsets, and contributions from the private sector. The implementation of the Biodiversity Finance Initiative (BIOFIN) has lent a structure by which support for conservation activities lined up in the NBSAPs of four AMS are identified.

2A State of Ecosystems

- Presents a picture of the state of the region's forests, agrobiodiversity resources, inland waters, and coastal and marine resources
- Presents various programs and activities that are underway that aim to halt the degradation and loss of vital habitats and ecosystems





Forest:
Still an overdrawn natural resource

One ASEAN community progressing in harmony with nature

Healthy Environment

Forest Vitality

Ways Forward

- ASEAN Forestry Master Plan
- Landscape restoration and ecological and spatial principles in reforestation and rehabilitation programs
- Protection of old growth forests
- Reduced forest encroachment
- Green economy
- Effective protected area programs
- Forest certification and labelling
- Reducing Emissions from Deforestation and Forest Degradation, The Bonn Challenge, and pledges on restoration
- Ecological and green corridors

Status and Trends

- Increasing demand for wood, fuel, and paper products
- Infrastructure development and forest encroachment
- Agricultural expansion and plantation establishment
- 0.7% decrease in ASEAN's forest cover per year from 2000–2015
- Forest defragmentation and habitat loss
- By 2100, 13%–42% loss of ASEAN species
- By 2100, 70%–90% loss in habitat area

Agricultural Biodiversity:

Providing genetic diversity to enhance and sustain agricultural productivity

PRESSURES

- Genetic erosion
- Conversion of agricultural lands
- Decline in pollination services
- Invasive Alien Species

STATE

- 54 local breeds
  - 10 endangered
  - 5 extinct
- 71 local breeds
  - 1 endangered
- 52 local breeds
  - 3 endangered
  - 3 extinct
- Increased production through high-yielding varieties and breeds
- Agricultural area
  1990: 1.07M sq km
  2013: 1.31M sq km
- Forest area
  1990: 2.41M sq km
  2013: 2.11M sq km
- Urban population
  1961: 42M
  2013: 283M
- % Arable area
  1990: 64
  2013: 53
- Increased use of pesticides
  2006: 42,773 tonnes
  2013: 64,311 tonnes

Ways Forward

Strengthen *ex situ* and *in situ* conservation

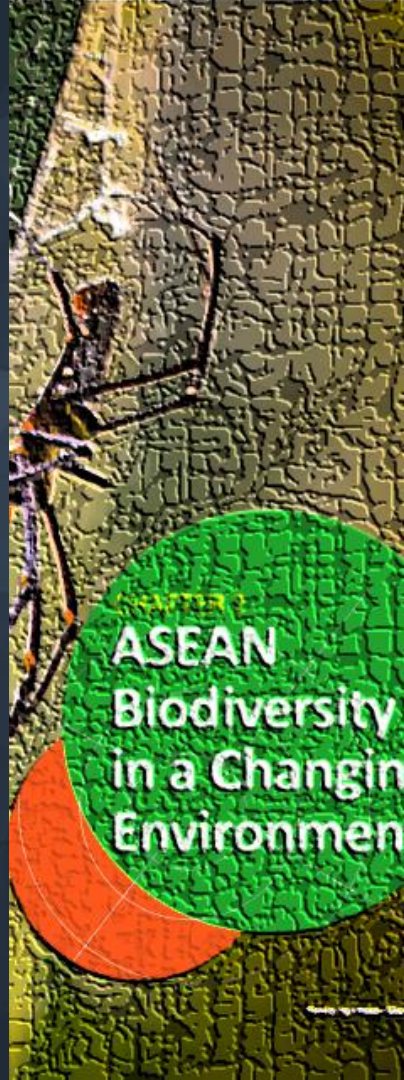
- Increased accessions of crop and livestock genetic resources in gene banks

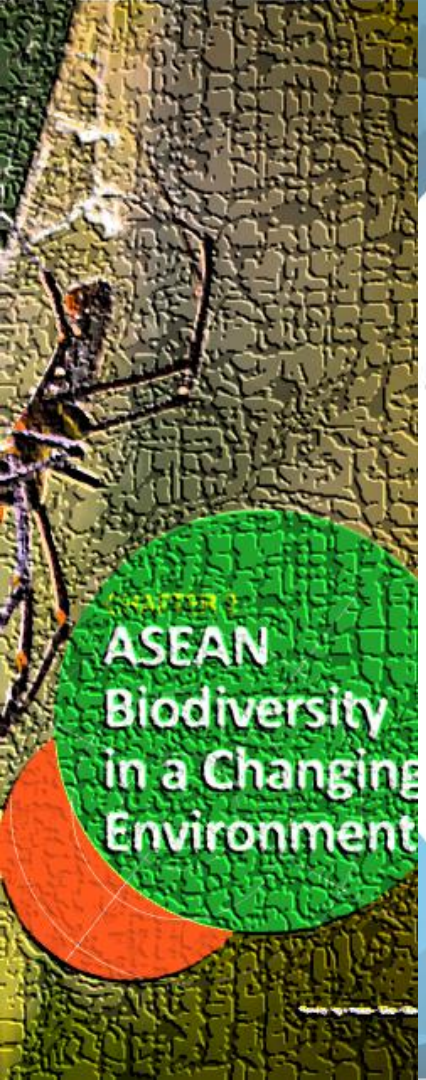
Make crucial information available

- *Ex situ* accessions
- *In situ* best practices
- Status and trends of pollinators

Develop/establish ASEAN Regionally Important Agro-Ecological Heritage Systems (ARIAHS)

Improve the ASEAN policy framework for agricultural biodiversity



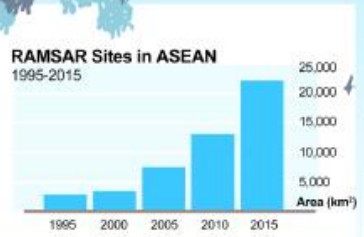


Inland Waters:
ASEAN's most threatened habitats

Threats to ASEAN's lakes, rivers, and peatlands

- Dams and water management/ use
- Industrial and household sewage
- Garbage and solid wastes
- Infrastructure development
- Vegetation clearance/ land conversion
- Invasive Alien Species
- Agriculture and aquaculture
- Destructive fishing and harvesting of resources

Source: AMS' Fifth National Reports to the CBD



Ways Forward

Establish a regional agenda that aligns social and political interests with responsible governance of inland waters.

Increase interest at all levels of governance in massive reforestation to reduce erosion and impacts from flooding and landslides.

Assess the importance and total economic value of inland waters and their benefits to the economy and the communities directly dependent on these areas for their livelihood.

Strengthen policies and laws on the management and sustainable use of inland waters and their resources.

Implement information dissemination program for policy makers and the general public on the values of inland waters in coordination with ASEAN Member States.

Employ an ecosystem-based approach to management.

ASEAN's Response

AMS with policies on wetland conservation

- Indonesia
- Malaysia
- Philippines
- Thailand
- Viet Nam

25% of the remaining tropical peat swamp forests in ASEAN are in designated protected areas.

Source: Biodiversity and Conservation of Tropical Peat Swamp Forests

8 out of 10 AMS are parties to the Ramsar Convention on Wetlands designating a total area of **18,007 sq km** of inland wetlands.

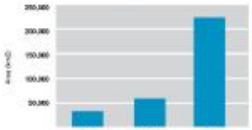
Source: Ramsar Convention on Wetlands

Coastal and Marine Biodiversity
Healthy coasts, healthy ASEAN

Fishing Down the Food Web
Source: Pauly et al, Science, 1998

ASEAN's Response

There is a notable increase in coastal and marine conservation initiatives demonstrated through a number of management strategies and sustainable development programs at the regional, national, and local levels.



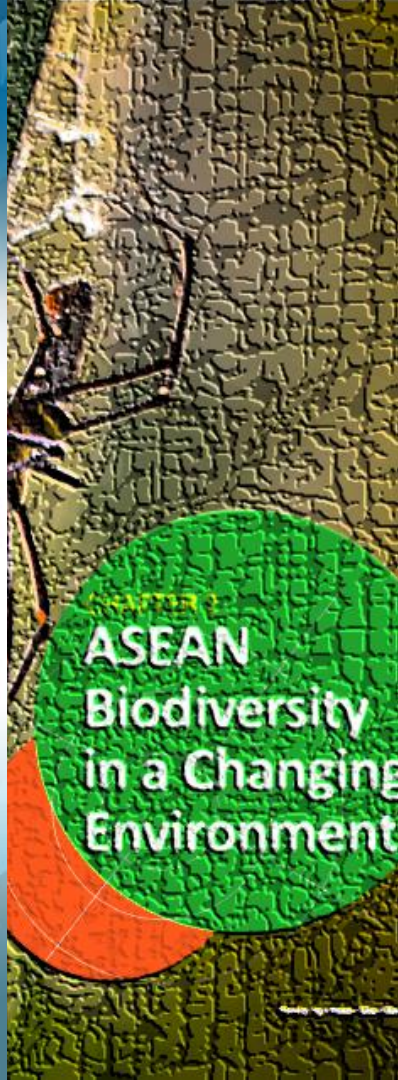
Marine areas protected, ASEAN, 1950-2014

- Marine protected areas
- Responsible governance
- Coral reef management initiatives
- Communication and education campaigns
- Local initiatives
- Ridge to reef implementation
- Coastal and marine partnerships

ASEAN MANGROVE NETWORK · BirdLife INTERNATIONAL · SEAFDEC · IUCN · The Nature Conservancy · WWF · CORAL TRIANGLE INITIATIVE · CONSERVATION INTERNATIONAL · PEMSEA

Ways Forward

- Establish networks of MPAs
- Improve fishery-related policies and their implementation
- Communicate the relevance and value of coastal and marine habitats
- Strengthen environmental education
- Capitalize on lessons learned
- Build an informed coastal and marine management system
- Strengthen responsible governance
- Streamline government operations
- Improve ecosystem health and resilience
- Safeguard ecosystem functions and interactions
- Create an informed and responsible civil society
- Develop sustainable consumption patterns
- Adopt an inclusive and integrated approach



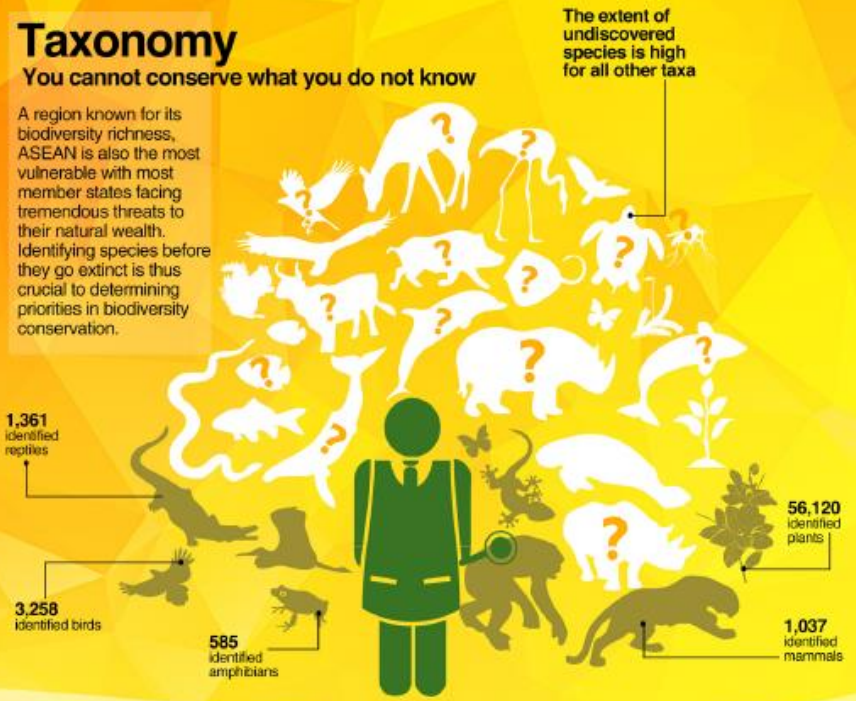
2B Cross-cutting Concerns

- Demonstrate challenges in the areas of taxonomy, access and benefit-sharing, wildlife conservation, invasive alien species, climate change, expansion of cities, and economics and business
- Presents opportunities for cooperation within the region and with partners in the international community and ecosystems

Taxonomy

You cannot conserve what you do not know

A region known for its biodiversity richness, ASEAN is also the most vulnerable with most member states facing tremendous threats to their natural wealth. Identifying species before they go extinct is thus crucial to determining priorities in biodiversity conservation.



Efforts to Strengthen Taxonomy in ASEAN

Ways Forward

- Assess the Global Taxonomy Initiative Regional Action Plan 2010–2015
- Chart the future of taxonomy in a Regional Action Plan for Taxonomy 2017–2020
- Survey taxonomy studies and research in ASEAN
- Develop a communication, education, and public awareness plan for taxonomy in ASEAN
- Make taxonomic information interoperable among databases in ASEAN Member States
- Improve *ex situ* programs in the region

Access and Benefit-Sharing

Ensuring the fair and equitable sharing of benefits from the utilization of genetic resources

ABS refers to the agreement between user and provider in the access of genetic resources and how benefits are shared between them.

- **Prior and Informed Consent (PIC)**
  seeks permission from appropriate representatives and shares information on the purpose for accessing genetic resources and traditional knowledge.
- **Mutually Agreed Terms (MAT)**
  states monetary and non-monetary benefits in exchange for access as agreed between user and provider.
- **Traditional Knowledge**
  refers to knowledge of indigenous peoples and local communities that are rich sources of information for bio-product development.
- **Compliance**
  is observance of obligations to ensure sharing of benefits when genetic resources leave a provider.

Opportunities

Research and Development: Advances in biotechnology

Potential Income Generation: Creation of products worth billions

Development of ABS Frameworks: More ASEAN Member States are acceding to the Nagoya Protocol and/or developing national ABS policies.

Ways Forward

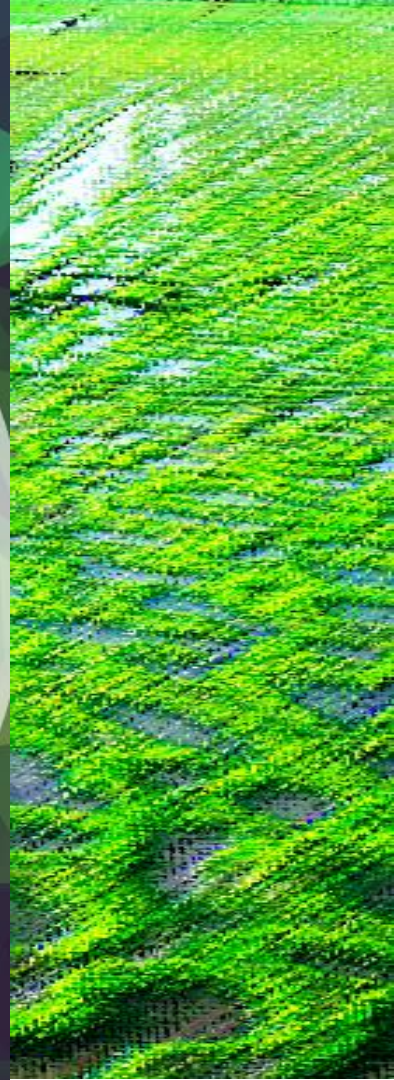
Raise public awareness and increase stakeholders' participation

Promote regional cooperation and capacity building

Implement legislation and administrative or policy measures on ABS

Formulate national regulatory and institutional frameworks on ABS

Protect genetic resources from misappropriation and misuse



Wildlife Conservation

Protecting ASEAN's natural heritage

Myanmar
HAWKSBILL TURTLE
Eretmochelys imbricata
Critically Endangered

Threats: tortoise shell trade, egg collection, and slaughter for meat, destruction of foraging habitat, hybridization with other species, entanglement of marine debris

Lao PDR
IRRAWADDY DOLPHIN
Orcaella brevirostis
Critically Endangered

Threats: direct mortality from fisheries interaction, vessel strikes, and habitat loss and degradation

Cambodia
INDIAN BLACK VULTURE
Sarcogyps calvus
Critically Endangered

Threats: demise of wild ungulates, intensification of agriculture, increased sophistication of waste disposal techniques, direct persecution and disease

Viet Nam
VIETNAMESE PAPHIOPEDILUM
Paphiopedilum vietnamense
Critically Endangered

Threats: ruthless collection for regional and international trade, exploitation for horticultural purposes, large exports, deforestation, fires and logging

Philippines
PHILIPPINE EAGLE
Pithecophaga jefferyi
Critically Endangered

Threats: forest destruction and fragmentation through commercial timber extraction and shifting cultivation

Thailand
SIAMESE CROCODILE
Crocodylus siamensis
Critically Endangered

Threats: Commercial hunting, illegal collection of eggs and crocodiles, habitat loss and degradation, incidental capture/drowning in fish gear

Singapore
FRESHWATER CRAB
Johora singaporensis
Critically Endangered

Threats: stream acidification

Malaysia
RED LAUAN
Shorea acuminata
Critically Endangered

Threat: habitat loss

Indonesia
SUMATRAN RHINOCEROS
Dicerorhinus sumatrensis
Critically Endangered

Threats: poaching and reduced population viability

Brunei Darussalam
MALAYAN SUN BEAR
Helarctos malayanus
Vulnerable

Threats: habitat loss and commercial hunting

ASEAN's Response

- Develop and implement wildlife conservation laws
- Increase area and number and improve effective management of protected areas
- Strengthen cooperation on law enforcement and illegal wildlife trade
- Prepare endangered species action plans
- Increase transboundary conservation measures
- Increase research on species at risk
- Improve communication, education, and public awareness campaigns
- Develop breeding and captive propagation programs

Allies in Wildlife Conservation

ADB · CITES · INTERPOL · TRACE · FREELAND · TRAFFIC · UNODC · ASEAN · WILDAID

Invasive Alien Species: Keeping intruders out

Top 5 Invasive Alien Species in the ASEAN Region

Common Pathways of IAS

- Flooding and other natural disasters
- Biological control
- Breeding and propagation
- Trade
- Escape from confinement
- Fisheries
- Garden waste disposal
- Hitchhiker
- Horticulture
- Intentional release
- Landscape improvement
- Medicinal use
- Ornamental purposes
- People foraging
- People sharing resources
- Research
- Smuggling

Impacts of IAS

- Limit the availability of sunlight
- Compete for nutrients
- Impede fishing activities and water transport
- Clog waterways
- Lower dissolved oxygen levels
- Heighten habitat loss
- Magnify costs of clean-up activities
- Provide cover for crocodiles
- Intensify species reduction
- Provide refuge for snakes
- Block river traffic
- Cause bushfires
- Cause fatalities due to leaf toxicity
- Displace indigenous forage/grass species
- Increase cost of farm management
- Harbor agricultural pests
- Cause forest fires
- Affect agricultural lands and fisheries
- Hinder growth of native plants
- Disturb aquatic life
- Require more funds for prevention, control, and elimination
- Magnify ecosystem pollution due to use of chemical pesticides
- Cause massive losses in rice production
- Pose danger and health hazards to humans

Ways Forward

Capacity Building on Taxonomy
Effective control and management measures can only be implemented when exotic species are correctly and properly identified.

Information Sharing through the ASEAN CHM
ASEAN Member States should make all IAS-related information available in information sharing platforms such as the Clearing-House Mechanism.
CHM

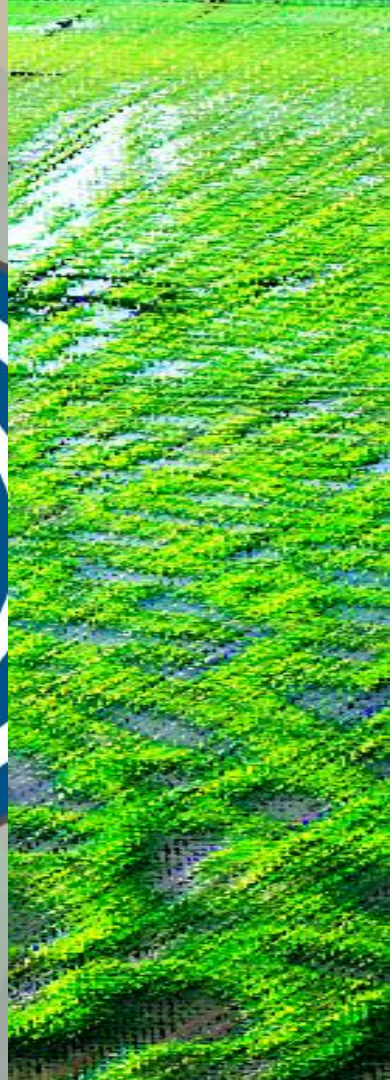
National Invasive Species Strategy and Action Plan (NISSAP)
To prevent the spread of IAS in natural habitats, all ASEAN Member States should have their own NISSAPs. To date, only Cambodia, Indonesia, and the Philippines have drafted their NISSAPs.

Awareness Raising
Understanding the impacts and implications of IAS can help intensify efforts on IAS prevention, control, and eradication.

Research
In-depth research, survey, and analysis of priority IAS in the ASEAN region, including its pathways of introduction, should be conducted.

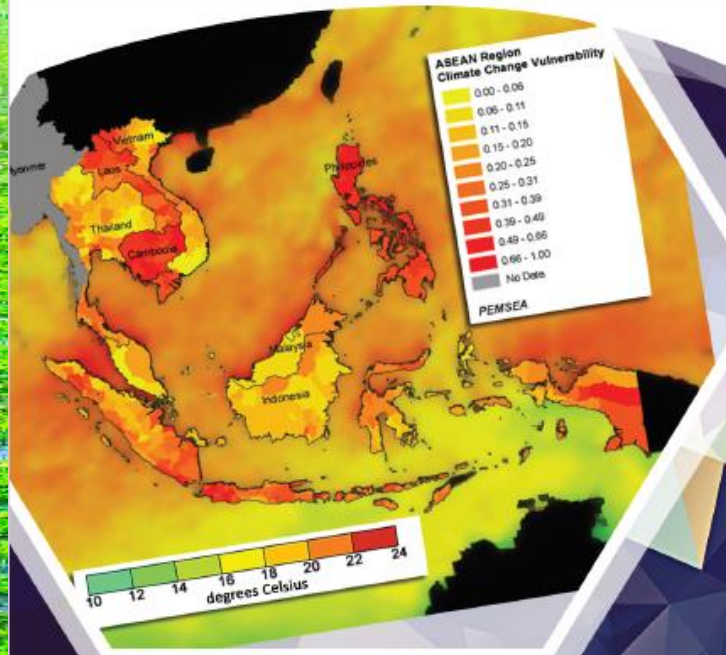
Aichi Biodiversity Target 9

By 2020, invasive alien species and their pathways are identified, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.



Climate Change and Biodiversity

Seeking solutions to ensure resiliency



Ways Forward

- Promote new knowledge, practices, and technologies to adapt to climate change
- Innovate to mitigate the negative impacts of climate change
- Implement disaster risk reduction plan consistent with National Biodiversity Strategy and Action Plans
- Provide local and national action plans complemeting the ASEAN Socio-Cultural Community blueprint
- Enhance projects and policies on Reducing Emissions from Deforestation and Forest Degradation and biodiversity conservation

Status and Trends

- Global temperature increase of 0.4° to 2.6°C by 2055 and 0.3° to 4.8°C by 2090
- 100% of terrestrial AHPs are vulnerable to climate change
- 100% of marine AHPs will be affected
- Industry and transportation increase carbon pollution levels
- Distribution of plant and animal species shifts to higher altitude
- Altitudinal migration of forests, extinction of many species, and reduction in diversity of ecosystems
- Adverse impacts on terrestrial and coastal marine ecosystems, food production, human health, and livelihood, among others

Cities and Biodiversity: Nature in tight spaces

- ✓ Conserving small areas of forests, floodplains, estuaries, and coastlines protects species and strengthens ecosystems services.
- ✓ Maintaining biodiversity keeps cities cool.
- ✓ Nature areas provide habitats for species.
- ✓ Greening idle areas with urban farming helps supply food and employment, and promote appreciation of biodiversity.
- ✓ Green areas, such as parks, clean the air and calms the body and mind.

Challenges

Many cities in the ASEAN region were established near biodiversity – rich habitats. Unregulated use of natural resources have depleted these habitats, and, thus, are now categorized as critical biodiversity habitats.

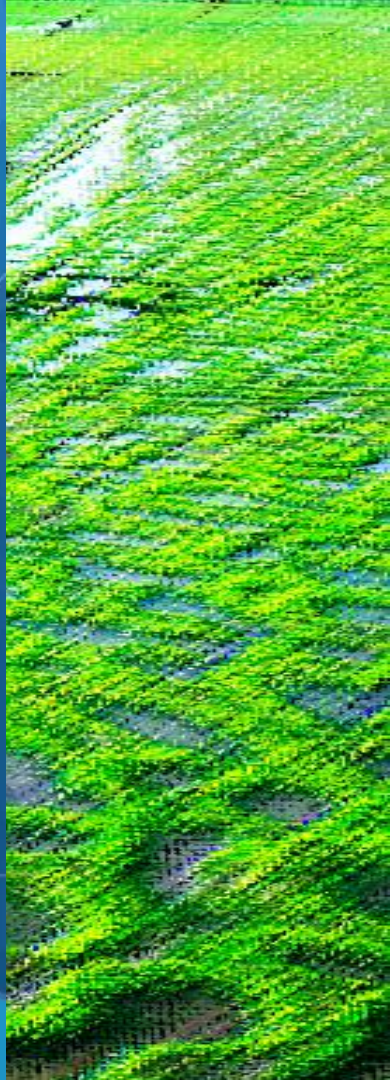
Rapid urban growth could lead to more land conversion.

Poor understanding of the benefits of having rich biodiversity in the city.

Environmental considerations, including biodiversity, are accorded a low priority compared to economic and industrial progress.

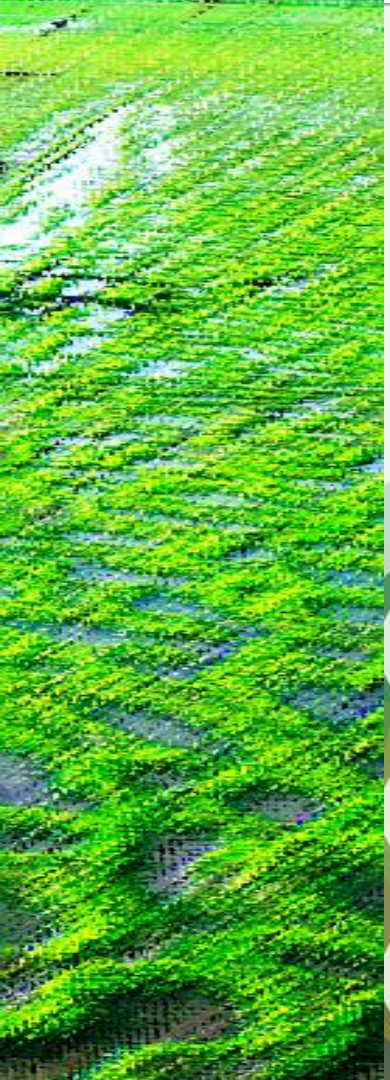
ASEAN'S RESPONSE

- ASEAN Initiative on Environmentally Sustainable Cities
- ASEAN Environmentally Sustainable City Award
- Singapore Index on Cities' Biodiversity



Valuing Biodiversity:

Mainstreaming biodiversity in economy and business



Biodiversity valuation tools

- The Economics of Ecosystems and Biodiversity (TEEB)
- National Capital Accounting (NCA)
- Payment for Ecosystem Services (PES)

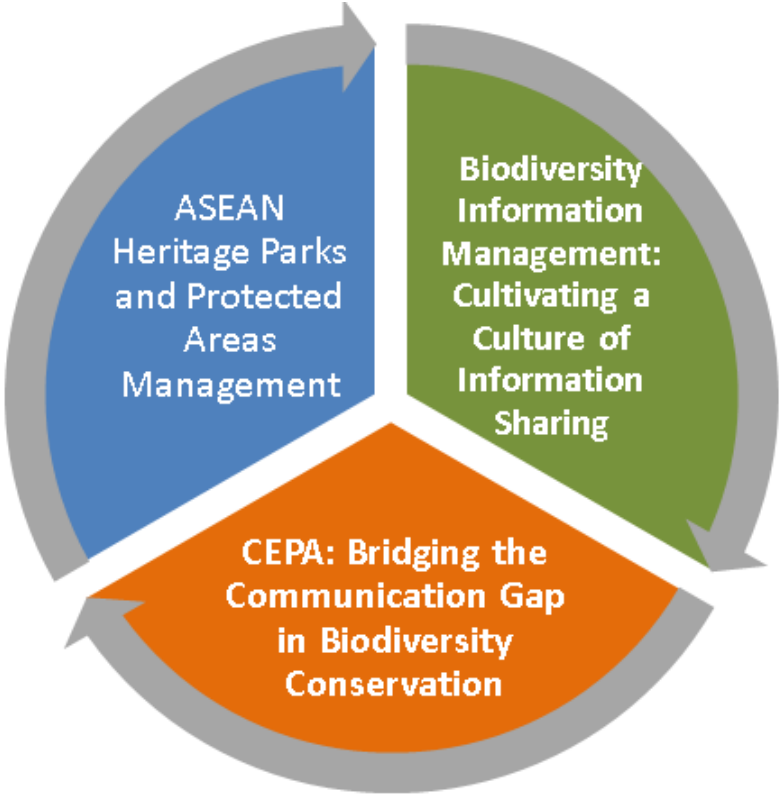
Challenges

- Lack of information of the economic value of biodiversity
- Insufficient awareness of the ecological and economic values of biodiversity in the business community
- Inadequate prioritization of business and biodiversity in national communication, education, and public awareness programs
- Limited involvement of the business sector in biodiversity conservation
- Lack of ASEAN-wide network of businesses with common biodiversity goals

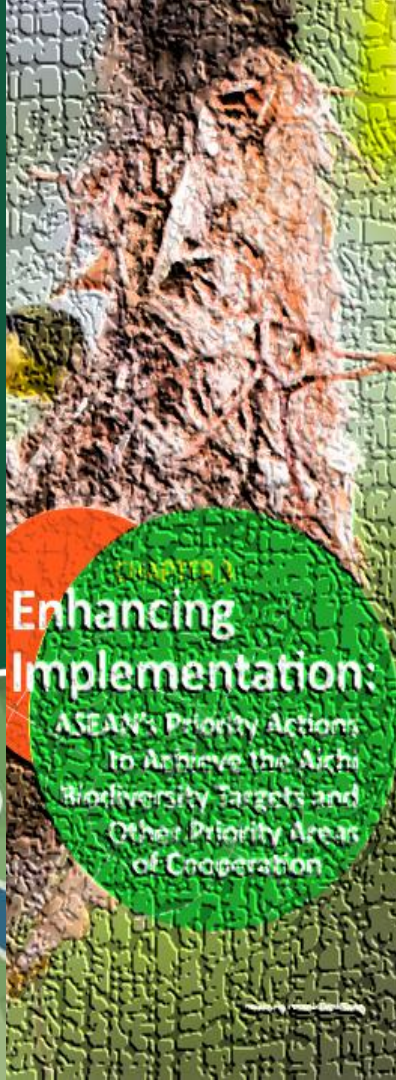
Ways Forward

- Emphasize that biodiversity is everybody's business.
- Mainstream biodiversity and sustainable development at all levels of governance.
- Ensure that decision makers have access to scientifically credible information that accounts for the total value of ecosystem benefits.
- Facilitate dialogues among relevant stakeholders on the benefits from biodiversity.
- Educate consumers on the value of biodiversity.

Programs and projects supported by various partners and donors with a total regional portfolio of around USD 50M




ASEAN Heritage Parks and Protected Areas:
Enhancing effective management
40 AHPs
803,955 sq km of PAs
4 Marine AHPs
Peatland AHP 1
2,587 Protected Areas in ASEAN
Ecosystems range from coral reefs and marine ecosystems to snow-covered mountaintops
6 AHPs/ World Heritage Sites
5 AHPs/ Ramsar Sites
THREATS
Encroachment
Illegal logging
Invasive Alien Species
Poaching
Mining
Ways Forward
Raise public awareness
Mobilize additional financial resources
Implement alternative livelihood opportunities
Seek active participation from indigenous peoples and local communities


Enhancing Implementation:
ASEAN's Priority Actions to Achieve the Aichi Biodiversity Targets and Other Priority Areas of Cooperation

Biodiversity Information Management:

Cultivating a culture of information sharing

Clearing-House Mechanism (CHM)

A biodiversity information platform that facilitates information sharing to support the conservation and management of biological resources

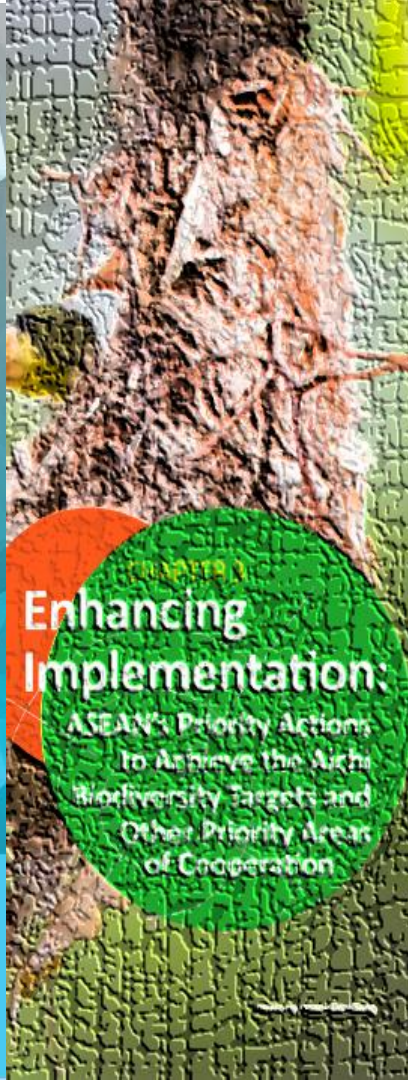
Challenges

- Species and protected area data do not use common format
- Limited technical capacity and financial resources
- Language barriers
- Limited sharing of species and PA-related data

Ways Forward

- Work with natural history museums
- Maintain global partnerships
- Continue to enhance capacities on CHM management and data organization
- Continue developing biodiversity information management tools
- Engage academic institutions as part of network of data partners
- Pursue CHM content enhancement activities
- Contribute data and policies in global scientific discussions
- Promote a culture of biodiversity information sharing
- Encourage AMS to support the ASEAN CHM


CEPA: Bridging the communication gap in biodiversity conservation
National communication, education, and public awareness (CEPA) strategies
Biodiversity champions from various sectors
ASEAN Regional Strategy
Partnerships among biodiversity communicators
Strategic and sustained communication efforts
Biodiversity experts
Conservation organizations
Scientific community
General Public
Language barriers
Lack of political will
Limited human resources
Lack of biodiversity information in education curricula at all levels
Unrealistic communication goals
Limited funds
Abundance of competing messages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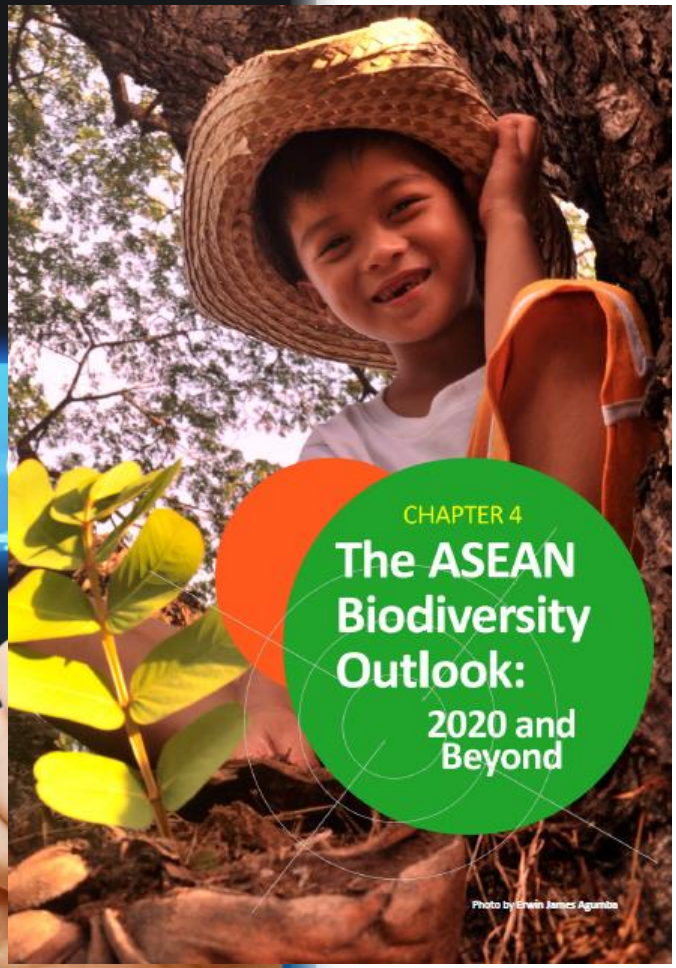


- highlights ASEAN's priority actions and strategies beyond 2015.
- Alignments with the ASEAN Socio-Cultural Community Blueprint 2025 , the Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets and the ASPEN
- summary of key actions and recommendations to accelerate efforts in the ASEAN region to achieve biodiversity targets by 2020 and beyond.

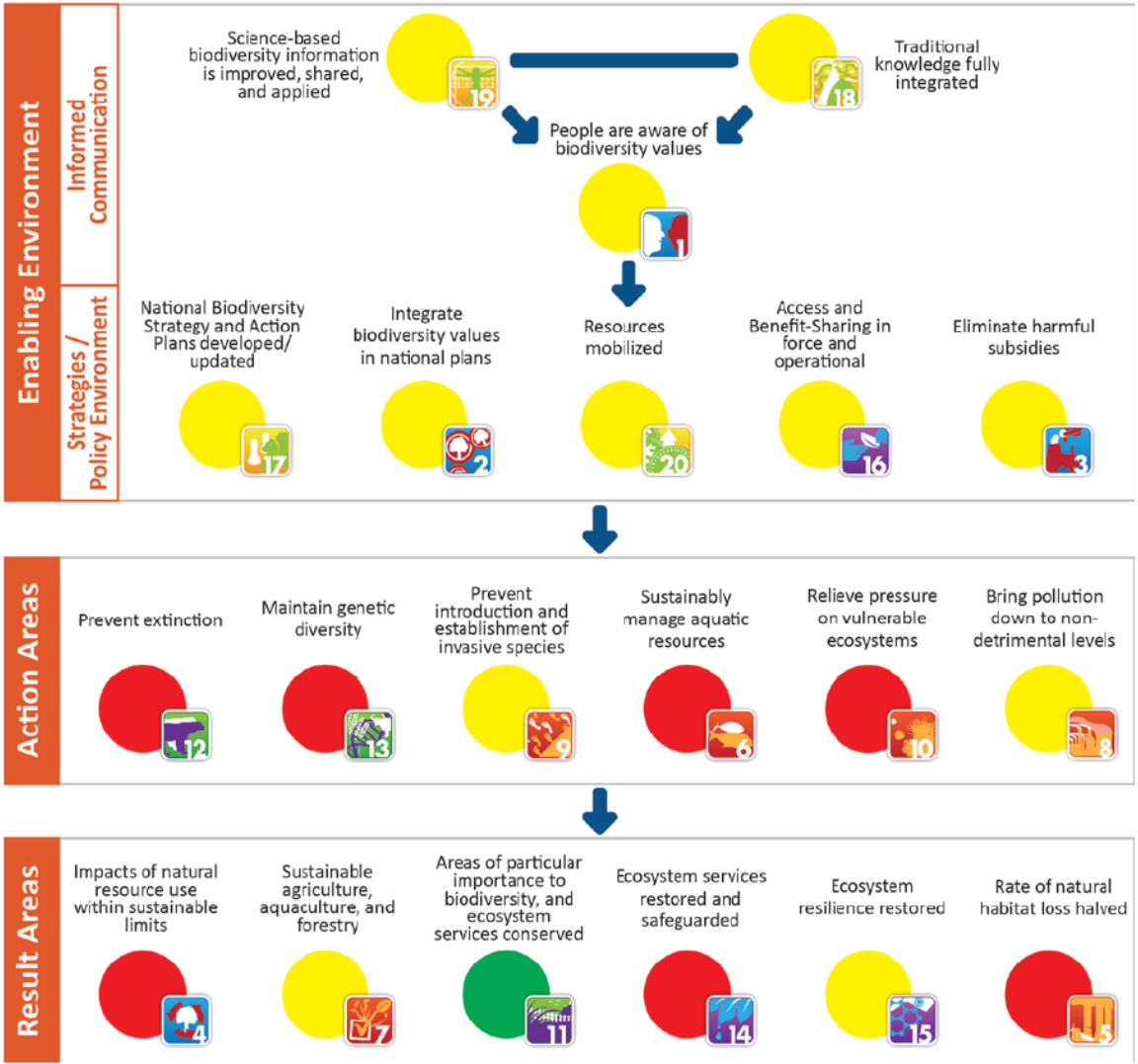
A common understanding of biodiversity and the consequences of its loss

AMS with large geographic jurisdictions are key to achieving area-based Aichi Biodiversity Targets.

There is a need to ensure effective management of protected areas as well as establish functional protected area networks.

The regional conservation community has to expand beyond the usual conservation support groups

Promote a shared responsibility of the region's biodiversity



The ABO 2 recommends a revised sequence by which the Aichi Biodiversity Targets are "ASEANized", implementing them through synergies applicable to the region such that:

1) an enabling environment is established with information and policies in place (T 19 & 18; T 17,2,20,16,3) ;

2) conservation actions are implemented (T 12, 13, 9, 6,10, 8; and

3) having items 1 and 2 in place will facilitate the delivery of result areas, such as T 4, 7, 11, 14, 15, 5

THANK YOU

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